Technology Stewardship and the Capabilities Approach: Assessing Leadership Training for Agricultural Communities of Practice in Sri Lanka and Trinidad

Gordon A. Gow[1], Uvasara Dissanayeke[2], Ataharul Chowdhury[3], Chandana Jayathilake[4], Jeet Ramjattan[5], Wayne Ganpat[5], Isuri Kumarasinghe[2], Kumudu Ariyawanshe[2], Sanduni Rathnayake[2]

[1]University of Alberta, Canada, [2]University of Peradeniya, Sri Lanka, [3]University of Guelph, Canada, [4]Wayamba University of Sri Lanka, [5]University of the West Indies, Trinidad
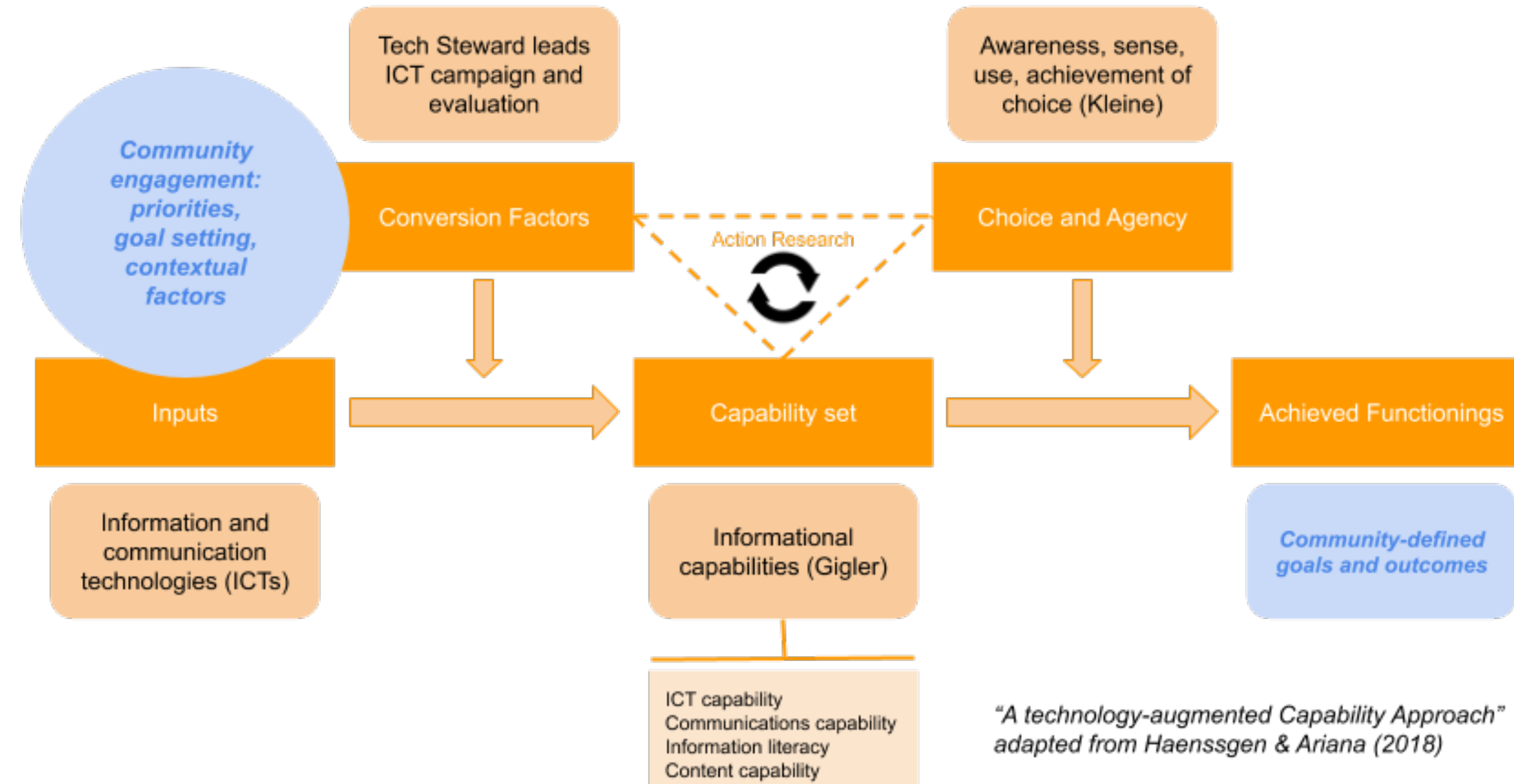
Technology Stewardship

Change through choice: A Technology-augmented Capability Approach (TaCA) model

Technology stewardship is a concept adapted from the communities of practice literature that recognizes the importance, practically and ethically, of guiding change from within a community. Technology stewards are social intermediaries "with enough experience of the working of a community to understand its technology needs, and enough experience with or interest in technology to take leadership in addressing those needs" (Wenger, et al 2009, p. 25). We have developed and tested a **Technology Stewardship Field School (TSFS)** guided by a technology-augmented Capability Approach (Haenssgen & Ariana, 2018). Our model incorporates Kleine's (2013) "Choice Framework" and Gigler's (2015) "informational capabilities". The Steward's first role is to facilitate community goal-setting and help to articulate and prioritize specific informational capabilities. Using action research ("ICT campaign"), the tech steward then fosters achieved functionings along four dimensions of empowerment: awareness of choice, sense of choice, use of choice, and achievement of choice.

"A technology-augmented Capability Approach" adapted from Haenssgen & Ariana (2018)

Sri Lanka

Improving communications capabilities for rice producers

Suranjan is an instructor with the Dept. of Agriculture who was in the 2018 TSFS cohort at the University of Peradeniya. His capping project identified "Seed paddy producers in the Galle District" as the community of practice. Drawing on the training material as a guide, he conducted a consultation with farmers to discuss barriers to communication. Using a problem/opportunity tree activity, he worked with community members to articulate as set of desired functionings and then identified communication capabilities related to a "sense of choice" and self-confidence when using mobile phones.
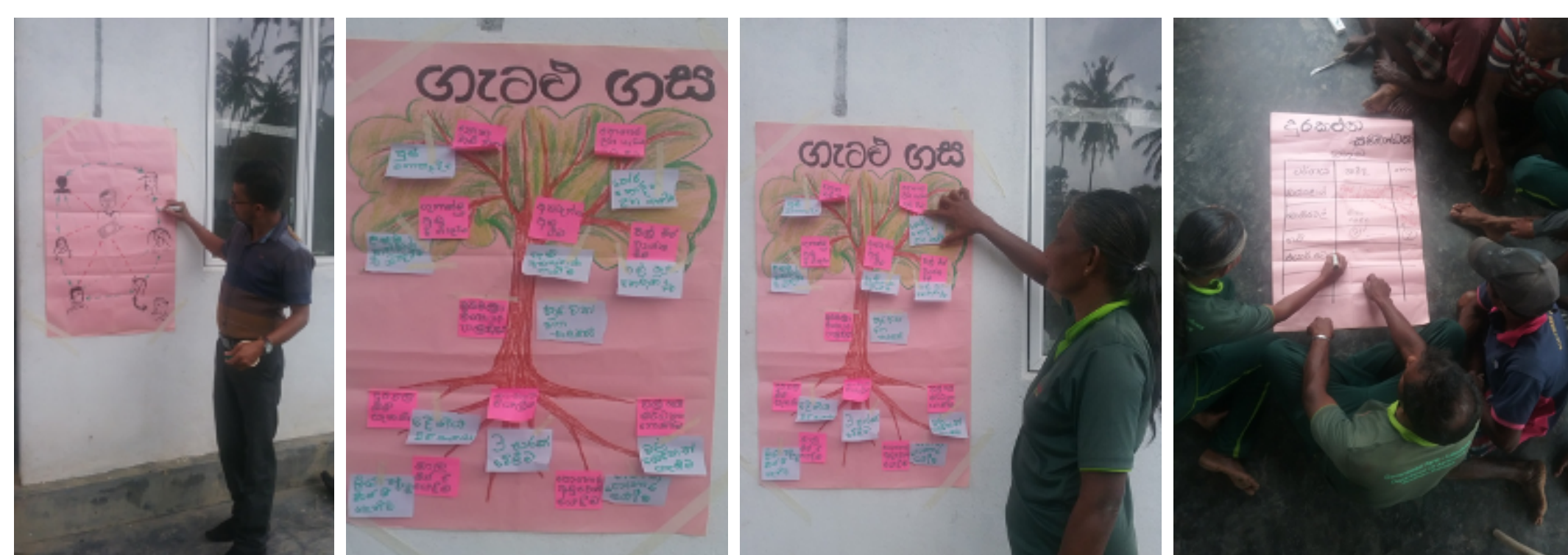
Trinidad

Enhancing content capabilities for fisheries training

Muriel and Marvin work with the Caribbean Fisheries Training and Development Institute and were in the 2019 TSFS cohort at the University of the West Indies. Their capping project identified Seafood technology training assistants as the community of practice (COP). Using the training material as a guide, they conducted a community consultation and developed a campaign goal directed to enhance content capabilities as a step toward a specific desired functioning: "to improve access and availability anywhere/anytime by using ICT to curate content" for the "STFTP trainers group."
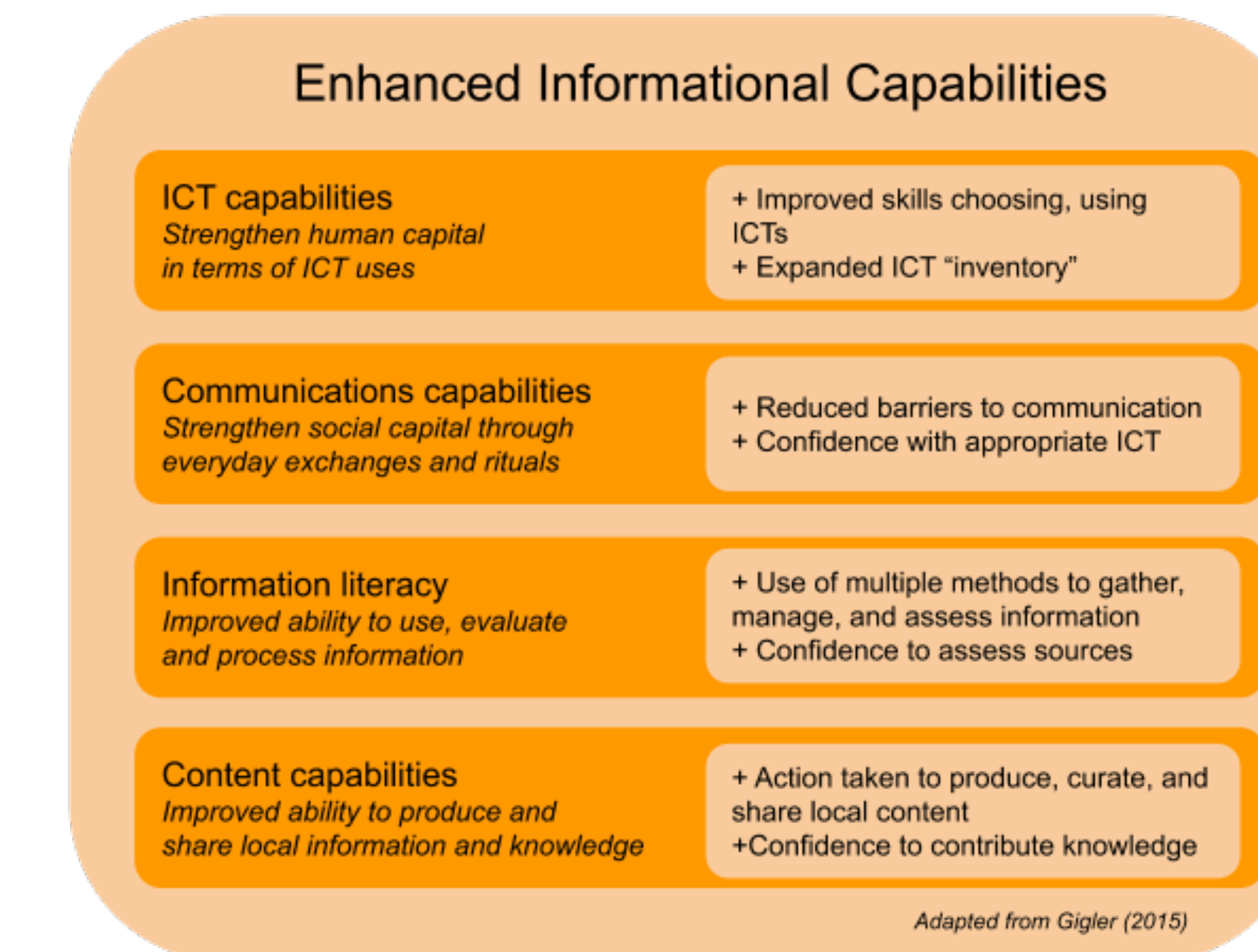

Project Evaluation

Participatory Action Research

The Technology Stewardship Field School provides the foundation for participatory action research using an embedded case study design with learner cohorts. Invited participants receive training at the TSFS and then lead a capping project with their community of practice (COP). Data are collected using surveys, observation, and semi-structured interviews at various stages pre-, mid-, and post training.

This study reports on findings from two learner cohorts involving agricultural extension practitioners from Sri Lanka and Trinidad between 2018 and 2019.

Enhanced Informational Capabilities

ICT capabilities *Strengthen human capital in terms of ICT uses*	+ Improved skills choosing, using ICTs + Expanded ICT "inventory"
Communications capabilities *Strengthen social capital through everyday exchanges and rituals*	+ Reduced barriers to communication + Confidence with appropriate ICT
Information literacy *Improved ability to use, evaluate and process information*	+ Use of multiple methods to gather, manage, and assess information + Confidence to assess sources
Content capabilities *Improved ability to produce and share local information and knowledge*	+ Action taken to produce, curate, and share local content + Confidence to contribute knowledge

Adapted from Gigler (2015)

Evaluation Framework

We used Kirkpatrick's (1994) framework to guide a systematic assessment of the Field School. This framework comprises four levels of evaluation: (1) participant reaction; (2) learning objectives; (3) behavioural change; and (4) results. Overall results across the first three levels for both cohorts are promising. Findings suggest the training is valued by participants, the curriculum aligns with the learning objectives, and that approximately 25% of participants will complete a capping project and provide evidence of applying learning in practice. Details are available elsewhere (Gow, et al, 2020).

The capping projects provide data to assess level 4 "results" in relation to overall program objectives. For our study, we are interested how training supports the technology steward in creating an action research campaign targeted at specific informational capabilities (ICs) within a COP. Data collection includes a capping project report submitted by the participant as well as follow-up interviews with the research team.

We can assess enhanced ICs with outcome indicators as depicted in the diagram above. In the TaCA model, ICs contribute to a wider capability set for achieved functionings.
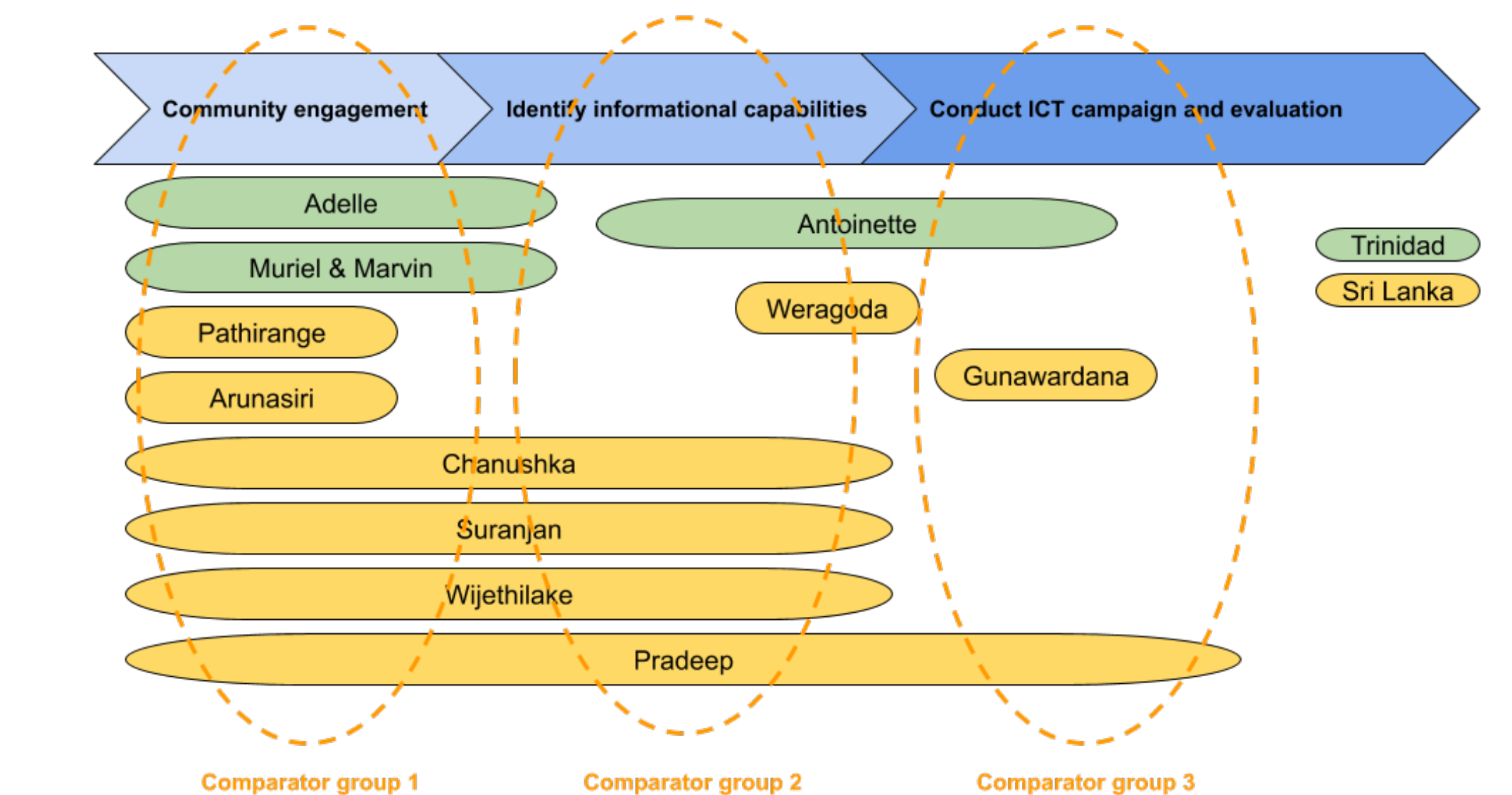
Key Findings

Informational Capabilities: Guiding Action Research

Findings from this study suggest that Technology Stewardship Field School training can establish competencies and confidence among extension practitioners to undertake this leadership role within their communities of practice.

Capping project reports from comparator groups 1 and 2 (below) provide evidence that shows Technology Stewards applying the course material in practice to identify desired functionings and create campaign goals around enhanced informational capabilities. Comparator group 3 reports show the application of technology to an identified problem, but not all include a clear articulation of informational capabilities.
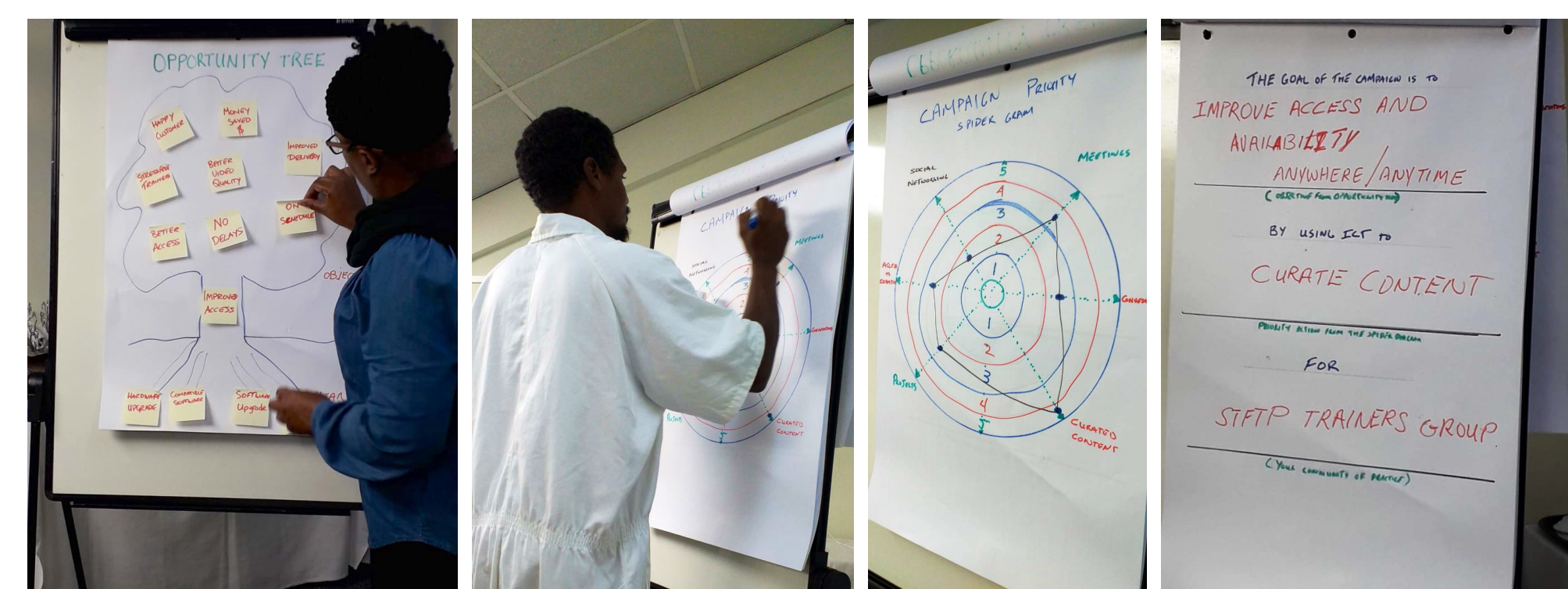
Groups 1 and 2 were able to use the course training to engage their community members and articulate desired achieved functionings, to apply those to a priority-setting activity that identified specific informational capabilities. These were incorporated into a campaign goal statement that can be used to guide an action research intervention. Future research will focus on supporting these interventions and conducting more in-depth study of Tech Stewards in action.

Literature

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