How to digitalise your development cooperation projects and programmes – practical steps for design and planning

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INITIATIVE

Introduction

This reference document is an invitation for development cooperation practioners to explore the potential of digitalisation in their projects and programmes.

Digital technologies and solutions are often perceived as complicated and as requiring significant know-how just to assess the opportunities and challenges that they present. The reference document presented here aims to help practitioners to make a first step towards exploring digital innovation across a very broad field of project types. Ideally, the reference document is used in conjunction with the Climate Ledger Initiative (CLI) use case brochure presenting project examples and lessons learned. Realising the potential of digitalisation is also a priority in Switzerland's international cooperation strategy 2021–2024.[1]

Using digital technologies and solutions in development cooperation can yield several benefits:
- more efficient and effective projects, processes and services
- innovation and new business and operational models
- enhanced transparency, participation and empowerment
- increased trust in and reliability as well as accuracy of data and solutions

The document describes the process of exploring and recognising possibilities for digitalisation, assessing their potential, and selecting digital technologies and solutions for inclusion in projects. It is assumed that the project manager or someone to whom she or he delegates the task is leading the process. The reference document is broadly applicable and therefore does not address specific solutions, for example for project management or data analysis, because the needs of different projects vary considerably. As such it is best suited for use in the project planning phase, where it can help to kick-start a process of digital transformation.

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[1] https://www.eda.admin.ch/content/dam/deza/en/documents/publikationen/Diverses/Broschuere_Strategie_IZA_Web_EN.pdf

Figure 1 provides an overview of the practical steps to assessing the potential for digital technologies and solutions for development cooperation projects and programmes. The figure also show the approximate time needed as well as actors involved. It is an iterative process, so for example at the end of step 4 it might be necessary to go back to step 2.
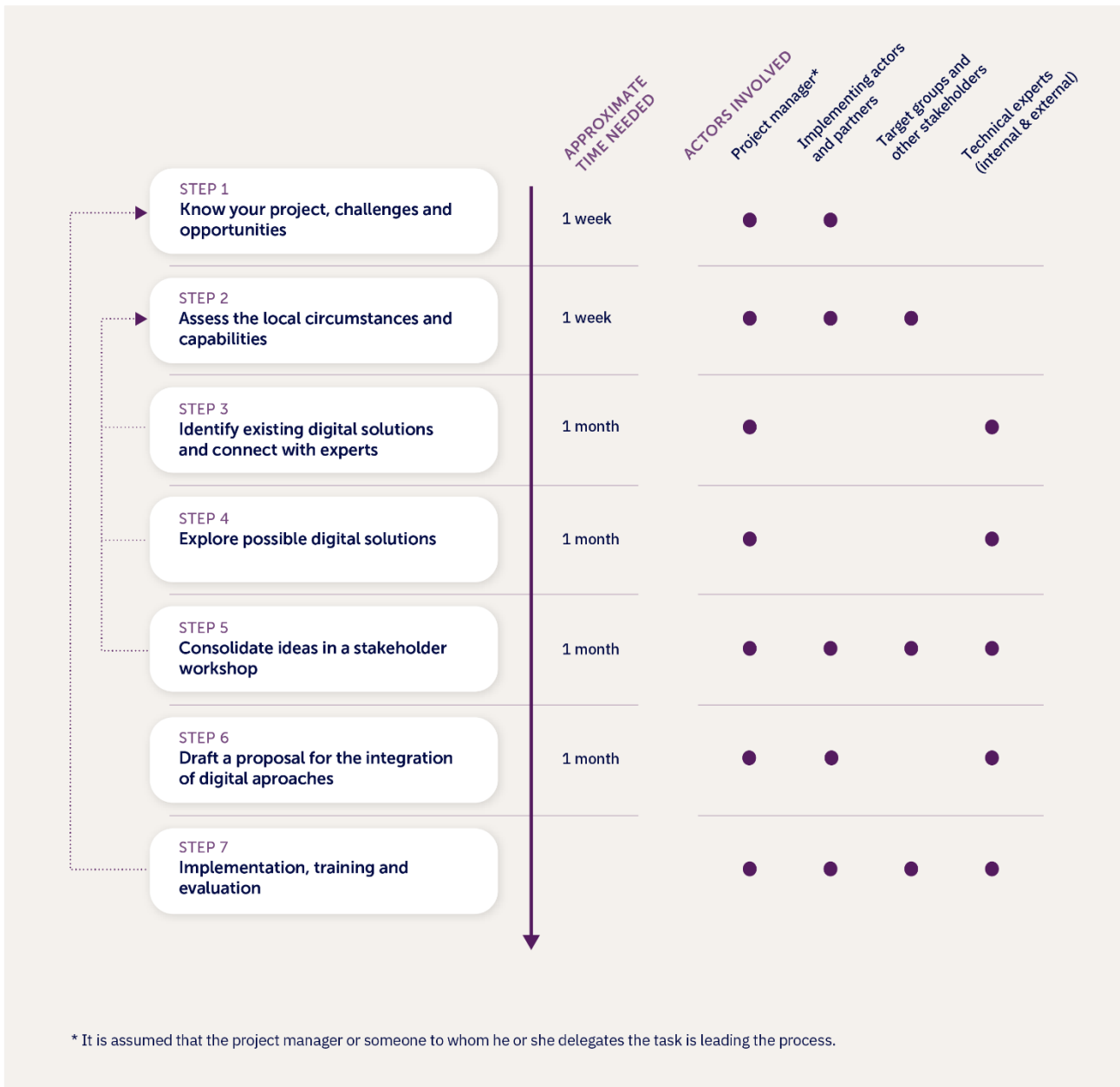

	APPROXIMATE TIME NEEDED	Project manager*	Implementing actors and partners	Target groups and other stakeholders	Technical experts (internal & external)
STEP 1 Know your project, challenges and opportunities	1 week	●	●		
STEP 2 Assess the local circumstances and capabilities	1 week	●	●	●	
STEP 3 Identify existing digital solutions and connect with experts	1 month	●			●
STEP 4 Explore possible digital solutions	1 month	●			●
STEP 5 Consolidate ideas in a stakeholder workshop	1 month	●	●	●	●
STEP 6 Draft a proposal for the integration of digital aproaches	1 month	●	●		●
STEP 7 Implementation, training and evaluation		●	●	●	●

* It is assumed that the project manager or someone to whom he or she delegates the task is leading the process.

Figure 1: An iterative approach to assessing the potential for digital technologies and solutions

Digitalisation does not come without risks. Artificial intelligence (AI) can magnify human bias, personal data can increasingly be collected and misused or energy-intensive activities such as bitcoin mining have their own environmental implications. In addition, digital solutions may also increase digital divide. Thus, digital technologies need to be applied wisely, harnessing their opportunities while managing potential hazards - and leaving no one behind.

Step 1: Know your project, goals and challenges

Before you start the process of exploring the potential for digitalising, make sure that the goals of your project or programme are defined and the underlying conditions and key parameters known. It is highly advisable to start thinking about the possibilities for digital innovation early in the project management process or at the start of a new project planning phase. Project team members with relevant know-how can be brought into the process at this stage to strengthen the assessment. Digital technologies and solutions are a means, not an end in themselves, so it is important to start with the challenges posed by the project before considering what digital technologies and solutions could help to solve them.

In terms of areas that lend themselves to digitalisation, you may want to consider what and how data is used in the project to drive action and take decisions, the need for monitoring and reporting, as well as requirements for project and programme management. You could also look into the financing of activities and new business models, as well as communications and knowledge sharing for opportunities to apply digital solutions (see Figure 2).

Through this step, you can identify a) the roles and needs of various actors and b) the opportunities, gaps and challenges that could potentially be addressed with digital technologies and solutions.

Step 2: Assess local circumstances and capabilities

It is important to understand local circumstances and capabilities before planning and implementing digital innovation. This may include the specific circumstances of each locality and community, including existing digital infrastructure and ecosystem (e.g. internet access, mobile phone penetration, digital literacy, digital payment services, relevant regulations). It should also include an assessment of different groups (e.g. indigenous people, migrants, women, youth) and their specific needs and capabilities. Such an assessment helps in identifying solutions that are viable also in the long-term, far beyond a project's end. Solutions that work in one country

might not work in another due to different local circumstances and capabilities. It can be built on desk research but also requires direct exchange with local team members, experts and stakeholders, including local governments, NGOs and local communities.

As a result of this step, you will become more aware of local digital infrastructure and expertise, including among the local population and/or the targeted stakeholders.

Step 3: Identify existing digital solutions and connect with experts

Get an overview of projects and digital solutions in similar areas of practice through a literature review and internet research. A starting point could be the CLI use case brochure, which contains numerous project examples, relevant actors and links. Additionally, connect with digitalisation experts locally and internationally to get a better idea of the possibilities.

This step should leave you a) knowing what others are doing in your field of interest and b) in contact with digitalisation experts.

Step 4: Explore possible digital solutions

Digital technologies offer a wide range of tools and solutions, including remote sensing using satellites or drones, continuous access to sensors and intelligent objects through the internet of things (IoT), learning systems with artificial intelligence (AI) and the processing of large data sets, or the storage of assets on blockchain and other distributed ledger technologies (DLT). These technologies can be applied in a wide range of contexts to e.g. gather and manage data, improve processes and support decision-making. Figure 2 provides an overview of possible applications and summarises overarching benefits for the project or programme.

The following list of applications is based on experience gathered in CLI use cases and selected projects supported by the Swiss Agency for Development and Cooperation. The list is a work-in-progress and does not claim completeness. The list may be updated going forward in regular intervals as experiences and learnings are made. It should be read in conjunction with the CLI use case brochure.
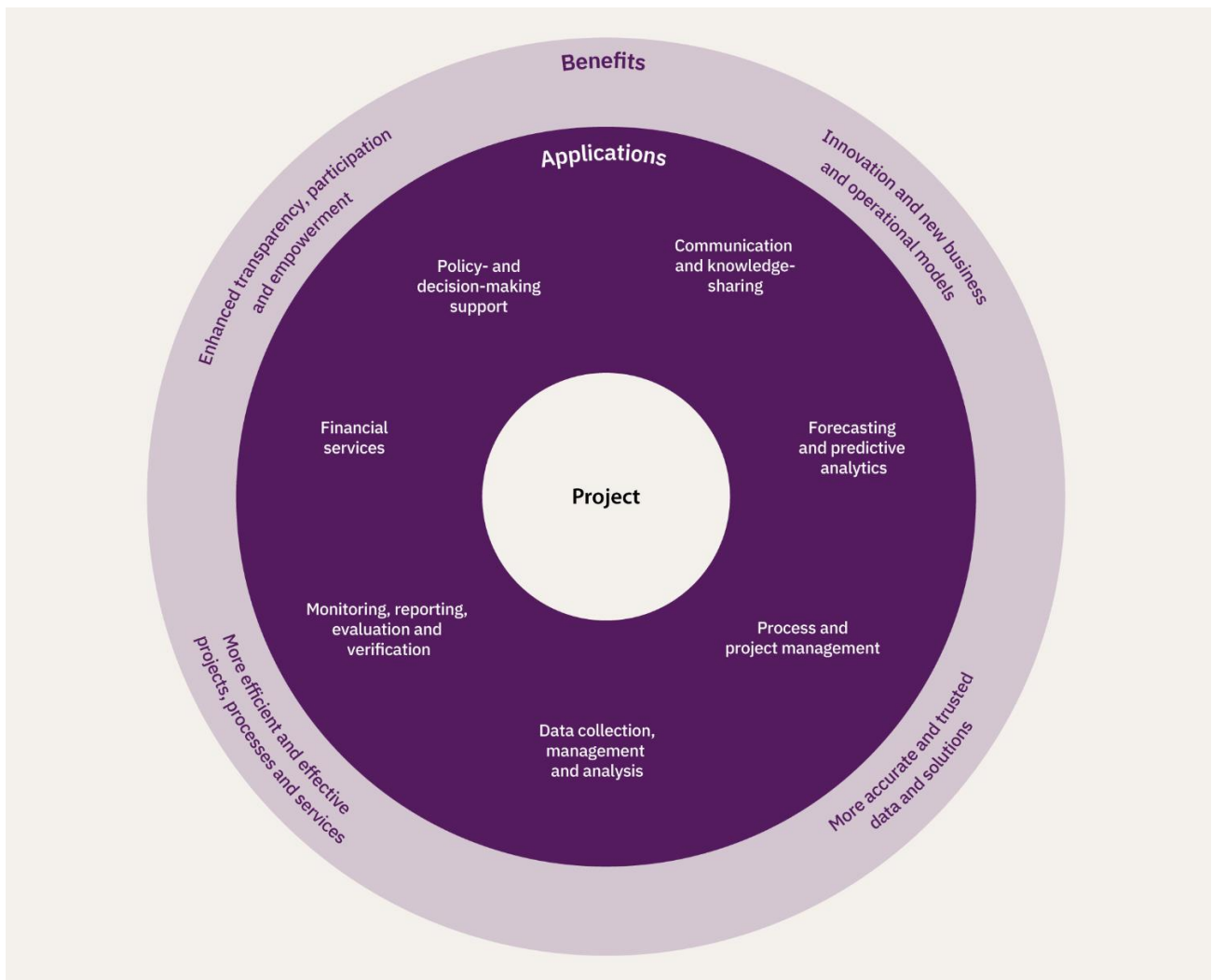
Figure 2: Applications and benefits of digital technologies

- **Data collection, management and analysis**
  Development cooperation projects increasingly involve the collection, processing and analysis of large amounts of information and data. For instance, projects can use digital technologies to provide smallholder farmers with up-to-date information on the condition of stored produce, the risk of drought in their region, or prices in different local markets.
  Such applications often represent "low-hanging fruit", whereby systems used to gather and transfer information are expanded, strengthened and accelerated. This may involve the use of sensors for automatic data capture, data loggers for its temporary storage, data transmission to a central data store, data management and automated data quality assurance. Additionally, analytical tools may be integrated from simple Excel to sophisticated big data solutions and AI.

- **Forecasting and predictive analytics**
  Similarly as for data analysis more generally, digital technologies from simple spreadsheets to sophisticated big-data solutions and AI can then be used to provide forecasting and predictive analytics more specifically. Examples include weather services and the prediction of price developments to support farmers and other actors in food supply chains, and the prediction of flooding risks as part of initiatives to strengthen climate change resilience.

- **Monitoring, reporting, evaluation and verification**
  The monitoring of performance based on up-to-date and accurate data on project outputs, outcomes and impacts is crucial to the success of a project or programme. Traditional monitoring solutions (using methods such as the manual entering of data into paper documents and spreadsheets, and carrying out ex-post surveys) may be error-prone, slow and lacking in transparency. Digital solutions can collect data even in remote areas with limited internet connectivity, securely store and transfer the data, and process it in appropriate ways. This may be complemented by a digital platform that presents project information in an attractive, accessible and constantly updated cockpit. Digital solutions can also be useful in the preparation of annual reports and for data verification, for example of greenhouse gas emission reductions or removals.

- **Digital incentives for action, results-based finance and other financial services**
  Connecting digital monitoring solutions with digital payment services can incentivise communities. For example, such systems can deliver direct payments of small amounts to stakeholders in response to achievements in sustainable forest management detected by remote sensing. In areas where many people lack access to traditional banking, such digital financial services can become the backbone of community-based activities. Solutions can include money for mobile phones in many countries also available digitally or tokens on blockchains specifically designed for the project that can be used in selected local shops or facilities for payment (see e.g. Unicef Yoma). Digital pay-as-you-go systems have increased the viability of projects to distribute small-scale photovoltaic systems to households in developing countries. On a larger scale, digital platforms have been used to extend index-based micro-insurance to smallholder farmers at considerably reduced cost – a key requirement for scaling up.

- **Policy support and decision-making**
  For policymakers, access to up-to-date and accurate data enables better decision-making. For instance, digital monitoring systems using low-cost sensors to measure indoor air pollution can help inform the design of strategies to promote clean cooking technologies in pursuit of public health and climate mitigation goals.

- **Process and project management support**
  Many digital solutions support process and project management. Project management software allows the consistent tracking of all project processes and provides project managers with quick access to project data, key performance indicators for an entire portfolio of activities and a basis for decision-making. Such systems may combine traditional management software with more advanced monitoring and reporting tools such as those mentioned above.

- **Communication, community building and knowledge sharing**
  Communication and knowledge-sharing among people and stakeholders is often a central component of development cooperation projects. There are many cost-effective digital technologies that can facilitate such exchanges. Areas of application include information or advisory services, the formation of local communities of practice, participatory decision making processes, and early warning systems for natural disasters. Such applications can be relatively straightforward, in particular in regions where the use of mobile phones or smartphones is well established. Rather than developing custom-built tools, projects can use apps and platforms that are already widely used for the exchange of information, including simple text messages and social media sites, email newsletters or videotelephony. Digital solutions can also be a boon for education projects, which can deploy e-learning platforms with offerings including video tutorials, online courses (including massive open online courses) and libraries of online resources. Project practitioners do not need to understand the novel technologies in detail, but should familiarise themselves with the types of data and information flows required for their project, know about the potential and limitations of digital technologies on a general level and identify tech experts that they can ask for advice.

As a result of this step, you will have acquired an overview of digital solutions that could be used to address challenges and achieve the goals of your project.

Step 5: Consolidate ideas in a stakeholder workshop

Once the first possibilities for digital solutions have been identified through steps 1-4, it is important to discuss the options in a multi-stakeholder workshop. The size of the group may vary but should include key project staff, project partners, technical experts, and community representatives as well as other stakeholders. Digital solutions, including opportunities and risks, should be assessed and discussed. Particular attention should be given to the sustainability and scalability of solutions (see also step 6). The workshop is also a chance to learn about stakeholders' requirements and to identify digital solutions that correspond to local needs and conditions. This includes an understanding how the use of digital tools

affect different local stakeholders as well as seeking ways to support the most disadvantaged groups. In addition, the discussion might also helpt to identify opportunties to overcome digital divides.

As a result of this step, options have been critically discussed and possible solutions selected.

Step 6: Draft a proposal for the integration of digital solutions

The next step is to develop a proposal for digitalisation of the project. Ideally, this step is fully integrated into the regular project development cycle and not a separate add-on. It includes a realistic needs and feasibility analysis that shows how the digital solution is viable in the long-term, beyond the project's end. It also includes a cost estimate that not only calculates the development costs, but also the costs of operation, maintenance and evolution. Digital solutions tend to be expensive at the small-scale and early demonstration stages before becoming much more cost-efficient with scaling. The project development process should be iterative to incorporate improvements identified in exchanges with experts and other organisations.

Sufficient preparation and training – including of project staff, partners and beneficiaries – are important for the success of a project and must be included in the proposal. Complex digital solutions might require high levels of training to ensure their sustained implementation beyond the life of the project.

As a result of this step, you should have a comprehensive proposal for digital innovation in your project, including all necessary training. Ideally, implementation of the digital solutions selected will foresee a pilot phase before scaling up at a later stage.

When developing digital solutions, consider promoting those that are **open-source** and **open-access**. Open source refers to software whose source code is freely available for modification and redistribution. Open access refers to research and data that is made widely available free of charge. With an open approach, development cooperation projects can benefit a larger group of stakeholders by enabling collaboration and avoiding costly duplication. It also supports scaling and sustainability. However, some partners may insist on restricting access to proprietary technologies that underpin their business models.

Data protection and governance is also a key consideration. Project developers need to clarify what data is collected and how it is used and shared. Data protection refers not only to backups and archives, but also data and cyber security as well as data privacy. Protecting data from corruption, compromise or loss is key for digital solutions for climate action. Particular attention is needed to ensure solutions comply with laws such as the European Union (EU) general data protection regulation (GDPR), which also affect organisations outside the EU collecting and processing personal data of EU citizens and residents.

Step 7: Evaluate implementation and training to make necessary adjustments

After the pilot phase or initial full rollout of the chosen digital solutions, there should be an evaluation of initial achievements and experiences. Lessons learned should be shared across project and programme boundaries, sectors and organisations. Depending on the results of the evaluation, you might want to repeat some of the steps in this reference document and adjust the solution(s) chosen.

As a result of this step, you should be able to use the initial experiences in the implementation of the chosen approach to make any necessary improvements to the digital solutions deployed in your project or programme.

Based on the experience gathered through initiatives supported by CLI and its partners, this guide hopefully provides a useful starting point for practitioners seeking to understand and harness the huge potential of digitalisation to make international development cooperation more effective.

In the spirit of openness and cooperation espoused in this reference document, and acknowledging that the field of digital technologies is undergoing rapid development, CLI would be pleased to receive feedback on this publication as well as input from other projects and programmes that have generated knowledge about delivering digital innovation.

Further readings

Climate Ledger Initiative (CLI): Website.

Climate Ledger Initiative (CLI) 2023: Digitalisation for Climate Action – Experiences from 8 use cases in 6 countries; Use Case Brochure.

Federal Ministry for Economic Cooperation and Development, Germany: Digital Change and Development Cooperation (German).

MITD-Lab 2019: Understanding Innovation Ecosystems. A Framework for Joint Analysis and Action.

Soini, Martin, Anik Kohli, and Juerg Fuessler 2022: Assessment of Digital Measuring, Reporting, and Verification; A Snapshot of D-MRV in Decentralized Energy, Forestry, and Agriculture; CLI White Paper.

USAID 2022: Digital Ecosystem Framework.

World Bank: Website portal on Digital Development.

In addition, SDC's partner NADEL of ETH Zurich offers the following course for professionals: ICT4D – Concepts, Strategies and Good Practices.

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