Challenges and opportunities for using universal service funds to bridge the digital divide

Study period 2022-2025

Question 4/1

Economic aspects of national telecommunications/ICTs

Question 5/1

Telecommunications/ ICTs for rural and remote areas

Interim deliverable 2024

Executive summary

This document presents the joint interim (annual) deliverable for Question 4/1, "Economic aspects of national telecommunications/ICTs", and Question 5/1, "Telecommunications/ICTs for rural and remote areas". It concerns the challenges and opportunities associated with using universal service funds to bridge the digital divide.

1. Introduction

Any strategy to bridge the digital divide must address certain critical challenges that impede universal access to telecommunications. Four main issues are involved:

1. financing the information and communication technology (ICT) infrastructure;
2. financing connectivity;
3. providing the energy needed for ICT networks, infrastructure and ICT equipment;
4. ensuring that people, particularly in rural, remote and marginalized communities have access to ICTs comparable to the access available in urban areas.

Furthermore, it must be borne in mind that availability, affordability and accessibility are the raison d'être for a universal service fund (USF).

A solution to the above-mentioned challenges, particularly for rural and remote areas will go a long way towards connecting the unconnected. It would clear the way for powerful technologies and applications that are a catalyst for key social and economic activities. It would also bring the world closer to achieving the United Nations Sustainable Development Goals (SDGs).

It is true that universal service policies have traditionally been geared towards basic telecommunication infrastructure. However, the advent of broadband services has brought about a broader understanding of the scope of universal service. This, along with advanced telecommunications technologies, has led to a reform of universal access policies in a number of countries.

Extending high-quality broadband infrastructure to rural and remote areas is crucial to bridging the digital divide. USFs are important as a source of financing, complementing investment by commercial and non-profit players in infrastructure projects and the development of innovative technologies to serve communities in rural and remote areas.

To gauge the extent to which USFs can assist in bridging the urban-rural digital divide and explore promising models to make USFs more effective, the ITU Study Group 1 Rapporteur Group for Question 5/1 on telecommunications/ICTs for rural and remote areas and that for Question 4/1 on economic aspects of national telecommunications/ICTs on 15 May 2023 held a joint workshop entitled "Challenges and Opportunities of the Use of USF for Bridging the Digital Divide". The objectives of the workshop were as follows:

- discuss strategies for expanding rural and remote infrastructure using USF mechanisms;
- explore how USFs can be used to promote digital inclusion and bridge the digital divide;
- share national experiences and best practices;
- examine sustainable and cost-effective solutions for improving broadband and digital infrastructure in rural and remote areas.

This document is based on the presentations made at the workshop and the ensuing discussions, and refers to relevant contributions (papers) on USF received from ITU-D members participating in the work under Question 4/1 and Question 5/1. It shares insights that ITU Member States will be invited to consider with a view to ensuring that national USFs play an effective role in financing work to bridge the digital divides. The document addresses the following aspects:

- national economic strategies on expanding rural and remote infrastructure to bridge the digital divide using USF mechanisms;
- USF funding sources and the focus of USFs;
- governance models and implementation;
- disbursement models;
- universal service programmes to bridge the digital divide;
- considerations in the selection USF business models, case studies on economic strategies;
- USF cost modelling;
- resources relevant to USFs that are provided by the ITU Telecommunication Development Bureau (BDT).

2 National economic strategies on expanding rural and remote infrastructure to bridge the digital divide using universal service mechanisms or a universal service fund

Participants were given an overview of national and corporate experiences and strategies for bridging the digital divide through universal service strategies, including USFs, with presentations from the Russian Federation, China, the United States of America, Egypt, the United Kingdom, Deloitte, the Association for Progressive Communications, GSMA, and the Internet Society.[1] Key issues covered included legislation and regulations.

In the presentations and during the ensuing discussion, country representatives described how USF mechanisms are being put in place with legislation governing the action of administrations and telecommunication operators in setting up and operating USF mechanisms and universal service programmes.

In those countries the creation and operation of a USF is now mandated by legislation, taking the form of an act of the legislature governing telecommunication/ICTs, a standalone law, or subsidiary legislation based on an enabling clause in a standalone telecommunication law. For example, in the United States of America the Telecommunications Act of 1996 amending the Communications Act of 1934 is the basis for the current USF and its operations. In China, the basis is the Universal Service Policy. In the Russian Federation, the federal government created a universal service fund in 2005 by decree. The United Kingdom does not have a universal service fund *per se*, but a policy, law and licence regime puts universal service obligations (USOs) on operators. In Egypt, Telecom Act No.10 of 2003 sets out the framework

[1] Presentations at the joint workshop **on challenges and opportunities in using USFs to bridge digital divide**

for the creation and operation of the universal service fund.

Workshop participants saw how these different enabling instruments mirror the diverse approaches taken in the respective countries with regard to the creation, operation and regulation of USFs and the practice relating to universal service across the world. Thus, GSMA reports that at least 51 out of 54 African countries have introduced laws on universal services[2]. Universal access frameworks in Latin American Countries have been highlighted in a joint report by the Internet Society and the Alliance for Affordable Internet.[3] The various approaches can be broken down broadly as follows: those in which the universal service is governed through legislation and policy, and those where that is done at the policy level only. Common to all of them is that the laws, regulations and policies have the objective of seeing to the provision of telecommunication/ICT/communication services, and ensuring that all citizens, regardless of their place of residence, have access to the services. This is also reflected in the contributions to the of the Rapporteur Group meetings for Questions 4/1 and 5/1.[4]

With regard to the policy-based approach, a common practice that emerged from the workshop[5] involves the imposition of USOs on operators through the licensing documents or mechanisms:

- In the Russian Federation, the government imposed a USO on an operator occupying a significant position in the public communications network, covering the territories of at least two-thirds of the regions of the Russian Federation.
- Universal service obligations were legislated in the United Kingdom as early as 2018, recognizing the right of homes and businesses to expect a 'decent' and affordable broadband connection. This was implemented by OFCOM.
- In Egypt, the regulator imposed specific regulatory obligations on operators (fixed and mobile).
- Other countries, including Kenya, also highlighted that universal obligations are a requirement in their jurisdictions.

Despite the diversity of approaches, the value of such strategies is broadly recognized. USFs properly speaking are to be found in various countries in different regions. Funds vary as regards their sources of funding, focus, governance model, and programming. This document explores the different approaches, giving policymakers an overview of best practices in pursuing universal service goals and contributing to the success of ITU's objective of achieving universal, meaningful connectivity.

3 Funding sources

The sources of funds for USFs can include:

- national budget allocations;
- levies on telecommunication operators' revenues from phone calls, messaging services, and data usage;
- a percentage of telecommunications license fees;
- government grants;
- fines and penalties imposed on operators for regulatory non-compliance (typically, a percentage);
- spectrum auctions;
- private sector donations;
- international development institutions, for example the World Bank;
- public-private partnerships (PPPs);
- interest earned on universal service fund holdings.

The most common source of funding is levies on telecommunication operators:

- In the Russian Federation, the USF is financed by mandatory deductions from operator revenues, including penalties for late or incomplete payment of these deductions, and other sources of funding that are not prohibited by law.
- In China, the USF is financed by contributions from operators and institutional government funding.
- In the United States of America, the USF is funded by contributions from wireline and wireless telecommunications service providers, interconnected VoIP operators, and other providers of telecommunications.
- In Egypt, operators contribute a percentage of their revenue to the USF to facilitate essential facilities and provide access to infrastructure.

The main categories of sources discussed at the workshop thus reflect what has been reported in the reports cited above from GSMA[2] and from the Alliance for Affordable Internet and the Internet Society.[3]

4 The focus of USF

As noted during the workshop discussions,[6] there is a shortage of information about how countries identify areas and communities that should be targeted by universal service interventions. Although rural and remote areas were identified in general terms, the precise methodology to be used in such a determination were not clearly outlined. Accordingly, there is a risk that universal service funding might be allocated on a subjective and unscientific basis.

In some cases,[7] private consulting firms have assisted regulators and governments in identifying the priorities for a USO intervention, recommending the amount of funding and a financing mechanism. The process involves a techno-economic analysis of the profitability of an optimal hybrid broadband infrastructure deployment for

2 GSMA, *Universal Service Funds in Africa. Policy reforms to enhance effectiveness*. 2023. Page 6
3 Alliance for Affordable Internet and Internet Society, *Universal Service and Access Funds in Latin America and the Caribbean*. 2021
4 Document SG1RGQ/160-E from Algeria; Document SG1RGQ/166-E from the Dominican Republic; Document SG1RGQ/27-E from Ghana; Document SG1RGQ/85-E from Tanzania
5 Workshop report, https://www.itu.int/md/D22-SG01-C-0135/en (rev2)
6 Workshop report, https://www.itu.int/md/D22-SG01-C-0135/en (rev2)
7 Workshop report, https://www.itu.int/md/D22-SG01-C-0135/en (rev2)

a given geographical area (see section 10 below on cost modelling for USF).[8]

In summary, the potential beneficiaries of USF intervention are primarily rural, remote, and underserved areas, with the nature of the services varying according to local needs. Examples include:

- In the Russian Federation, the following universal communication services are being provided:
  - mobile communication services in more than 2 000 localities;
  - data transmission services;
  - free Internet access using Wi-Fi access points in more 14 000 settlements;
  - telephone services using payphones;
  - emergency telecommunication services.
- In the United States of America, the effort is channelled through four programmes: the Connect America Fund (CAF, formally known as High-Cost) supports services in rural and other high-cost areas; Schools and Libraries (also known as E-Rate) provides discounted communications services to eligible schools and libraries; Lifeline (for low-income consumers) helps low-income consumers pay for telephone and broadband services; and Rural Health Care provides discounted telecommunications and broadband services to eligible healthcare providers. For the E-Rate and Rural Health Care programmes, service providers get reimbursed for the discounts they offer on services to schools, libraries, and healthcare institutions and for the costs of any equipment supplied to schools and libraries.
- In Egypt, the focus is not limited to rural areas and rural coverage, although a significant portion of the funding is indeed dedicated to enhancing rural coverage. The aim is to ensure comprehensive service provision throughout the country, and accordingly compensation is allocated to providers and operators who deliver telecommunication services to the residents of economically challenged regions and areas that are without service.
- In China, the Village Informatization Programme (VIP) aims to balance access, demand and supply of digital services.

5 USF governance models and implementations

Different countries have different governance models for USFs. The most common models include:

- The centralized model: a single organisation, usually a government agency, manages the fund and makes decisions on disbursements.
- The decentralized model: several entities, such as regional or local authorities, manage the fund and make decisions on disbursements.
- The combined or hybrid model: a combination of the centralized and decentralized model, with a central entity overseeing the fund but delegating decision-making to regional or local entities.
- The independent administrator model: a non-profit organisation or private company manages the fund and handles disbursements decisions.
- The PPP model: the fund is managed through a collaboration between government and private sector entities, with joint responsibility for making disbursement decisions.

These governance models can be used individually or in combination to manage telecommunication/ICT USFs and ensure effective disbursement of funds to achieve universal access and service goals. The most favoured option for managing USFs are the government agency model and the combined model, where a national regulatory authority collaborates with or delegates functions to another entity. This preference is evident from the following examples:

- In the United States of America, the Federal Communications Commission (FCC) is responsible for the overall management and oversight of the USF, including all policy decisions. The Universal Service Administrative Company (USAC), an independent, competitively neutral, not-for-profit entity, oversees the day-to-day operations. The USAC collects contributions and distributes funds, provides program support, and administers USF programmes.
- In Russia, Rostelecom, the biggest digital service provider in the country, was designated as the single operator for providing universal communication services.
- In China, several carriers participate in providing universal service, including basic communication services, access to broadband and Internet, and digital TV.

6 Disbursement from USF

There are different models of disbursement from USFs, and these include:

- **The grant model**: funds are disbursed through grants to selected projects or initiatives on the basis of defined criteria.
- **The loan model**: funding is disbursed through loans to eligible deserving projects on favourable terms.
- **The subsidy model**: subsidies are provided directly to service providers.
- **The voucher model**: coupons are distributed to end-users and can be redeemed for ICT/ telecommunication services or devices.
- **The PPP mode**l: funds are disbursed to projects run by partnerships between government and private sector entities to develop and/or deliver ICT/ telecommunication infrastructure and services.
- **The bidding model**: funds are allocated through a bidding process, where service providers submit bids to receive funding for specific service areas or projects.

[8] Deloitte presentation **to workshop on identifying priority areas for USF intervention.**

These models can be used individually or in combination to disburse funds from USFs and promote the development of ICT/telecommunication infrastructure and services.

It emerged from the discussion that the subsidy model was the most widespread, frequently combined with variations, as in the case of the United States of America:

- Under the E-Rate and Rural Healthcare programmes, service providers get reimbursed for discounts on services provided to schools, libraries, and healthcare institutions. Providers also get compensated for the cost of any equipment supplied to schools and libraries.
- Carriers participating in the High-Cost programme submit bids or accept offers of a specified amount of support to deploy broadband to eligible areas within a defined timeframe.
- Under the Lifeline programme, service providers get reimbursed for discounts to low-income consumers.

The United States of America also has 'appropriated' programmes, which are funded separately from the USF to address connectivity needs as they arise. For example, during the COVID-19 pandemic, the federal Congress appropriated funds to support the Emergency Connectivity Fund (ECF), the COVID-19 Telehealth Program, and the Affordable Connectivity Program (ACP). USAC manages these programmes, but the funding does not come from the USF.

The ECF also provided funding for services and devices for schools and libraries, including for Wi-Fi hotspots, routers and modems. The COVID-19 Telehealth Program awarded funding to eligible health-care providers for the purchase and use of eligible devices and services. Both programmes filled gaps that were highlighted by the pandemic crisis.

The FCC is currently reforming its universal service programme. As part of the reforms, the FCC seeks to streamline and modernise the programme by promoting efficiency, limiting waste and moving towards a system that encompasses broadband and telecommunications services.

In 2022, E-Rate provided funding for services to more than 128 000 beneficiaries. More than 6.4 million locations were built with CAF funding, including locations with broadband speeds of 1 gigabit or better; nearly 7.5 million households participated in Lifeline; and the Rural Health Care Program provided connectivity support to more than 14 000 health-care providers.

7 Universal service programmes to bridge the digital divide

The use of USFs to bridge the digital divide has evolved over the years, with funds being allocated for a variety of purposes, including:

- **Infrastructure development**: financing the construction of broadband infrastructure in underserved and rural areas[9], including mobile coverage to underserved areas.
- **Public access points**: establishing public access points in Internet cafés, community centres and libraries.
- **Subsidizing service costs**: providing financial support to make telecommunication services affordable for low-income households.
- **Supporting digital programmes**: funding digital literacy programmes, training people in basic computer skills and literacy and Internet usage and promoting digital inclusion among marginalized groups.
- **Funding device donation programmes**: low-cost or free devices for those who cannot afford them.
- **Funding e-government services**: enabling citizens to access government services online.
- **Connecting public institutions**: enhancing connectivity for public institutions such as schools and libraries.
- **Innovative technology projects**: funding research and development of new technologies and innovative solutions to bridge the digital divide.

The use of USFs in these ways has helped to close the digital divide and promote digital inclusion, ensuring that more people can access and benefit from the opportunities created by the unfolding digital universe. In so doing, however, it is important to ensure that people are equipped and incentivized to adopt and use ICTs effectively. This means that efforts need to be focused on:

- Implementing policies and regulations to support access to and participation in the digital economy.
- Investing in infrastructure development, such as broadband and ICT hubs.
- Offering assistance with broadband access and connectivity, including affordable high-quality plans and reliable service options.
- Promoting digital skills training and education to enhance digital literacy within the population, including persons with disabilities.
- Encouraging the adoption of ICT applications in various sectors, such as agriculture, health, and finance.
- Supporting local tech startups and entrepreneurs through funding and mentorship programmes.
- Putting cybersecurity measures in place to protect digital assets and users from digital threats and providing guidance on online safety and privacy.

Examples include the following:[10]

Russian Federation: the USF has been used to provide financial support for the provision of universal communication services, including:

- mobile communication services in more than 2 000 localities;
- data transmission services;

[9] Document SG1RGQ/79 (Argentina), "Use of universal service funds for infrastructure deployment"

[10] Workshop report, https://www.itu.int/md/D22-SG01-C-0135/en (rev2)

- free Internet access through Wi-Fi access points in more 14 000 settlements;
- telephone services using payphones;
- emergency telecommunication services.

China: funds have been used to pay for the VIP, trying to balance access, demand and supply of digital services.

United Kingdom: the USO is being used to achieve a number of objectives.

- The client connection must allow at least 10 Mbit/s for downloads and 1 Mbit/s for uploads, with latency sufficiently small to allow voice calls. It also needs to be technologically neutral.
- Anyone still unable to get a broadband connection at home can request service from BT or KCOM, the two designated communication providers under the USO, depending on the location. Customers are charged the same rate as elsewhere in the United Kingdom, with a cap at GBP 54 per month.
- There is a range of different strategies to provide high-quality broadband. Currently, around 99 per cent of premises are covered by 4G. For 5G, the preference by default is for market mechanisms, so Ofcom does not provide for an application-based process. Coverage by 5G is available at 48 to 64 per cent of premises outdoors.
- There is some targeted use of coverage obligations, incorporated in the licensing terms for some mobile broadband service providers, to provide coverage in certain areas of the country.

The diversification of USF programmes described above is also evident in some contributions submitted to the Rapporteur group meetings for Questions 4/1 and 5/1.[11]

8 Using USF to move from ICT access to ICT use

USFs have also been used to stimulate adoption and use of ICT services through digital literacy training, content development, development of applications and services, device subsidies, public access points, digital entrepreneurship, e-government services and innovation hubs.

The workshop session on the use of USFs emphasized that funding should improve both access and the effective use of ICT. In the presentations and the ensuing discussions, the following activities were identified as critical:

- Encouraging the development of digital infrastructure in rural and remote areas.
- Promoting the use of digital technologies to improve health care delivery and other essential services.
- Improving digital skills and literacy, particularly among marginalized groups.
- Fostering international cooperation and knowledge-sharing to bridge the digital divide.
- Encouraging innovative financing mechanisms for digital infrastructure development.
- Ensuring that USF programmes are transparent, accountable, and efficient in resource use.
- Addressing the need for robust and reliable broadband infrastructure to support digital development.
- Highlighting the importance of digital inclusion for achieving the SDGs.
- Transitioning from universal ICT access-only policies to universal ICT use policies.
- Integrating policy on ICT access and ICT use in a framework based on insights on USFs and service affordability.
- Effective use of USFs for digital skilling.
- Developing new universal service mechanisms.
- Enhancing digital capabilities and overcoming barriers to the adoption of digital innovations.
- Developing USF policies for ICT use and digital skilling.

9 Selecting USF business models and case studies on economic strategies

A global analysis of the workshop outcomes and the contributions received for the Question 5/1 meetings suggests that, in selecting a USF business model, the following need to be taken into account:

- sustainability and reliability;
- industry buy-in and support;
- government commitment and oversight;
- efficiency in collection and distribution;
- transparency and accountability;
- alignment with national priorities for rural and remote areas.

Case studies received under ITU-D Question 4/1 during the 2022-2025 study period shed valuable light on economic strategies:

Tanzania[12] is using two different funding models for universal service projects:

- Smart subsidies (one-off subsidies) from the USF covering up to 40 per cent of an operator's capital expenditure (CAPEX), while operational expenses (OPEX) are covered entirely by the service provider.
- Financing of the complete project and coverage of operating costs for a limited period, for projects of social importance such as the connection of schools and medical enterprises.

In the **Republic of Korea**[13] the concept of potential net loss area (PNLA) was developed to ensure a stable universal service system under conditions of a rapid increase in the deficit of local telephone service due to changes in the telecommunications environment,

[11] Document SG1RGQ/34-E from Zimbabwe; Document SG1RGQ/78 E from the International Chamber of Commerce; Document SG1RGQ/84-E from the Republic of Korea; Document SG1RGQ/85-E from Tanzania; Document SG1RGQ/79-E from Argentina

[12] Document SG1RGQ/85-E from Tanzania

[13] Document SG1RGQ/84-E from Republic of Korea

such as a decline in the usage and sales revenue of telecommunication services. For the local telephony service, the procedure is as follows: 1) the cost/revenue ratio is calculated for each calling coverage area (143 units); 2) the loss is calculated by subtracting the revenue from the cost required for each PNLA; 3) after the loss compensation ratio of 90 per cent is applied to the loss by PNLA, the loss to be compensated for under the universal service provision is calculated and the total losses to be compensated from the USF are calculated by adding them up.

China[14] does not use a conventional USF system, relying instead on a universal service compensation mechanism for telecommunications. This involves increasing financial input to support network construction in rural and remote areas, driving effective investment and promoting coordinated development between urban and rural areas. In addition, subsidies encourage enterprises to increase investment in rural and remote areas.

10 Cost modelling for USF

How to identify areas where a USF should intervene first?[15]

When deploying USFs, the most important questions to be answered are:

- how to identify areas where the fund should intervene;
- how to calculate the amount of funding to be allocated to those areas;
- how to determine the best financing mechanisms for infrastructure deployment.

Answering these questions requires techno-economic analysis (modelling) to provide forecasts of the expected revenues and costs for telecom services in each area and for each technology. Important considerations to bear in mind include the following:

Revenues

- These can be calculated by multiplying the number of subscriptions by the average revenue.
- Revenue per area can be calculated based on socio-economic data for the population.

Costs

- Geographical modelling is used to calculate the number of network elements (e.g. fibre cables, optical line terminals, civil works, ducts, antennas, towers).
- Unit costs of the elements can then be used to estimate the required investment (per area).
- OPEX estimates are also required.

Geographical modelling is key to have accurate estimates of the required infrastructure for each area. Modelling should rely on precise data of the population distribution, as well as information on the territory (e.g. based on satellite imagery). Engineering algorithms can then be used to determine the optimum infrastructure placement and, thus, the number of network elements.

In this way, areas are differentiated by the level of profitability, an important input for funding decisions. A simple categorization scheme might be:

- Alpha: areas profitable within a 10-year horizon; no need for external financing.
- Beta: areas profitable within a 25-year horizon; feasible for a public investor, but not for a private one. Public investment or PPPs may be the best approach to finance these areas.
- Gamma: unprofitable areas; require subsidies from a universal service fund, for instance.

Avoiding USF underutilization with cost modelling

According to Intel,[16] USFs continue to be underutilized. An ITU study[17] showed that 20 out of 43 USFs had disbursed no more than 50 per cent of the available funds, including 8 that had disbursed less than 25 per cent and 3 that had disbursed no money at all. Reasons included poor governance, unclear or unmeasurable objectives, poor coordination, and the absence of a fair process of resource allocation. All of these factors contributed to underutilization, misallocation and inefficient use of resources. This finding is supported by the Alliance for Affordable Internet,[18] which reports that only 62 per cent of African USFs are considered active and most governments are failing to spend the funds they collected. According to this source, in 2016 African USFs disbursed just 54 per cent of funds collected, leaving unspent a total estimated at USD 408 million.

In Costa Rica, the Connected Homes Program stands out among USFs as an exemplary case of adoption/disbursement,[19] illustrating how funds can be effectively deployed to bridge the digital divide. One of the key factors that explain its success was the use of a techno-economic model to measure the different gaps in the Costa Rican market. The use of engineering algorithms allowed the model to calculate costs and revenues with very high granularity (around 400 areas), and thus to identify the best funding approach for each of the areas.[20]

Main methodological concepts for modelling universal service

The modelling techniques needed to support USF deployment do not differ significantly from those already used by regulators to set wholesale charges.[21] Still, there are considerations to be borne in mind:

- Costing approach: While top-down models can be used to calculate universal service compensation, they do not lend themselves well to the task of

14 Document SG1RGQ/82-E from China (People's Republic of))
15 Presentation from the workshop
16 Presentation from the workshop
17 Financing universal access to digital technologies and services, 2021
18 Universal Service and Access funds: An untapped resource to close the gender digital divide, 2018, the World Wide Web Foundation.
19 Universal Service and Access Funds in Latin America & the Caribbean, 2021, The Internet Society.
20 Success Case: Development of a techno-economic framework for the definition of the optimum universalization strategy, 2022, Axon Partners Group as part of the ITU Policy and Economics Colloquium 2022.
21 For reference, please see ITU's Guidelines on Cost Modelling, chapter 2, 2021.

devising a universal service strategy, where a bottom-up model is required.

- Geographical modelling: This is the key difference between models for USF deployment and those for regulation of tariffs. The latter require only limited granularity (only as much as is needed to accurately represent operators' overall costs), whereas the former need to provide results for hundreds or thousands of areas to provide the necessary degree of accuracy in order to determine the best approach for each area's case for an effective allocation of funds.

Beyond modelling techniques, it is important to highlight the complexity that needs to be addressed in developing a techno-economic model for universal service. If the results are to be accurate and robust, it is essential to properly define the required activities and the level of industry involvement. That said, the activities involved do not go beyond what is already being done by regulators in developing their cost models.[22]

11 Resources provided by the Telecommunication Development Bureau

It is important that, as they formulate their universal and regulatory policies, administrations consider the work that has been done by BDT in relation to the USF.[23]

Designed as a practical guide for policy-makers, regulators, and universal service fund administrators, the digital financing toolkit helps policy-makers, regulators and USF administrators assess the impact and performance of their digital and universal access and service (UAS) strategies, as well as the readiness of universal service access funds (USAFs) to evolve to USAF 2.0, moving beyond grants and subsidies and complementing existing tools with support from innovative funding models. It also provides a roadmap to develop projects, from strategy to impact, with monitoring and evaluation in mind.

The universal service financing efficiency toolkit

- The financing portion of the toolkit concerns the examination of tools and principles applicable to public investment and the combined use of public funds and various financing mechanisms.
- Another component of the toolkit looks at the performance of next-generation funding investments and models, including the implementation of universal service projects to achieve broad national objectives, as well as financing school connectivity.
- The toolkit assists policy-makers and implementors of USFs with making decisions, collecting contributions and ensuring the effectiveness of disbursements. Common problems addressed include situations where: funds are collected but not utilized; disbursement capacity is limited; there are not enough projects; or USF collection exceeds the existing and projected needs for project implementation.
- In such cases the toolkit assists with decision-making with regard to funding considerations, a review of the fund and whether to freeze the collection of contributions.
- Other tools support project design, funding criteria, and implementation and effective oversight of public funds related to governance, partnerships and procurement.
- The toolkit also includes a detailed guide to support the design, implementation, monitoring and evaluation of a school connectivity programme.

The financing toolkit thus gives an overview of the tools and instruments available for funding a universal service. It underlines the need for public-private collaboration to come up with innovative funding models to support universal access to digital technologies and services. It brings out the need for blended financial solutions, coupled with risk management, in ensuring deployment of infrastructure into high-cost, high-risk and underserved areas so that vulnerable communities gain access to digital applications, services and platforms. This approach should assist in the investment decisions and necessary regulatory interventions.

Evolving to universal access funding 2.0

This part of the tool kit provides tools to assist with the assessment of universal access policies and strategies and the definition of new roles for next-generation funding and modes. It is important to recognise that USFs have evolved over the years and the funding models can help achieve the objectives of the new roles. These modules include:

- subsidies and grants under a conventional approach;
- demand aggregation and anchor tenants;
- community broadband networks;
- blended financing.

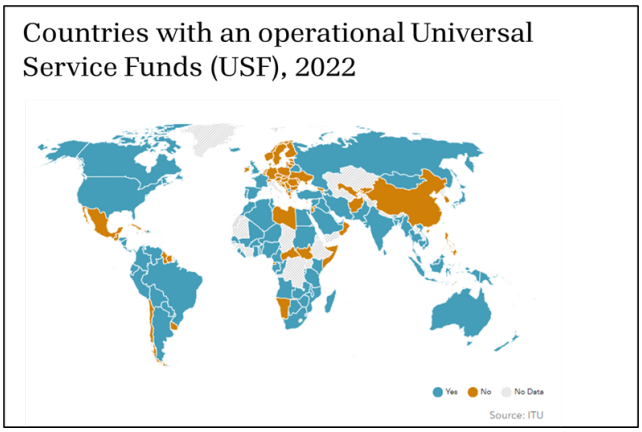
ITU DataHub and other platforms

ITU DataHub[24] is a source of ICT statistics and regulatory information, with indicators on digital connectivity, affordability, markets, governance trust and sustainability, covering 200 economies. Data is provided for universal access policy and universal service financing. The image below gives a succinct overview of operational USFs in existence around the world.

[22] For reference, please see ITU's Guidelines on Cost Modelling, chapter 3, 2021.

[23] Presentation 1 , Presentation 2 and Presentation 3 from the workshop

[24] https://datahub.itu.int/



Note: No USF/no data, could mean that the country has a different compensation or funding model.

ITU DataHub statistics show that in 2022 49 per cent of countries had an operational USF. The distribution by region is as follows: Africa had the highest percentage at 70.5 per cent, followed by the Americas at 60 per cent, the Arab States at 54.6 per cent, the Commonwealth of Independent States (CIS) at 33.3 per cent, and the Asia and Pacific region at 25.5 per cent. Europe had the lowest percentage of operational USFs, with only 17.4 per cent.

Other relevant and useful platforms include the G5 Accelerator,[25] the Digital Regulation Platform,[26] the ICT Regulatory Tracker,[27] the G5 Benchmark[28] and the ICT Policy Impact Lab.[29] These provide useful guides and examples to inform decisions and track growth.

12 Results of online mini survey

An online mini-survey was conducted at the workshop, with participants being asked to answer the following questions:

- Question 1: Is USF/USO implemented or planned to be implemented in your country?
- Question 2: What are the most challenging factors on the USF utilization in your country?
- Question 3: Does your country have a sole facilitator on conducting the programmes on bridging the digital divide using the USF? Please share details (contact info if possible)
- Question 4: Is USF used for digital skills (including schools)? What role does the USF play in digital skilling, including in schools?
- Question 5: What are the key differences and benefits in providing meaningful connectivity between the two different approaches of Universal Service Funds and Universal Service Obligations, based on your country experience and regulatory choices?

The 16 responses received can be summarized as follows:

- USFs are used by many countries worldwide and some countries use the concept of USO in addition to USF.
- Most respondents noted the complementary nature of USFs and USOs, noting that USOs provide a more flexible approach to expanding connectivity than USFs.
- Respondents noted a wide spectrum of challenges related to the implementation of USFs, including ineffective governance, unclear project concepts and goals, funding challenges, and political and regulatory issues.
- USFs are administered by a variety of different authorities, including government bodies, telecommunication regulators, and not-for-profit organizations.
- USF administration is implemented through various mechanisms: open tender or reimbursement programmes for operators, dedicated access/service programmes for underserved groups, and digital skills programmes.
- Most respondents noted that digital literacy and school connectivity are addressed through separate public mechanisms. However, using USFs to enhance digital skills is very common in African countries.

13 Conclusions

Important considerations when devising and implementing a USF include:

- Foster consistent collaboration and knowledge-sharing to address the digital divide.
- Move the focus from policies narrowly aiming at universal ICT access to policies aiming at universal access and use.
- Develop innovative financing mechanisms for digital infrastructure development and digital services.
- Foster transparency, accountability, and efficiency in USF programmes.
- Ensure a robust and reliable broadband infrastructure to support digital development.
- Focus on digital inclusion to achieve the SDGs.
- Integrate ICT access and ICT use policy into a framework with insights into USF and affordability of service.
- Use the USF for digital skilling.
- Identify new mechanisms for funding universal service.
- Ensure effective use of the USF.

25 https://gen5.digital/
26 https://digitalregulation.org/
27 https://app.gen5.digital/tracker/about
28 https://app.gen5.digital/benchmark/metrics
29 https://app.gen5.digital/lab

For further information, consult:

Question 4/1 and Question 5/1 joint workshop on "Challenges and opportunities of the use of USF for bridging the digital divide", https://www.itu.int/en/ITU-D/Study-Groups/2022-2025/Pages/meetings/joint-session-Q4-1-Q5-1-may23.aspx

Q4/1 Final Report for the 2018-2021 study period: "Economic aspects of national telecommunications/ICTs": https://www.itu.int/hub/publication/d-stg-sg01-04-2-2021/

Q4/1 Guidelines on Cost Modelling for the 2018-2021 study period: https://www.itu.int/hub/publication/D-STG-SG01.04_CST_MOD-2021/

Q5/1 Final Report for the 2018-2021 study period: "Telecommunications/ICTs for rural and remote area": https://www.itu.int/hub/publication/d-stg-sg01-05-1-2021/

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