Public access in libraries: achievements and insights from broadband policy implementation

The ability and opportunity to go online is increasingly indispenible for people's social and economic inclusion. Public access can offer an efficient and cost-effective way to provide low or no-cost access to ICTs and the internet – especially for community members at a higher risk of falling on the wrong side of the digital divide.

To understand better the available policy tools and ways to leverage public access and library networks to support digital inclusion, a 2019 report by the Dynamic Coalition on Public Access in Libraries[1] examined the role of libraries in national broadband policies.[2] A look at 30 broadband policies highlighted the different ways libraries can support meaningful connectivity: e.g. offering affordable access, providing digital skills training, or facilitating local content creation. It also gave an indication of policy tools that can help enable this – from equipping libraries with ICT to subsidising their internet service costs through Universal Service Funds, building public-private partnerships, and more.

This chapter takes a closer look at the implementation and impacts of such policies on the ground. To highlight good practices and the scope of impacts, IFLA and EIFL have prepared a series of case studies on how library-based public access interventions have been implemented in several countries. This report looks into public access policy measures rolled out in libraries in Colombia, Kenya, Lithuania and Romania and the Philippines.

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[1] DC-PAL, formally recognised by the Internet Governance Forum secretariat
[2] https://www.ifla.org/digital-plans

Implementing public access solutions in libraries: common themes and insights from case studies

Case studies of policy measures implemented in libraries in different countries show a diversity of approaches to supporting and enabling public access. From Universal Service Funds to NGO support, centralised and decentralised coordination mechanisms, and with a main focus ranging from infrastructure to skills-building, these differences inevitably shape the implementation and outcomes of these policies. They are discussed in detail in each case study below. However, a number of common themes and similarities emerge across the case studies, offering some insights and lessons for actors planning or considering such policy interventions.

Realising the unique potential of public access. One recurring theme across the case studies is a recognition of what can be achieved in particular through public access solutions in libraries.

Projects and interventions that support public access in libraries often help users with lower income and other potentially vulnerable or marginalised groups get and stay online. In Lithuania, public access facilities in libraries are particularly well-used by older community members. It also supports digital inclusion among residents of rural areas and people with disabilities, lower income or less formal qualifications. Without library public access and support, they tend to be less likely to go online in the first place, or stay online after their first experience.

In Romania and the Philippines, the established library connectivity infrastructure provided a great basis for setting up digital skills classes tailored for senior users. The public access facilities and educational resources set up in public libraries in the Philippines as part of the Tech4Ed project were also helpful in supporting job seekers. In Kenyan libraries, public access facilities are particularly popular with youth and students.

Setting up public access facilities in libraries makes it possible to introduce more services that help meet the needs of their communities. _Digital skills._ With ICT and connectivity infrastructure in place, it was very common across all the case studies for libraries to offer equitable opportunities for digital skills training – formal courses, opportunities for self-study, or informal support. In fact, in Lithuania, support and advice from library staff on various ICT questions is one of the key reasons for turning to library public access facilities.

Enabling further relevant services. In Colombia, connectivity and public access facilities made it possible for libraries across the country to contribute to local content generation – and introduce 300 new unique service projects for their communities! Similarly, the new services and initiatives that libraries in Romania were able to roll out range from entertainment, to culture and heritage, to skills building. The widespread adoption of these accompanying services means that even when people have home connections, they continue to use libraries - this indicates that public access solutions such as these offer more than just connectivity.

Digital inclusion for broader social development goals. Across the case studies, public access facilities also helped support their users' employment goals, access to health information, and e-government services.

Access to advanced technologies. In both Colombia and Lithuania, public access facilities in a number of libraries have been equipped with technologies like 3D printers or robotics constructors. This offers community members opportunities to interact, learn and master even more exciting new technologies and skills. These opportunities could be particularly valuable for younger users and impact their employment, further education and career choices.

A platform for growth and expansion. Finally, with public access infrastructure in place, libraries were able to take on and implement other ambitions interventions, projects and partnerships. Examples from the Philippines and Kenya show how partnerships between libraries and national and local authorities and agencies can help deliver on access to information and services in such areas as agriculture or administrative matters. In Romania, the national library association continues to support digital inclusion and educational goals through ICT-enabled services and initiatives in libraries. Many of these are implemented through collaboration with national and international-level partners.

The formula for success. What measures can help fully realise and deliver on this potential? Several common themes across the case studies also highlight important considerations for policy implementation, and factors that can contribute to policy success and sustainability.

When planning the rollout of public access points, it is important to take stock of existing infrastructure and community needs. Building on existing and functioning public or community-based organisations can be a very efficient and effective way to expand public access. However, taking stock of available facilities and needs first is helpful - to ensure that the policy intervention helps deliver on all 'missing' elements to enable effective public access facilities.

A common formula for setting up public access in libraries and similar facilities is "ICT equipment + connectivity + training for the library staff". However, it is of course good to check if all other fundamental infrastructural needs (including conditions of premises, furniture, etc.) are met. In Kenya, stock-taking helped identify that local area network infrastructure would need to be set up for many libraries – and for some, it was also important to secure a reliable electricity source. The intervention therefore set up both connectivity infrastructure and solar panels where needed.

Skills-building for the library staff was highlighted as an important contributor to long-term success. It was included in many interventions, including in Colombia, Kenya and Lithuania. This enables librarians to deliver equitable digital skills learning opportunities and roll out new ICT-based services, amplifying the impact and value of the public access infrastructure.

There is a diversity of possible funding sources that can enable the rollout of public access facilities – support can even come from a combination of sources. Possible sources include national and local governments budgets, Universal Service Funds, European structural and investment funds (in EU countries), NGOs and private foundations like the Bill and Melinda Gates Foundation.

It is also vital to ensure continued sustainability of public access facilities, which entails *planning for long-term expenses and maintenance* (e.g. computer upgrades or software license renewal). This has been highlighted, for example, in both Colombia and Kenya case studies.

Leadership is critical; coordination and partnerships help ensure maximum impact. For example, a partnership between a local non-profit organisation, the public library network, and the Mayor's Office in Cali, Colombia, helped establish a successful public access model tailored to local needs. Similarly, the Kenya National Library Service (KNLS) worked closely with the Communications Authority of Kenya to implement a large-scale intervention setting up public access facilities.

Leadership and coordination also help ensure longstanding impact after the initial rollout. KNLS continues to coordinate the introduction of ICT-based programming in libraries across the country on a trial basis, in order to be able to replicate and scale up the most successful and in-demand programs. The National Association of Public Librarians and Libraries of Romania (ANBPR) continues to champion digital inclusion and education initiatives, drawing on library connectivity and public access infrastructure set up through several projects and interventions. The services and initiatives this library connectivity infrastructure enabled were among the key reasons libraries were later referenced in the country's Digital Agenda. *In short, partnerships with national or regional library organisations and institutions can help maximise the impact of public access interventions.*

Impact evaluation and assessment are crucial. Finally, the current case studies have shown the importance of collecting impact data. This helps assess and trace successes to find out what works best and enables data driven advocacy for sustainability. It can also make it possible to evaluate the ongoing implementation and make adjustments if needed! In Kenya, for example, the pilot intervention initially set up public access points in libraries with a 2Mbps user speed - and based on feedback and shifting community needs, this was later adjusted and raised to 10 Mbps.

These case studies help show the immense potential of public access in libraries to help bridge the digital divides and support sustainable development; and offer insights on good practices and various ways to maximise impacts when implementing such policies. In the following sections, you can access the full text of the case studies for more details and insights!

Colombia

Country profile. Colombia is a country in the north of South America. It comprises 32 departments and the Capital District of Bogotá, the country's largest city. With over 50 million inhabitants, Colombia is one of the most ethnically and linguistically diverse countries in the world. Urban centers are concentrated in the Andean highlands and along the Caribbean coast.

Colombia has over 1,500 public libraries: departmental, district, municipal and rural, libraries of community councils and indigenous reservations. According to the General Law of Culture (2010), the responsibility for coordinating all state libraries is assigned to the Ministry of Culture through the National Network of Public Libraries in the National Library of Colombia (RNBP). The objective of RNBP is to improve educational and cultural offer to Colombian citizens by giving free access to information, literature, documentation and electronic resources.

Broadband policy. One of the key policy documents focusing on broadband rollout and information society development in Colombia was the national plan "Vive Digital 2014-2018". Although the plan did not specifically mention libraries, it generated several important projects for the development of public access infrastructure and connectivity in public libraries.

Implementation.

1. *National Fiber Optic Project, Ministry of Information Technologies and Communications of Colombia (MinTIC)*

The National Fiber Optic Project aimed to expand the existing fiber optic infrastructure in the country, in order to reach more people with better services and improve technical and economic conditions. The project began in January 2013, benefiting a total of 788 municipalities in Colombia and 2,000 public institutions, including 409 public libraries.

Initially, the agreement set out to deliver 2 Mbps connectivity for libraries for 5 years. It also included a commitment that, once the initial contract was completed, local administrations would take over the internet subscription costs for the public libraries. However, in order to guarantee a better quality of connection and provision of services, the Ministry of Culture carried out negotiations with the MinTIC and agreed on a provision of a 6Mbps connectivity for 3 years (until the end in 2017). Through another agreement with the MinTIC, this term was extended until August 2018.

2. *The "Puntos vive digital" project (PVD)*

Another strategy of the Government aimed at promoting Internet use among population, was creating a network of public internet access centers "Puntos Vive Digital" (PVD). The project began in February 2012 and ended in July 2018. The PVDs were designed as a self-sustainable service model that allows the community to use ICT's for access, training, entertainment, etc. - in one place. Several public institutions, such as city halls, educational institutions, military forces, libraries and houses of culture were eligible for the installation of PVDs.

The PVDs were one of first public internet access initiatives that could be set up in libraries, and presented a great opportunity to support digital inclusion though the public library network. However, the implementation scheme set out a strict formula for rollout and installation of PVDs, which did not always allow for their easy integration with public library services. The PVD program had specific requirements – i.e. for space, infrastructure, administration and publicity - which were not always compatible with daily library work and its local conditions.

In some cases, this created situations, where local municipalities were displacing library services and replacing them by the PVD. In broad terms, 3 different scenarios for library integration emerged:

- Some PVDs were physically installed in public libraries, but operated through independent administration;
- Some cases saw PVDs successfully integrated into library work and facilities;
- Some libraries were displaced to set up PVDs.

Given these challenges that some public libraries faced in integrating PVDs, in the end this only happened in around 50 libraries - only 3.5% of the total number of public libraries in Colombia.

Finding out what works well: the municipality of Cali case. There was a very positive case in the municipality of Cali, where the process of setting up and integrating PVDs into the public library network was mediated by a non-profit organisation *BiblioTEC Foundation*. This non-profit organisation was created by 22 private sector companies to help strengthen the Network of Public Libraries of Cali - and also cooperated with the city Mayor's Office.

In Cali, PVDs were implemented in 20 public libraries of the city's Public Library Network. The mediation consisted of: the selection of libraries to receive the PVDs; working with the community and host libraries to determine the best possible integration model (and ensure that it does not affect other library services); and the selection, hiring and training library staff to operate the PVD.

Additionally, BiblioTEC and the Mayor's Office carried out improvements of the infrastructure in libraries where these centers were installed, since some of the libraries were in poor conditions. As a result, more than a third of the Cali libraries modernised their ICT infrastructure and more than 1,000 computers with internet service were installed. It is worth adding that alongside the MinTIC investment (approximately 1.5 million US dollars), BiblioTEC invested more than 0.5 million US dollars in the project.

The work of the PVDs was further supported and facilitated through BiblioTEC's alliances with several universities, including the University of Barcelona, the National Autonomous of Mexico UNAM, Javeriana of Colombia and the Autonomous University of the West UAO. One result of this partnership was the School of Innovation and Library Development of Cali (EIDBC). Created in 2014 to deliver training for library professionals and managers, it has played an important role in facilitating the integration of ICT in libraries within this municipality.

Impact. After the installation and activation of the PVDs in Cali, BiblioTEC looked to expand and broaden public's use of these facilities - from internet access and training to more diverse activities. BiblioTEC created technology-based creative spaces in two pilot libraries, focusing on robotics and electronics, working with audio-visual media, makerspaces, etc.

These laboratories were equipped with 3D printers, laser cutters, multimedia, robotics and electronics kits. This initiative was picked up by the Cali Mayor's Office, which decided to invest in additional equipment in seven more libraries. This created more spaces for manufacturing, robotics, audio-visual work, as well as spaces facilitating the use of government electronic services.

This work was also facilitated by BiblioTEC and another private foundation, the Carvajal Foundation, which created a manual for the management of innovation spaces in these libraries. The laboratories, which were an evolution and continuation of the PVDs, until now are managed by the technology department of the Mayor's Office of Cali.

3. The Project "Use and appropriation of ICT in public libraries"

Another important initiative for connectivity and public access in Colombian public libraries was the project "Use and appropriation of ICT in public libraries". This project was developed by the Ministry of Culture and the National Library, and supported by the Bill and Melinda Gates Foundation. The project helped public libraries enrich their portfolio by offering their communities free access to computers and the internet – as well as launching other ICT-enabled services, such

as "Big Questions", the digitization of photography and local memory, and Colombian film forums. This was done by providing technology, training library staff, and promoting the development of innovative services with the use of ICTs.

Additionally, the project carried out a number of activities to promote local public libraries, to raise their visibility in communities and achieve the commitment of local authorities, the private sector and civil society to support their sustainability. Within the framework of this project, the Ministry of Culture allocated its own resources to bring connectivity (between 2-6 Mbps) to more than 400 public libraries, including satellite technology for libraries that could not be reached through fiber optics. In parallel, the Project team worked with the local administrations to promote the inclusion of connectivity costs in their local budgets, and negotiated prices with service providers.

Impact. The evaluation of the "Use and appropriation of ICT in public libraries" project highlighted that this initiative helped generate important benefits, particularly in terms of social capital among users. It powered self-learning opportunities and helped make available and generate more local content – either by libraries and communities themselves, or through broader access to digital heritage collections.[3] In addition, this enabled the launch of more than 300 unique service projects inside participating libraries – from educational to culture-focused, from family to arts and creativity, and beyond.[4]

Overall, with the help of these initiatives, 95% of Colombia's public libraries were connected to computers and the internet by August 2018. This helped bring about important positive outcomes – introduction of new services available to the public, broadening access to local content, and communities' access to the internet, skills training opportunities and technology.

The current priority for further connectivity interventions - as laid out by the government in the ICT Plan 2018 – 2022[5] - is connectivity in homes, as opposed to free internet access in public spaces such as libraries. In a sense, this leaves the responsibility for offering support for public access venues largely in the hands of local administrations and the Ministry of Culture.

This also raises interesting questions about the value of parallel internet access and uses. Drawing on experiences of other countries, we see libraries and public access solutions continuing to be useful and used even in places with high levels of home connectivity. Lithuania is one of the possible examples – a country where rates of individual connectivity are high yet public access remains in use and demand. In general, users in possession of individual internet access can continue to value and make use of library-based connectivity or workstations - whether because of better technology or connectivity, temporary unavailability of individual internet access, the services that libraries are able to provide at the same time, or skills training or support that library staff offers.

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[3] https://issuu.com/proyectotic/docs/infografia_resultados_proyecto_tic
[4] https://issuu.com/proyectotic/docs/20170418__ganadores_servicios_final
[5] https://www.mintic.gov.co/portal/604/articles-101922_Plan_TIC.pdf

Kenya

Country profile. Kenya is a country located in Eastern Africa, which shares land borders with Somalia, Ethiopia, South Sudan, Uganda and Tanzania – and borders the Indian Ocean to the south-east. A 2019 census indicated that Kenya's population exceeds 46.5 million people, which places it among the top 30 most populated countries in the world. Kenya is one of the fastest-growing and largest economies in Sub-Saharan Africa.[6] [7]
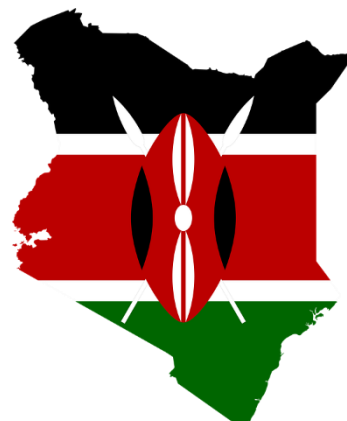
The Kenya National Library Service (KNLS), a statutory body of the Government, is responsible for supporting and establishing National and public library services. Kenya boasts a network of 67 public libraries and 1 national library, several dozen academic and community libraries, and a very extensive network of school libraries.

Background. In 2010, few public libraries in Kenya were equipped with an internet connection or computers. Estimates suggest that the country-wide public library network had around 15 computers available, with barely any set aside for public use. Libraries in general had more computers for staff than users, and a lack of public access computers was mentioned as one of the key drivers for user dissatisfaction with libraries.[8]

In 2011-2012, KNLS and the Communications Authority of Kenya (CAK) launched a strategic partnership and entered a Memorandum of Understanding to equip public libraries with ICT and connectivity. The overarching goal was to increase and facilitate public access to the internet and ICT, especially in rural communities; and to create opportunities for digital skills training and capacity-building – with the end goal of supporting social and economic development. The project was financed through the Kenyan Universal Service Fund.

Broadband policy. In the years following the start of the cooperation between the CAK and KNLS, libraries were further referenced in two national-level policy documents that impact and support broadband development in Kenya.

First is the *Universal Service Fund (USF) Framework.* The Framework was released several years after the 2009 Information Communications Amendment Act and the 2010 Information and Communications Regulation formally established the Kenyan USF.[9] This document details how the CA would manage the Fund, the guiding principles and key considerations.

Alongside these guidelines and principles, the Framework tentatively outlined several programs that the CA considered implementing through the USF. One of the programs – *Community Broadband Networks* – focused on equipping major public institutions in villages or towns which do not have broadband connectivity with such a connection. Libraries, alongside such institutions as schools and health facilities, are listed among the possible locations.

The current Kenyan Broadband Strategy 2018-2023 also includes references to libraries. The Strategy references the existing library connectivity and public internet access infrastructure, and points out the opportunity to further broaden access by connecting public internet access points with high-speed broadband.[10] The Strategy also sets out to equip libraries with more devices and increasing the speed and reliability of their connection.

Among other initiatives, the policy also sets out to build or expand community/innovation hubs in each locality – also with the aim of supporting access to broadband services, as well as digital

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[6] https://www.worldbank.org/en/country/kenya/overview#1
[7] https://data.worldbank.org/indicator/NY.GDP.MKTP.KD?contextual=region&end=2019&locations=KE&start=2019&view=bar
[8] https://www.eifl.net/resources/perceptions-public-libraries-africa-0
[9] https://ca.go.ke/wp-content/uploads/2018/02/Universal-Service-Fund-Framework.pdf
[10] https://ca.go.ke/wp-content/uploads/2020/08/National-Broadband-Strategy-2018-2023.pdf

skills-building and employment support. This measure also brings the possibility to involve libraries and build on existing capacity and infrastructure.

Implementation. This process of connecting public libraries in Kenya and creating a large network of public access facilities and took place in several phases.

The first phase, implemented under a framework of an MoU and financed through a Universal Service Fund, was a pilot intervention in 2011-2013. This phase saw *e-resource* centres set up in 10 community libraries. Every library was equipped with 10 computers, hardware and peripherals (e.g. printers), software, internet connectivity infrastructure (where needed) and a two-year connectivity subscription, as well as necessary furniture.[11] The role of these library-based centres was to offer public access and ICT training opportunities in their rural communities.

Following the pilot intervention, the project was soon scaled up to cover the vast majority of public libraries in the country. From 2015 to 2018, the same measures were implemented in 46 more public libraries, bringing the total number of libraries equipped with ICT and connectivity within this project to 56. At present, all 62 public libraries at the branch level are equipped with ICT and connectivity to the same standard.

Additional measures included setting up and connecting libraries to local area networks where such infrastructure was not available (which was the case with about 80% of libraries in this project). It also set up voice telephony connectivity – which both library users and staff visitors can make use of. Furthermore, libraries were equipped with the technology to set up wireless access points – these public WiFi hotspots broadened the reach of library connectivity by a minimum of 200 meters. With the help of all these measures, libraries became communication and connectivity hubs for their communities.

Capacity-building. Another important part of this transformation was building up the capacity of library staff to help maximise the impact of the public access venues. Here, an important intervention was carried out in partnership between EIFL (Electronic Information for Libraries) and KNLS. Through this project, librarians followed extensive training on ICT skills, management, and developing new ICT-based services. They also learned more about ways to help drive community engagement and use of available public access facilities and services. With growing number of libraries connected to the internet, KNLS and EIFL prepared a cohort of 20 local librarians and 12 ICT officers who are now being deployed in ongoing staff development within the KNLS network of public libraries.

Reporting and feedback. Reporting and feedback were an important part of the implementation process. KNLS established an online reporting tool which helped them to monitor the state and usage of IT infrastructure and services in libraries, including computer use and digital skills training.

This helped get more insights on use patterns and shifting needs. For example, at the start of the project, libraries were equipped with a 2 Mbps connectivity, which over the next years has been upgraded to 10 Mbps based on received feedback and changing community needs.

This intervention also highlighted how taking stock of existing infrastructure, opportunities and needs can be a useful first step for such projects. This was carried out at the beginning of the intervention to establish a baseline. This helped plan for, and more effectively address, some local needs from the outset. In particular, the stocktaking report helped establish that several libraries were not connected to an electricity grid - the intervention plans were then adjusted to also include equipping these libraries with solar panels.

Going further. Finally, within the framework of the current Strategy, three libraries have already been set up as locality-level ICT hubs. This entailed further upgrading their internet connectivity and equipping these libraries – alongside other facilities their localities chose as their hubs – with

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[11] https://ca.go.ke/wp-content/uploads/2018/02/Annual-Report-for-the-Financial-Year-2011-2012.pdf

more access devices. These Hubs are able to offer wider ICT-based programming and training for their communities.

Impact. Some of the key goals of this overarching library connectivity and public access initiative were to expand communities' access to ICT, the internet, digital skills training, and information at large. Overall, the libraries registered significantly more users and visitors coming in, which offers some indication of the demand for these public access venues and associated new services.

These facilities became especially popular with youth and students, who can come in to complete their study assignments online and/or using library workstations. The public access facilities also help support people's access to e-government services. As many services and functions – e.g. passport or driver's license applications – are increasingly carried out online, libraries offer a venue to do such tasks, and can offer support to users who are less comfortable with their ICT skills. Libraries introduce various ICT-based activities and programming on a pilot basis, which makes it possible to later scale up or replicate the most successful and demanded activities in other libraries.

The libraries that have been transformed into constituency-level hubs also experienced significant demand for the new services. They are able to offer expanded access to online resources and accessibility tools, extended programming and more learning opportunities for their communities. Training courses which help build the skills for online work and employment are in particularly high demand, especially among youth.

Projects and partnerships building on the new capacities: a multiplier effect. This project also made it possible for libraries to introduce new ICT-powered services that help meet the diverse needs of their communities. The Ministry of Agriculture, the University of Nairobi and KNLS jointly set up a service delivering information for farmers – relevant content on market prices, farming methods, government services and so on. Similarly, ICT has long been was integrated into a range of health information services set up in several KNLS libraries.[12]

This infrastructure and increased capacity also helped create a platform for many other partnerships between libraries and private businesses or development organizations, launching more new technology-enabled library programmes over the following years. This includes, for example, Microsoft Imagine Academy courses made available to users and library's IT staff. BRCK education introduced Kio Kits with local learning materials (mainly books) with up-to-date, relevant and engaging text, audio, and video content.

At the same time, a partnership with WorldReader enabled libraries to start digital reading programmes for schools, using tablets with uploaded international and local e-books. A joint project with EIFL and Peer-To-Peer University helped libraries offer more online learning opportunities for library users. KNLS also collaborated with the Good Things Foundation to adapt and provide access to a free online learning platform *Learn My Way Kenya* that helps users develop basic digital skills. These examples show how public access and library connectivity can enable a much broader range of services and partnerships, helping meet more community needs.

In general, this project illustrates how a Universal Service Fund can successfully be used to support digital inclusion through public access. When planning such interventions, it is of course important to account for long-term sustainability and equipment maintenance (including such questions as, for example, license renewal), as well as initial capacity-building, to ensure continued impact.

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[12] https://www.eifl.net/system/files/resources/201704/eifl_brochure_hr.pdf

Lithuania

Country profile. Lithuania is a state in the central part of Europe, on the southeastern shore of the Baltic Sea. The area of the country is 65,300 km², with a population of 2.8 million (2019). The country borders Latvia, Belarus, Poland, and Russia (Kaliningrad region). The Lithuanian-Belarusian and Lithuanian-Russian Federation borders are also the external borders of the European Union.

The Lithuanian library network consists of 2365 libraries (2019), among which the majority (1237) are county and municipal public libraries. Most functions of state administration of libraries are carried out by the Ministry of Culture. Libraries of state significance and county public libraries are financed from the Lithuanian state budget. Municipal libraries are financed from municipal budgets.

Background. The implementation of public internet access in Lithuanian public libraries started with *Open Society Foundation - Lithuania Library Program*, which in 1996 established a first internet reading room in the Martynas Mazvydas National Library of Lithuania.

Since 2004 the Information Society Development Committee and the Ministry of the Interior of Lithuania implemented two projects, funded by the European Union PHARE programme, that aimed to develop a network of public internet access points in rural areas. In total, 700 public internet access points have been established, many of them in public libraries.

Further development of public library ICT infrastructure was significantly influenced by two government projects for broadband network infrastructure development: the Project "Rural Area Information Technology Broadband Network RAIN"[13] (2005-2008), the Project "The Development of Rural Area Information Technology Broadband Network RAIN"[14] (2009-2015) and the Project "Broadband infrastructure development in rural areas"[15] (2014-2018). During these projects, 560 libraries were equipped with broadband Internet access.

The most large-scale initiative for public internet access in Lithuanian public libraries was the project "Libraries for Innovation",[16] implemented in 2008–2012 and funded by the Bill and Melinda Gates Foundation *Global Libraries Program* and the national budget. The Project installed or upgraded public access facilities in 1276 public libraries, and installed or improved broadband internet access in almost 1000 libraries. Thanks to this project all public libraries, in both urban and rural areas, were able to start offering public computer and internet access, as well as digital literacy training for their communities.

Broadband policy. In 2014, the Lithuanian Government approved the Information Society Development Program for 2014–2020 "Digital Agenda of the Republic of Lithuania". The program highlighted the main goals and objectives of information society development in order to make the most of the opportunities provided by information technologies.

In order to reduce the digital divide, the program included the goal of "upgrading and developing the public Internet access infrastructure in public libraries". The program set out a target to upgrade infrastructure and connectivity in all public internet access points throughout the country, so that by 2020 residents would be able to access internet connectivity of 30 Mbps or faster through these facilities. The aim of this measure was to ensure that Lithuanian residents, especially those living in rural areas or belonging to social risk groups, have access to high-speed internet free of charge.

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[13] https://www.placiajuostis.lt/en/rain
[14] https://www.placiajuostis.lt/en/rain-2
[15] http://placiajuostis.lt/lt/prip
[16] http://www.bibliotekospazangai.lt/en/

Implementation. To implement the objectives of this program, in 2018 the Ministry of Culture of the Republic of Lithuania and the Martynas Mažvydas National Library of Lithuania launched the project "Encouraging the population to use the Internet intelligently in the renewed public Internet access infrastructure".

The aim of the project is to develop and upgrade the public access ICT and internet infrastructure in the country's public libraries, to help residents to participate develop digital competencies, take part in digital information initiatives, and facilitate local content generation. The project is funded by the European Regional Development Fund and the budget of the Republic of Lithuania. The value of the project is 10.74 million Euro.

This project, which is planned to be completed in 2021, is upgrading more than 1200 public internet access points in the country's public libraries. The first step of the project involved upgrading hardware and software. 4625 computers were purchased and distributed to libraries based on their needs, available space and the size of the population they serve.

The project also made improvements to library internet connectivity, which was relevant for approximately 500 out of 1200 libraries participating in the project. An installation or upgrade of internet connection was purchased and paid for with project funds. The ongoing internet service fees is paid by municipalities, which poses considerable challenges for municipalities with a large number of libraries.

In addition to computers, the project saw routers, multifunction printers and, optionally, projectors and TV's installed in libraries. Libraries were also offered additional ICT packages that create new opportunities for users to interact with a broader range of hardware and software for productivity, entertainment, exploration, creativity and skills-building:

- **Creative packages** consist of a negative and photo digitization scanner, an inkjet printer for photos, a workstation (computer), a headset for listening to recordings, a microphone for voice recording, a 360-degree camera and a Web-type FHD camera with streaming function, a tablet for design, software for footage and image processing. 67 packages were distributed.

- **Programming packages** consist of a desktop computer, tablet with software, robotics constructor, robotics constructor for beginners, programmable microcomputer set, programmable microcontroller set for beginners, computer set, educational programmable drone for school children. 67 packages were distributed.

- **Engineering packages** consist of 3D printer, workstation (computer), constructor for mastering electronic elements, constructor for mechanical elements, constructor for hydraulic or pneumatic elements, constructor for research of renewable energy sources (sun, lawn, water), constructor for research of optical principles. 58 packages were distributed.

- **Experimental packages** consist of software for virtual reality and artificial intelligence. 67 units of such packages were purchased.

- **Packages for visually impaired users** consist of Braille printers, Braille staplers, laminator, voice synthesizer. 30 packages were distributed.

Currently, the equipment has already been delivered to about 70 percent of the libraries participating in the project, and the rest will be finished in 2021. These delays were due to prolonged public procurement procedures. Training has now begun for public library staff to be able to use this equipment and to provide qualified assistance to their visitors.

The project also updated the system of user registration and statistics collection in public internet library facilities. The main feature of the update is the ability to capture the number of users using library WiFi.

In parallel, another project of the Information Society Development Committee "Connected Lithuania: An Efficient, Secure and Responsible Lithuanian Digital Community" is underway, whose partners (Window to the Future Association, Ministry of the Interior, Communications Regulatory Authority and National Library) are responsible for promoting public internet access and attracting public access users. This project set up digital leaders and consultants and e.scout teams to help local communities throughout Lithuania improve their digital skills.

Impact. In 2019, a survey of almost 5000 Internet users of Lithuanian public libraries showed that currently 15% of them have no other place than a library to access the internet. Older library users who live in rural areas have the least opportunities to use the internet outside of the library (42 percent). People with disabilities, users with lower formal education levels or lower income also have fewer opportunities to go online outside the library.

It is also interesting to note that that over the last decade, the user profile of library public internet access facilities has changed completely: in 2011, public internet access in libraries was most actively used by people aged 15 to 24. Today, community members between the ages of 45 and 65 make up the largest proportion of library internet users.

Most visitors make use of library public access facilities for leisure purposes and communication. However, many also use it for studying or accessing e-government services. The survey also highlighted that library usage has a significant impact on the users' overall ability to critically assess changes in society (an average score of 7.2 out of 10). Library visitors, particularly those living in rural areas, reported that the library helped them deal with practical issues and develop their critical thinking. 39% of public internet users in libraries said that public access facilities helped them maintain communication with friends and relatives, 33% - that it improved the way they carry out their work, 31% said it expanded their possibilities to take care of their health. 29% of users improved their studies, 20% saved money and 8% managed to find a job with the help of library public access facilities.[17]

The study shows that this library service is still relevant and will remain important in the future, especially in rural areas and among more socially and economically disadvantaged populations. It also revealed that a librarian's help with questions regarding ICT use is currently one the main motivations for using public internet access in libraries. The results of this study confirmed that public libraries in Lithuania play a significant role in the development of the information society and reduction of the digital divide.

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[17] https://www.lnb.lt/en/news/5063-latest-survey-reveals-public-libraries-improve-the-quality-of-life-for-visitors

Romania

Country profile. Romania is a country located at the crossroads of Central, Eastern, and Southeastern Europe. It shares land borders with Bulgaria to the south, Ukraine to the north, Hungary to the west, Serbia to the southwest, and Moldova to the east; and has access the Black Sea. Romania is the twelfth largest country in Europe and the seventh-most populous member state of the European Union, with approximately 20 million inhabitants.

Romania has 2300 public libraries, including county, city and town as well as commune-level libraries. The library system is decentralised, and public libraries depend on their local governments. The main centralized institution which unites public libraries is the National Association of Public Librarians and Libraries of Romania (ANBPR), the largest professional organization of librarians with more than 3,300 active members, organized in branches with national coverage.

Background. Public internet access in libraries of Romania began with projects which were not designed specifically for libraries, but rather aimed at spreading the use of ICT in society as a whole. One such project was "Access to ICT in Rural Areas through Telecenters", implemented in 2002-2005 and supported by USAID. This project aimed to establish at least 8 pilot Telecentres that would provide access for everyone in the local community to key telecom and IT services at affordable prices[18]. Another similar initiative was the "Knowledge Economy Project", supported by a loan from the World Bank in 2005-2011. The goal of the Project was to accelerate the participation of disadvantaged communities in Romania in the knowledge-based society and economy. One of the strategies to achieve this goal was the establishment of approximately 200 public internet access points in local schools, public administration buildings and public libraries.[19]

The first project which aimed to create a nationwide public internet access network through public libraries was the six-year Biblionet program (2008-2014). The project was funded by the Bill & Melinda Gates Foundation and implemented by the International Research & Exchanges Board (IREX), in partnership with ANBPR (the national library association), the Ministry of Culture, the Ministry of Communications and local governments. The program provided hardware, software, and IT support for 2,280 public libraries. Meanwhile, local administrations invested $25 million to cover internet connectivity, library renovations, and operating costs. Training centers were also established within each of Romania's 41 county library systems, as well as regional excellence training centers (RTCs) in five county libraries.

In total, Biblionet equipped over 80 percent of Romania's libraries with ICT equipment and internet connectivity, reaching over 600,000 first-time internet users and training 4,200 librarians to use ICT to provide better services to library visitors and their communities. The program also provided financial support and technical assistance to the ANBPR in order to strengthen its organizational capacity, and raise the profile of library issues at the national and EU levels[20].

Broadband policy. Designed in alignment with the 'Digital Agenda for Europe 2020', the 2014 'Digital Agenda for Romania' outlines four key fields of action, which focus respectively on: the public sector; support for ICT at the sector level in areas like health and education; ICT-driven

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[18] https://partnerships.usaid.gov/partnership/access-itc-rural-areas-through-telecenters

[19] http://documents1.worldbank.org/curated/en/764741468333031527/pdf/ICR26580ICR0Ro000PUBLIC00Box379811B.pdf

[20] https://epale.ec.europa.eu/en/blog/biblionet-global-libraries-romania

economic growth in the regions and in the private sector; and infrastructure for broadband and digital services.[21]

In the second field of action – "ICT in Education, Health, Culture and e-Inclusion", one line of action focuses on implementing "a modern ICT infrastructure within the public libraries". Within the "ICT in Culture" subcategory, one of the national targets is for 25% of cultural facilities and libraries to be equipped with relevant technologies by 2020. Broadly, this aligns with the goals of better interaction between Romanian citizens and libraries, and better access to digital cultural content (including through digitisation; as well as improved access to information at large).

In addition, the Agenda points out several existing initiatives that further contribute to an improved interaction between libraries and citizens. These library-based projects work towards improved accessibility (especially for persons with visual disabilities), digital literacy and skills, and employment (including in employment in the agricultural field).

This policy was introduced after the library connectivity and public access projects described earlier had been completed. Indeed, the capacity and infrastructure developed through these projects were one of the factors which helped enable the library digital inclusion projects mentioned in the Agenda; and one of the reasons why libraries were included in the 2014 National Strategy on Digital Agenda for Romania to this extent.

During the subsequent period, there were not as many national-level interventions that support public access in libraries and similar facilities. However, the previously established infrastructure allows libraries to carry on and introduce more initiatives that fit into the policy priorities the Agenda outlined.

Impact. Individual libraries continue to provide public internet access, digital literacy training and other ICT-based services to their communities using the existing infrastructure. For example, the Harghița County Library in central Romania, which obtained computers and an internet connection from the County budget and the Biblionet programme, still uses all 28 computers and offers a number of ICT-based services, including no-cost computer and internet access (including WiFi) for the public, STEM and coding training for children, and digital skills classes for senior citizens, among others.

Currently, library ICT infrastructure maintenance is supported by the local government – each year the library presents a budget to the local authority for approval. This includes a plan of activities to be financed, including ICT-related services and programs. Library representatives mentioned that while the Agenda does not offer binding targets or guaranteed, it does help libraries secure support from the local authorities.

The local authority has so far remained supportive – and this case study highlights the importance of local governments' role in supporting and sustaining the library public access infrastructure. This can be particularly relevant for decentralised library systems. In turn, this points to the need for supporting and ensuring local government's capacity to sustain this infrastructure through their budgeting. As in other case studies, additional support can also come from different or multiple sources: for example, the Dâmbovița County Library is also upgrading its computers with the help of different organisations.

Another library, the Onesti City Library in Bacău county, currently has 19 computers for public use, which have been obtained from the local municipality, the Biblionet program and private partnerships. The computers are used for numerous programs, such as: Navigator 50+", which is a IT training for elderly people, "Travels around the world", which offers virtual travels to elderly people, The Mountain´s Eye", which is a video projection with images from the expeditions made

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[21] https://trusted.ro/wp-content/uploads/2014/09/Digital-Agenda-Strategy-for-Romania-8-september-2014.pdf

and with detailed information about the geography and protected areas in Bacău County, films and opera broadcasts, video conferences, IT classes for kids, digital drawing competitions, online contests, coding lessons and many more. Hundreds of library visitors benefited from these programs.

Building on previous experiences and existing infrastructure. Building and following up on the Biblionet program e-inclusion efforts, ANBPR carried out a series of educational projects and programs for different audiences - from children and young people, to seniors and vulnerable social groups. The educational projects and campaigns carried out by ANBPR aim to offer learning opportunities and reduce the disadvantages that emerge from a lack of access to technology among the population. Some examples of such projects are: CinEd - cinema education for Youth (in partnership with NeXT Cultural Foundation), Digital Parents - digital education for children and their parents in small communities (in partnership with Active Watch), *"Opening Opportunities"* - a multi-annual computer-based mentorship program for high school students (in partnership with Microsoft Romania and TechSoup Romania) and others.

ANBPR is engaged in redesigning the role of public libraries in Romania to be key players in reducing the digital divide and digital exclusion in the country. This is achieved by enhancing librarians' digital skills and involving libraries in e-Inclusion activities at European and international levels – such as the e-Skills Week, Get online! Generation Code, Hour of Code, Skills 4IT Coalition, and others. ANBPR is also one of the founding members of the Alliance for the Digitalization of Romania, the Coalition for Digital Education - CED, the Education Transformation Initiative (ETI) and the C4Ted - National Cluster for the Education Transformation that reunites organisations and educational experts in Romania with the aim to develop a synergistic community skilled in transformative educational policies and solutions.

Currently, ANBPR is also implementing the *TEACH FOR FUTURE* project, focusing on transforming adult education through innovation, technology and entrepreneurship. This is a large-scale Erasmus+ project, which aims to create a transnational multisectoral network of facilitators from Romania, Bulgaria and Greece who can support skills-building in the fields of IT, Innovation Management & Network Collaboration and Entrepreneurship & Leadership. Through the library network in these 3 countries, these facilitators aim to integrate digital skills into lifelong learning adult education, and create a positive change through these learning opportunities.

These initiatives by ANBPR and individual libraries show how library organisations and institutions can take on ambitious digital transformation initiatives following the establishment of public access and library connectivity infrastructure.