

Access to Information on the Internet - a basic human right?¹

Given the Digital Divide, with about 2.7 Billion people never being on the Internet, and a far more number of people have not experienced the benefit of the Internet, our work is fostered by three questions:

1. Is access to digital goods and information a universal human right?
2. How can we enable access, especially for people and groups left behind by traditional business models?
3. How can we provide local access to decentralised information to address global challenges and achieve the Sustainable Development Goals (SDGs)?

The Basic Internet Foundation was established to address these questions. The mission² is to improve the life of every single human through free access to information on the Internet. We believe that everyone should be empowered to pursue their dreams of decent work and a prosperous life. Our practical work focuses on implementing projects around the world in the areas of internet access, education, healthcare and women's entrepreneurship.

The Foundation has developed solutions for setting up wireless information spots ("InfoSpots") in areas where there is no internet or where no one believes you can connect. We have established InfoSpots more than 20 km from mobile phone base stations, and are piloting solutions to reach more than 30 km. Through these InfoSpots and our collaborations, we provide and promote Internet Lite, the freemium access model.

The aim of the installation is to establish digital inclusion in the community through InfoSpots, community networks and other means of access. In addition to connectivity, which is at the core of the planned collaboration



Figure 1: Establishing an InfoSpot, a collaborative work

¹ The concept paper was authored by Josef Noll (UiO), Catherine R. Kimambo (African Child Projects), Wisam Ahmed Mansour (Basic Internet Foundation), Sudhir Dixit (Basic Internet Foundation) and Jonathan Muringani (UiO)

² The **Basic Internet Foundation** is a Norwegian Foundation, registered at **Gunnar Randers vei 19, 2007 Kjeller**, Norway under **org. number: 915196489**. The Foundation was established in 2014 by Kjeller Innovasjon and University of Oslo (UiO). Se <http://BasicInternet.org>

with our local partners, empowerment and value creation for local societies is the second pillar. We address the second pillar through a decentralised internet with a school/community server in the village. "Access is expensive, local hardware is affordable", and the creation of information packages and videos on a local server allows free access for students and community members.

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Figure 2: "Empower my dreams" in the connected school

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The aim of the installation is to establish digital inclusion in the community through InfoSpots, community networks and other means of access. In addition to connectivity, which is at the core of the planned collaboration with our local partners, empowerment and value creation for local societies is the second pillar. We address the second pillar through a decentralised internet with a school/community server in the village. "Access is expensive, local hardware is affordable", and hosting information packages and videos on a local server allows free access for students and community members (see Figure 2).

Our distributed architecture allows for rapid deployment of low-cost Internet distribution worldwide, enabling 3G/4G network reception even in areas with no connectivity. We improve the uptake of internet connectivity by working with partners to provide local content, such as health, education, agriculture and other non-profit information, free of charge. The education and health packages, as well as free access to information on the Internet, increase people's ability to see the value of the Internet and use it effectively. In addition, we improve economic upliftment by providing non-profitable content such as health and education for free.

By connecting to the Internet, we are preparing for business around the information points and giving start-ups the opportunity to offer their services.

The creation of a local website on the school server is a local identification and added value, as it

- Increases identification with the digital content when creating their own website;
- Sharing local and global content in the community promotes digital heritage and translates the norms of the local society into the digital space;

- Supports the contextual and specific identities of each community; and
- Promotes the transition to smart villages.

We work with universities and technology research centres to create Regional Competence Centres (RCCs). University students configure the off-the-shelf equipment at the RCCs, then deploy the infrastructure and provide training on its use.

We work with telecom operators, ISPs, government organisations and NGOs to create sustainable business models. The starting point is the 10 or 20 GB data packages offered by mobile operators, which ensure the operation of the InfoSpot for as little as USD 20 per month. If more bandwidth is required, operators such as Vodacom in Tanzania offer 50 GB packages, and Safaricom in Kenya has introduced 5 Mbps mobile access for USD 58 per month, both of which are specific offers to schools. The decentralised model, with local storage and Internet Lite access, keeps OPEX costs down to US\$20/month, but allows scalability for higher demands through the embedded voucher system.

The InfoSpot and school server are set up with a basic package of information³, and we invite partners to contribute content, e.g. information on health, education, agriculture, energy and climate.

"Including everyone in the digital society is not economically viable, but it is worth it".

Research Topics, the role of 5G and community connectivity

Through our collaboration⁴ with universities, including the University of Oslo (UiO) as a member of The Guild⁵ and the University of Dar es Salaam (UDSM), Makerere University and the University of Rwanda as members of ARUA⁶, we have the academic network to drive research forward.

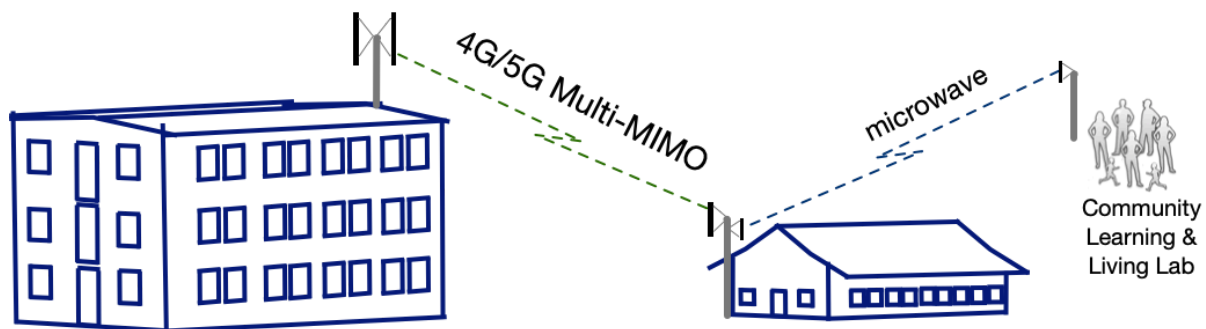


Figure 3: Universities connecting schools and Community Learning & Living Labs (CL3)

Topics currently under discussion include 5G and Community Learning & Living Labs.

Thanks to the multi-MIMO capabilities of 5G, energy can be concentrated only where it is needed. This reduces the energy consumption per area while maintaining the quality of the connection. As the university building is connected via fibre or other broadband access, the distribution requires a 5G base station on the roof, 5G antennas to reach the schools and the 5G receiving antenna in the schools.

The use case is illustrated in Figure 3, with the sketch of the university building on the left, the mobile multi-MIMO link supporting the school (centre), and a potential extension to connect Community Learning & Living Labs (CL3) via a microwave link.

³ We collected basic information on <http://Yeboo.BasicInternet.org> and provide a local copy of required content

⁴ <https://basicinternet.org/partners/university-collaboration-for-digital-inclusion/>

⁵ The Guild of European Research-Intensive Universities <https://www.the-guild.eu>

⁶ The African Research Universities Alliance - ARUA <https://arua.org.za>

The digital divide affecting large parts of society requires new approaches, including

- (i) Community Learning & Living Labs (CL3), where access to information and digital skills training can be provided, and
- (ii) 5G network slicing for Internet Lite⁷, which is a specific 5G network slice to enable access to information for all.

Examples of our work

School Connectivity Phase III in Tanzania

Following the school connectivity pilot of 10 schools (Phase I) and Phase II of connecting a further 50 schools⁸, we will connect a further 141 schools in 2023/24, and look forward



connecting another 200 schools by the end of 2024.

School Connectivity Kenya

The partnership with DENT Wireless has enabled us to connect 45 schools in the Kisumu, Siaya and Homebay regions of Kenya in three months. During the first few months, we established the Regional Competence Centre (RCC) with the African Higher Research Institute (AHERI.org), which led to the



⁷ <https://basicinternet.org/internet-lite-for-meaningful-connectivity-for-all/>

⁸ School Connectivity phase II: https://basicinternet.org/school_connectivity_tanzania/

community network operator AHERInet. Two months were spent connecting schools and delivering digital literacy training.

Smart Energy Solutions for Africa (SESA)

The Basic Internet Foundation is a partner in the SESA (Smart Energy Solution for Africa) project. SESA is a collaborative project between the European Union and 9 African countries (Ghana, Kenya, Malawi, Morocco, Namibia, Nigeria, Rwanda, South Africa and Tanzania) that aims to provide energy access technologies and business models that are easily replicable and create local opportunities for economic development and social cohesion in Africa. To provide the necessary connectivity, the Basic Internet Foundation plans to install 80 InfoSpots, targeting particularly disadvantaged communities. .

Read more in the SESA newsletter at

<https://sesa-euafrika.eu/the-sesa-info-spots-bringing-education-closer-to-the-communities/>

Join the collaborative effort of all stakeholders

We need a collaborative effort of all stakeholders to establish Regional Competence Centres (RCCs), connect the schools, establish Community Learning & Living Labs (CL3) and co-create content for empowerment.

Get involved: <https://basicinternet.org/get-involved/>

