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CASE STUDY

Knowledge and data management during project execution and as an organisation prepares for closure: learning from the Technical Centre for Agricultural and Rural Development

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Knowledge and data management have gained recognition as critical factors for organisational and project success. In development organisations, knowledge management (KM) has been in place from the early 1980s, while its importance in project management emerged in the early 2000s and has become increasingly relevant for decision-makers in the development milieu. Knowledge is the foundation for equitable and sustainable development. Owing to the need for reliable data and major developments in data management – such as access to IT platforms to put data in context, access to data storage and analysis capabilities at low cost - more and more development organisations have realized the importance of incorporating data management into organisational and project management programmes. At the same time, well established development organisations are faced with an urgent need to adjust their knowledge and data management approaches due to improvements in technology, availability of data and data analysis tools. Additionally, some development organisations are facing institutional changes that will either see them changing their management approaches, or even close their doors. This was the case of the Technical Centre for Agricultural and Rural Cooperation (CTA), which came to the end of its mandate on 31 December 2020, requiring an orderly closure. CTA started as a knowledge broker to drive wider investments, and to promote innovation exchange on technologies, digital solutions, business models and relationships that have been critical to the sustainable transformation of agriculture and the improvement of food and nutrition security in African, Caribbean and Pacific (ACP) countries. After 37 years in operation, CTA's mandate came to an end on 31 December 2020, when the Cotonou Agreement between the European Union and the ACP countries, the legal and financial framework within which CTA functioned, was scheduled to end. These decades of investments have yielded knowledge and data that are extremely useful to the development sector. Though the Centre adjusted its approach from being a sole knowledge broker to driving greater sustainable

agricultural development, the agenda of knowledge and data management remained key throughout its lifetime. This article aims to discuss CTA's knowledge and data management approaches during project execution and its orderly closure phase. It is hoped that this will serve as an example to other development organisations.

Key words: Technical Centre for Agricultural and Rural Cooperation (CTA); knowledge management; data management; experience capitalization; knowledge broker; organisational closure; development organisation

Introduction

Knowledge management (KM) is "*the conscious process of defining, structuring, retaining and sharing the knowledge of employees within the organisation* (Valamis, 2021). It is basically carried out to improve the efficiency of an organisation and save knowledge within an organisation. Data management is in summation the acquisition, organising, processing, storing, and maintaining of data (Stedman & Vaughan, n.d.). The knowledge derived from data is a crucial component in making better informed organisational decisions, improving marketing, enhancing business operations and reducing costs, with the goal of increasing efficiency.

Effectively managed knowledge and data can be clear pointers to factors that contribute the most to an organisation's impact and highlight bottlenecks. In that sense, the Technical Centre for Agricultural and Rural Cooperation (CTA) was able to improve its internal KM and its M&E system, which in turn allowed it to better manage its projects, its results and organize its own closure. Further, in line with the continuous improvement of its KM system, CTA put an emphasis on innovation, and was an early and effective adopter of new digital tools and innovative approaches. Examples include Microsoft's SharePoint and its business intelligence software, Power BI. It also championed the use of the experience capitalisation approach globally to promote the capture, documentation and sharing of knowledge and lessons from experience in its own projects and initiatives, and those of partners.

CTA started as a knowledge broker for African, Caribbean and Pacific (ACP) countries. However, it rapidly began driving wider investments, and promoting innovation exchange on technologies, digital solutions, business models and relationships that have been critical to the sustainable transformation of agriculture, and to the improvement of food and nutrition security in (ACP) countries. After 37 years in operation, CTA's mandate came to an end on 31 December 2020, when the Cotonou Agreement between the European Union and the ACP countries, the legal and financial framework within which CTA functioned, was scheduled to end.

These decades of investments have yielded knowledge and data that are extremely useful to the development sector. Though the Centre had adjusted its approach from being largely a knowledge broker to driving broader sustainable agricultural development, the agenda of knowledge and data management remained key to the Centre's work throughout its lifetime.During the closure, the Centre successfully managed its knowledge and data by either transferring its intellectual property rights (IPRs) to strategic partners, or by liquidating data without losing useful information, and at the same time without breaching GDPR laws.

The main objective of this paper is to discuss CTA's knowledge and data management approaches during project execution and, as the organisation prepared for an orderly closure, the completion phase. The paper is organised into three main sections:

- CTA's diversified KM approach
- CTA digital platform for data management
- How CTA adapted its KM activities in preparation for an orderly closure

CTA's diversified approach to knowledge management for successful project execution

For some time, CTA had the mission to design high-impact, short- to medium-term projects aiming at developing the agriculture sector in ACP countries. As was regularly shown on the CTA website, these projects, thanks to their implementation design, impacted the lives of millions of farmers by reinforcing their capacities through various means including technical knowledge and technology transfers (CTA, n.d., a). The Centre's approach was based on the belief that the life support system of a thriving project was deeply rooted in how people integrated the best knowledge and turned it into competencies over time, leading to better results. The application of knowledge, skills, tools and techniques to project activities brought about positive results in the different initiatives running in the ACP region.

Different schools of thought independently agree that the planning, delegating, monitoring and control of all the aspects of the project, or rather the motivation of those involved, is a reflection of the successful execution of knowledge and data management initiatives in a project. Incorporation of a knowledge-based management criterion clarifies how the organisation generates, exploits, maintains and transfers critical knowledge in the project's activities. CTA's actions were guided by the idea that successful projects need the acquisition of external and internal knowledge and a "lifelong learning..." approach, giving the project flexibility to react to changes that occur in the development environment (Ranf & Herman, 2018).

In this context, CTA developed a methodology to implement an institutional Knowledge Management Strategy using the KM Tree approach (CTA, n.d., b). The tree analogy has helped to illustrate the framework. The approach has been applied successfully by project coordinators to conceptualise and implement KM in their projects. Other stakeholders in ACP

regions have applied it in their institutions and networks, and it has been used to promote Information, Communication and Knowledge Management (ICKM).

Additionally, CTA adopted the experience capitalization approach[1] for its projects to acquire knowledge and to learn from the experiences (CTA, n.d., c). CTA defined experience capitalization as the process by which a specific project or programme (or "an experience" in general) is described and analysed in detail, and from which lessons are drawn, shared and used to improve development interventions. CTA used the experience capitalization approach to capture hidden knowledge, to document successes, challenges, and lessons that may otherwise be lost or unused. Experience capitalization was furthermore used in CTA to co-create knowledge with project implementing partners and beneficiaries, and also to document and share knowledge among key stakeholders. CTA contributed to the development of an online learning module, joining an initiative led by FAO, and completed a training of trainers' guide (Eggens & Chavez-Tafur, 2020) and a knowledge sharing platform http://experience-capitalization.cta.int/. This approach created insights that have been appreciated by stakeholders across the agricultural development sector. One such stakeholder was the African Forum for Agricultural Advisory Services (AFAAS) that had expressed interest to learn from CTA's experience capitalization skills. Before the closure of CTA, AFAAS' staff members were trained and equipped to use the experience capitalization approach to strengthen the capacity of regional and sub-regional institutions.

Successful integration of knowledge and data leads to successful projects (Levin, 2010). Properly managed knowledge and data can offer a reference to help solve problems encountered during operations. Most importantly, reusing knowledge in project execution helps to avoid repeating mistakes made in the past. The real benefit is realised when an organisation intentionally implements and integrates its process or projects with the existing KM criteria and uniting the new system and their traditional ways of working towards harvesting most of the applied efforts. Organisational knowledge and data that have been effectively managed over the life of a project preserve valuable intellectual capital.

Inspired by the above, CTA's Monitoring and Evaluation (LME) Unit adapted its monitoring, evaluation and impact assessment activities in 2017 to capture project results data and measure the contribution of CTA's investment portfolio of more than 70 projects to the targets. The results data captured at project level were consolidated to measure the level of achievement of the output, outcome and impact targets in CTA's 2016-2020 corporate logical framework. The M&E framework adopted followed a systemic approach with four inter-related components, respectively M&E planning, data capturing, data management, and reporting results. The framework linked these four components together systemically to create CTA's results data management system, as shown in Figure 1 below.

CTA's experience capitalization approach cut across the Centre's projects and also facilitated experience sharing among the different programmes. Data captured or validated on two

projects through Experience Capitalization sessions held in Brussels (9–12 September 2019) and Cotonou (1–5 October 2019) was used to update the levels of achievement for the relevant outcome indicators in CTA's Results Data Management System (RDMS). This experience showed that experience capitalization can serve as an effective tool both for capturing new results data (as was the case for the Brussels meeting) and for validating data obtained through surveys (as demonstrated in the Cotonou meeting).

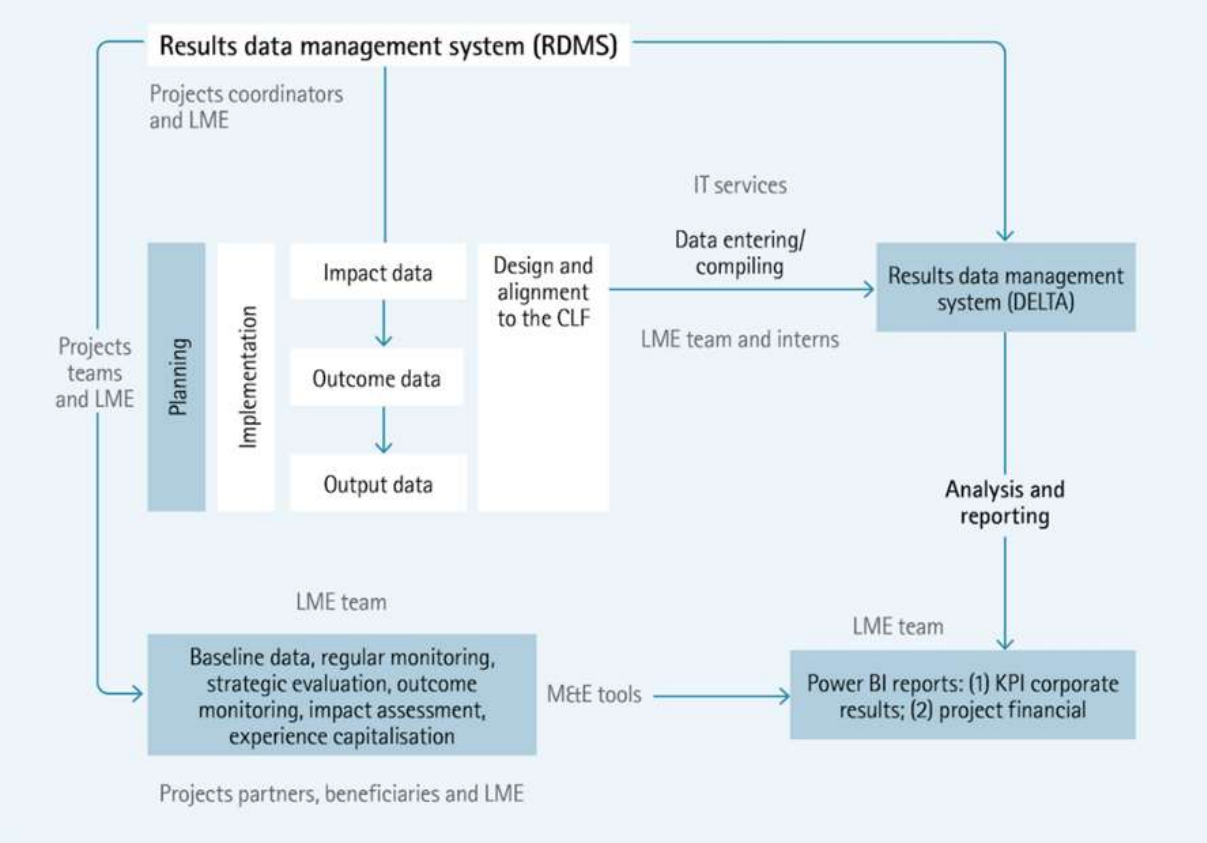

Figure 1: CTA's results data management system (Source: Khadar, 2020).

A digital platform for data management at CTA

Microsoft SharePoint is widely used by organisations and can be described as a web-based application platform for content management, knowledge sharing and supporting collaborative work. CTA used SharePoint to store all working files and knowledge materials, in various formats. Diverse entry points and access rights to the platform and its contents were granted and managed by the IT team, meaning that the level of access for a staff member differed depending on the need. This ensured data safety and better handling of sensitive information. Access to the platform allowed staff and implementing partners in different countries to monitor what others in the team were working on by glancing through the repository as one would do in a library to look for specific information. For partners in

different countries, the platform facilitated the sharing of files and gave a good alternative to share heavy files that could not be shared by email.

One of the most important functionalities of the platform was that colleagues could work simultaneously on the same document and, therefore, work more efficiently. This facilitated collaborative work without colleagues having to be physically together. In the last year of CTA's existence, the COVID-19 pandemic influenced the way CTA staff and project partners worked. CTA's work continued efficiently during the COVID-19 pandemic, when working remotely became the norm, partly because of the effective use by the staff of KM tools like SharePoint and Microsoft Teams. Adapting to the changes in work structure due to the COVID-19 was facilitated by the fact that these tools were regularly used by the staff prior to the pandemic. Microsoft Teams proved to be very useful as it regroups different functionalities such as document sharing, simultaneous work on a document, calendar functions, virtual meetings and others in a single space therefore explaining CTA's staff's keenness to use the tool. The different tools ensured productivity through real-time access to information and were used for virtual meetings, remote trainings, collaborative work, and knowledge sharing in an efficient manner.

From a monitoring and evaluation perspective, a RDMS supports the base layer in SharePoint and allows structured classification of M&E data. Based on need, internal colleagues and external partners had access to specific components of the system. Then came applications supported by the platform – Microsoft Power BI and Microsoft Teams. Power BI is a powerful tool that was used for the purpose of monitoring and evaluation and results dissemination across the Centre. Visualization of results against key performance indicators (KPIs) was possible and accessible to staff – even when working from home. SharePoint made it easier to share results data with colleagues located anywhere in the world.

The RDMS also relied on project data that was stored in a centralised digital system, Delta, which categorised data by output, outcome and impact level. The centralization of all project data in Delta made sure that all staff members have access to the same data hence avoiding potential misreporting of project or institutional impact at any stage.

Knowledge and data management as CTA prepared for an orderly closure

The closure of an organization does not necessarily mean the end of an idea, or that its mission and work are no longer relevant or important. The desire for continuity underlines the importance of proper knowledge and data management as an organization prepares for closure. For four decades , the Technical Centre for Agricultural and Rural Cooperation (CTA) had effectively demonstrated how agricultural innovation can be documented, shared and scaled up to achieve significant impact. Following the official announcement that CTA's mandate would end on 31 December 2020, multiple requests were received from key development organisations across the globe, expressing interest in continuing the Centre's

initiatives and projects. The efficiency of CTA's data and knowledge management system allowed it to share solid sustainability plans to facilitate the adoption of intellectual legacy assets and project activities by partners without legal jeopardy or breach of data rules (GDPR). It also allowed for documentation of Project Completion Reports and publication of these on the centre's static website (https://www.cta.int/en).

In preparation for closure CTA staff realised that even though the centre was closing generated knowledge and data could help other organizations learn and upscale their operations. In that process it became apparent that properly managed data offers opportunities of easy access, sharing and updating of business knowledge so that learning from a closing organisation can become more productive and cost efficient. Properly processed and stored data gave the Centre's management confidence to widely publicise their intellectual legacy as most of CTA's impact could be quantified for example project data was stored in a central digital platform Delta which presented data by output, outcome and impact level.

As the different teams soon found out, closing an organisation comes with its own limitations, from technical closure to administrative closure. Properly managed knowledge and data helps a closing organisation to easily face limitations during the process this also helps in accountability and breaking new frontiers, if need be, for example well managed knowledge can be used if a new institution is to be created. It is worth noting also that proper KM systems allow organisations to better track and present the result of their work and legacy. It can be suggested that CTA's robust KM systems helped present her legacy to partners for continuity. CTA management made an effort to ensure that knowledge products were handed over to organisations which would in turn support their continuous operation, ensuring a wider impact. This meant that CTA's rich legacy of knowledge would remain available. Even though the institution has come to the end of its mandate, in addition to handing over some intellectual assets, CTA kept its knowledge products available on its static website (www.cta.int), and for an even wider reach some knowledge products were transferred on the CGSpace site, while CABI has been accorded the guardianship of the intellectual property rights for all of CTA's publications.

It is the responsibility of any organisation to invest in keeping its staff updated, well equipped and competitive in order to achieve and sustain an excellent knowledge and data management system, for example through training in configuration, use of tools and automation. CTA has been a leader in staff training in KM, which proved valuable during the Centre's closure. It was a priority for the organisation's LME unit to keep up with KM innovations. For example, the Centre invested in staff training in the use of business intelligence software, such as Microsoft's Power BI, which later enabled staff to manage administrative activities efficiently during the closure. Staff were able to use this software to create visualization dashboards to track the number of contracts that still needed to be closed.

Insights, recommendations and conclusions

KM was always central to CTA's strategy. From its early days, the Centre fostered data capture and interpretation, and shared information using innovative tools to empower farmers. Back in the 1980s, the Centre was one of the first institutions to create CD-ROMs with training materials for farmers on different agriculture best practices. It also promoted use of radio broadcasts to share best practice. To collect reliable data, CTA worked with partners in ACP countries. This strategy was carried forward and used for project management with adapted solutions drawn from data collected from beneficiaries during impact studies and capitalization exercises.

In addition, to allow for efficient internal KM in the context of project management, each project was attributed a logical framework with performance indicators linked to the CTA's corporate logical framework. The data, as well as projects' contracts, were collected in a system accessible by all staff members and shared with implementing partners for transparency, and to enable better decision making for project success. This information was then shared in Power BI through the creation of visualization reports. The introduction of innovative tools and platforms was accompanied by training sessions for the staff so that each could contribute to knowledge generation and retention. CTA's KM in the context of project management also allowed: i) better teamwork as the centralization of information allowed all team members to access the information; ii) better decision-making and capabilities to face unforeseen blockages in project implementation; iii) better identification of needs for optimal project execution.

The early setup of an efficient KM system allowed CTA to properly organize its closure and project handover while foreseeing issues linked to data privacy. Also, the clear allocation of tasks between the different staff members allowed for more efficiency in meeting deadlines of all closure requirements. This phase was made particularly challenging for CTA with the outbreak of the COVID-19 pandemic. However, with the collaboration of partners on the ground and the already well-established use of Microsoft SharePoint and Microsoft Teams, communication was still possible, and final impact data was collected and used to define sustainability measures to capitalize on CTA's projects.

The achievements in inspiring innovation, nurturing networks, promoting policies and driving digitalisation are notable and many of CTA's partners have recognized the efficiency of its KM system (CTA, 2020). However, there was room for improvement. Following are our observations and recommendations based on the CTA experience:

Data inputting

At the level of project management, the project teams had the responsibility to feed the data into the system with the support of the LME team. The task, however, sometimes led to discordance in the data, requiring an investigation to correct the mismatches and therefore delaying the processing of the data. Also, considering that the data had to be inputted in the

results data management system, some staff had difficulties using the system despite the training received or were reluctant to adopt new systems. Here, our recommendation would be to encourage and enforce accountability of those in charge of data inputting through periodic meetings between programme implementing staff and M&E staff consisting of reviewing and pointing out inaccuracies to those in charge. Further, to ensure that all master the systems, mandatory exercises should be carried out and controlled by M&E staff to identify those who need additional training.

Systematic updates

Although the information was available, it was sometimes outdated in the system and since outdated information limits proper decision-making, we recommend that systematic updates be carried out and that this is monitored by a designated staff on a weekly basis.

Action on system errors

Shared leadership often limits corrective actions by requiring the consent of those in charge. We recommend that clearance be given to data specialists within organisations to correct possible errors without requiring consent, and by preparing a weekly report indicating the corrective measures carried out during that week.

Prepare staff

In the specific case of a closure, the (gradual) reduction in staff might require the remaining staff members to take on tasks that are not part of their initial duties. To better prepare staff for this situation, we recommend that the organisation encourage staff rotation in order to get accustomed to the different responsibilities within the organisation at an early stage. Transparency and knowledge sharing allow for a more efficient handling of a closure.

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[1] The experience capitalization followed a 'learning-by-doing', hands-on approach, and the activities that make up the project help participants develop the necessary skills to start and complete a capitalization process (CTA, n.d., c). It was expected that participants will then follow it within their development projects, institutions and thematic networks, and draw lessons that will help them improve the work they do. The project was also supporting an international community of practice on the approach.