Project outline[1]: Connecting Schools and Communities (DigitalEthiopia)

About the applicant: About the applicant: Linda Firveld[2] is COO of Eye Networks AS (Org. No. 987 772 158), the main applicant. In this proposal Eye Network collaborates with specialists in their areas, e.g. Ministry of Education (MoE) for regulatory framework, IBA Ethiopia and Adra for operation on the ground in Ethiopia, Basic Internet Foundation (BasicInternet) on access and UNICEF on education. Through participation in two H2020 projects and industrial PhD activities, Eye Networks is the de-facto knowledge center on wireless in Norway and Europe, and has established a world-wide network of first-class partners to serve the broadband market. EyeNetworks has the financial execution capability and the financial backbone to carry out this project in addition to the ongoing work. Turnover 2018: 48MNOK. Turnover 2019: 73MNOK. Estimated Turnover 2020: 110MNOK. 15 employees + external expert network.

Description of the project: The DigitalEthiopia project uses school connectivity as the first step for digital empowerment of the Ethiopian Society. Following the plan for connectivity by the MoE, and the national focus on the **National Knowledge Platform for Schools** (SchoolNet), we focus on connecting 500 secondary schools in Ethiopia to the national fibre, allowing connection speed up to 300 Mbit/s. The MoH provides access to the fibre, while we extend the connectivity to the schools, and prepare for connecting the surrounding villages in a second step. Connecting the first 500 schools is the entry to increased educational competence, adaption of the digital public goods (DPGs) and other education content by e.g. UNICEF, Adra, LeapLearning and creates the opportunity for Norwegian educational platforms, e.g. Zabai, Salaby. Furthermore, we introduce assistive technologies for teachers and students, allowing digital teaching and knowledge spread nationwide using SchoolNet. Given the competence of partners, a special focus will be on assistive technologies for people with disabilities, as well as vocational education. As a final outcome, we prepare school connectivity as an entry point for connectivity in the villages, and thus an initiator for entrepreneurship.

Key innovation is the **affordable connectivity** to schools, as well as the **collaborative exchange** using **SchoolNet**. Building on the Ethiopian National Strategy in reaching out in digital to every single person, school connectivity is the imminent first step. Using schools as an entry point will leapfrog rural connectivity. Through the Internet Society[3] we involve **community networks**, being the drivers for affordable Internet connectivity in rural areas. Equally important is the **SchoolNet** connectivity and **collaboration**, enabling free access to DPGs through SchoolNet, as well as advanced education through the Ethiopian Education and Research Network (**EthERNet**). Research topics address the linkage between governmental and community networks, as well as digitisation of the society. This research work is supported through 5 PhDs at Jimma and Ambo University.

DigitalEthiopia **addressed** directly **the need for connectivity** of the schools, **contributes** to the **governmental** plans for **digitisation.**Connectivity varies widely across the globe and within the regions. In Africa, the proportion of schools connected ranges from as low as **2 percent** (Ethiopia) to as high as 85 percent (Mauritius). Through school connectivity we provide the **opportunities to learn, communicate** and **gain skills** deemed **critical for the 21st century workforce**. Thus, we **contribute to equality**, and **increase young people's economic opportunities**. In summary, we (i) create opportunities for young people to develop their digital skills, (ii) invest in better and cheaper connectivity, (iii) build and distribute high quality and affordable digital content, and (iv) support and collaborate with innovators and local stakeholders by providing adequate resources and channeling promising products (digital public goods).

Solutions supporting both **short-term** and **long-term problems:** The short term problem being addressed is to connect schools and thus start the digital conversion. Connecting schools and utilising schools as primary place for young people's learning and local community activities have tremendous potential for enhancing the quality of skills for young people. This is especially true in remote areas, where Internet connectivity is de-facto not existing. Thus, through connectivity and

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[1] This project outline addresses the topic «Solution for digital empowerment of education» by Innovation Norway

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digital skills **we built knowledge centres** for addressing the current and **long-term problems** of creating jobbs and addressing employment in Ethiopia. By involving the community in building connectivity, we create the base to further expand the network to reach out to the local communities. Thus, we open for

1. the growing **marketplace** for digital goods and services that will create new opportunities for competent young people to find employment that transcend traditional paradigms,
2. improved access to digital and personalised content through **technology-enabled personalised learning**,
3. better engagement of students and **improved critical thinking**, creativity, collaboration and communication alongside problem solving, and
4. expanding **digital connectivity** to the local communities for accelerated **economic growth**.

Countries and **target groups**: Our focus for this pilot is Ethiopia, though, the solution for school connectivity and societal involvement is applicable to the majority of all countries. SDG indicator 4.A.1 as the percentage of schools has a **global ambition**, and the GIGA project by ITU and UNICEF address the purchase of school connectivity. As such, our activity has the potential as a lighthouse project, enhancing connecting with community involvement and knowledge creation. The initial support needed for this pilot will result in a clear base for «empowerment beyond connectivity». **Community** & **NGO** involvement is essential for the success of the digital transformation, and are **targeted** through our activity.

DigitalEthiopia is build on a strong network of collaboration partners with dedicated responsibilities. **EyeNetworks** will contribute with the overall technology leadership, well supported by **BasicInternet**. The **MoE** is the political coordinator, and the driver for national competence and collaboration through **SchoolNet**. Through involvement of **UNICEF** we'll ensure the relevance for the GIGA project, as well as the inclusion of DPGs. **IBA Ethiopia** will coordinate the roll-out on the ground, well supported by Adra Norge. The **Internet Society** contributes with the link to the community networks, ensuring the reach out to the communities. **UiO**, **Jimma** and **Ambo University** collaborate on the Research, based on the ongoing collaboration between the partners[4]. The strong academic involvement will allow further development on digital connectivity and empowerment.

The DigitalEthiopia project is a 12 month project with a supported budget of 45,95 Million NOK. **Main Activities** are listed in Table 1, alongside with the timeline[5] and the envisaged costs. Given

Table 1: Milestones and costs

Time	Activity	units	unit costs [kNOK]	supported budget [kNOK]
M01-M03	Site survey 500 sites	500	4	2 000
M01-M02	Equipment ordering, first 100 sites	100	23	2 300
M02-M04	Equipment ordering, second 400 sites	400	18	7 200
M02-M05	Configuration work	500	1,4	700
M03-M04	Installation on site: 100 sites	100	8	800
M04-M06	2nd round installation: 400 sites	400	6	2 400
M05-M06	Quality Control	500	2	1 000
M01-M06	Knowledge creation and training in the 500 schools	500	30	15 000
M04-M12	Community involvement	500	2,5	1 250
M04-M06	SchoolNet extension, platform & Digital Public Goods implementation	1	900	900
M04-M12	Conversion of used PCs to School PCs	5000	0,9	4 500
M05-M12	After sales support, and digital connectivity collaboration Aambo & Jimri Univ.			4 700
M01-M12	Admin and travel			3 200
SUM	Total			45 950

[4] Dr. Addisalem Genta was visiting researcher at UiO in 2019, and the partners contribute to the excellence centre in Addis Ababa.

[5] The timeline is presented in terms of Months, e.g. M03 means Month 3

the demand of the MoE to complete the installation of 500 schools within Oct2020, and the pre-knoledge of the involved partners, we focus on a jump start addressing the connectivity of 100 shcools in phase 1, the follow-uo 400 schools in phase 2, and parallel knowledge transfer and capacity building.

The DigitalEthiopia project is an excellent example of addressing the focus of the Norwegian Government for «Digital transformation and development policy[6]», by addressing three out of the four barriers to digitalisation *(i)* access, *(ii)* regulation, *(iii)* digital competence and *(iv)* exclusion, being the focus of the Norwegian.

(i) Access is the main focus, both with respect to school connectivity (SDG indicator 4.A.1) and community connectivity (through community networks);
(iii) digital competence is the outcome of the novel teaching capabilities provided through the access; and
(iv) digital inclusion is specifically addressed through the extension of the SchoolNet platform.

Together with the MoE, UNICEF and the Internet Society, we will work towards *(ii)* regulation for the free access to a National Knowledge Portal including SchoolNet.

[6] «Digital transformation and development policy», Meld. St. 11 (2019-2020), https://www.regjeringen.no/no/dokumenter/meldst11_summary/id2699502/