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KNOWLEDGE PLATFORM ON INCLUSIVE DEVELOPMENT POLICIES

Ap(p)iculture:
To keep it real
in the digital turn

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To keep it real in the digital turn

There is no doubt that policy making in governments and international development programmes is experiencing a turn towards the digital. INCLUDE's research programme 'Digital divides or dividends?' explores the digitalisation of basic services in several country case studies. The tricky parts of turning digital are to do it in an inclusive manner, and to make the digital solutions fit the real world. This two-pager engages with digitalisation on a practical level, based on a case study of three digital applications for beekeepers in Uganda.

The case study collaboration by INCLUDE and MUBS, together with TUNADO, World of Bees, Woord en Daad, and TRIAS Uganda, shows that digital innovations are not only about the digital domain. Virtual, technological, but also individual and social aspects play roles that both impede and negotiate the usability of digital innovations. This two-pager tackles usability issues and gives recommendations that can unlock the next level of digital innovation in real-world settings. There is already a gap in access and ability that is best described as a digital divide. What does this divide look like when you dive into it with your digital application?

Digital solutions for real problems in apiculture in Uganda

Not all digital transitions are equal. Uganda currently has an internet penetration level (the portion of the population that is using the Internet) of **26% of the population in January 2021** and the proportion of broadband connections grew to **53% in December 2021**. But in 2019, this rate was still **9% in rural areas and 30% in urban areas**. The rural-urban divide is more pronounced in the electricity domain with **70% of urban dwellers having access and only 33% of the rural** population connected to the electric grid.

In the apiculture sector in Uganda, **three applications** are introduced as digital solutions to real-world problems. These problems are access to finance, improving levels of apiculture and business skills, and traceability and information availability. One application connects beekeepers to an online platform that enables them to **buy equipment on credit**. This is done via intermediaries (Apiary masters) that train and support the beekeepers and use the digital application on their behalf. The second is a **gamified learning application** for beekeepers to be used in group trainings. This application simulates different business scenarios in the apiculture value chain to inform decision making. Thirdly, the **database and data entry application** is for underpinning the need for data for access to credit and traceability.

Usability aspects

Usability is in essence how well the applications work in the hands of the users. The digital literacy of the users, the appropriateness of the technologies for their purposes, and the available technological infrastructure on which they rely play a pivotal role in their usability. These challenges for access to and usage of these applications are specific, but not particular to, the rural settings in which they are implemented.

Smartphone ownership and use is very rare in the rural areas of Uganda. This means **intermediaries are needed** to inform, convince, and educate the end users about the workings and added value of the digital applications. This means that the digital innovations depend on a **network of people to introduce and implement** them.

Trust is a big factor in the successful adoption and usability of technology in the developing world. For instance, while registering farmers on a credit app, it was found out that farmers may be reluctant because many Ponzi schemes have similar used apps to enrol their victims. When farmers are asked to present their national identification numbers for verification, they tend to be concerned of hidden motives. There is more to say on issues of adaptability and the question of when digital innovation actually makes more sense than other interventions. This depends on **broader infrastructure**, but also on **digital literacy and skills** and it applies to **trainers, proxy-users and end-users** of digital alike. More insight into the importance of these factors would facilitate the push to go digital in rural development.

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Level-up recommendations

As mentioned above, virtually all challenges that apply to the real world are echoed in the digital realm. These recommendations are drawn from the case study and apply to the design, implementation and overall strategic decisions regarding digital innovations in rural areas.

- **Digital deserts** – rural areas are typically less connected to the necessary infrastructure for digital innovation. This causes lower access to technological devices, less exposure to the internet or other digital platforms, and lower digital literacy. To operate within a digital desert, extra non-digital methods are needed:
    - The technology should retain its functionality in low connectivity areas, on low quality devices, and work with low battery usage
    - Working with trained intermediaries can help bridge the digital gap through proxy-use, trainings, and mediated access to technology. Proxy-use and mediation requires basic trust and familiarity with the intermediaries
    - Bridge the digital gap with non-digital solutions such as flip-charts or other training materials

- **Gap upon gap**: gendered and other intersecting aspects of digital solutions
    - Understand the gendered aspects of access to digital technology, digital literacy, and intra-household dynamics that mediate these things – not only in terms of inhibition, but also in terms of support. For example, when men do not own a smartphone, they can have access to one via friends and family, but how do women access smartphones technology?

- **Digital literacy** – besides reading and writing, digital literacy concerns the ability to interact with digital platforms. Digital illiteracy results in inability to interact with digital technology, as well as adverse attitudes to digital technology.
    - Trainings by trusted intermediaries can help shift attitudes and make digital technology more familiar and understandable
    - Digital literacy in combination with lowering the threshold of access to technology
    - Adapt digital technology to illiteracy by minimising use of text, or using spoken words

- A **network without reception** – the social circles mediate access to and use of digital technologies
    - Sharing of information in social circles about digital technology should be included in strategies of digital innovation
    - Mediated use and proxy-use should be featured in the usability of applications – they should be designed with this in mind

- **Smoked screens** – technical issues and compatibility
    - Timely technical support for end-users and proxy-users is required
    - Language barriers for proxy-users and end-users should be bridged

- **Involving intended end users** in the development of technologies (co-creation) can put the focus on these issues. Local development and production of digital applications can also make them more appropriate to the technological and social specifications.

In short, **digital innovation cannot stand alone**, it needs a system of technical support, intermediaries, and a level of sufficiency in digital skills and literacy. This concerns the individual users, the technology involved, and the social structures and support that the users can count on to make use of the innovation.

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