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AN INTRODUCTION TO TECHNOLOGY STEWARDSHIP FOR ICT ADOPTION AND USE IN AGRICULTURAL COMMUNITIES OF PRACTICE

COURSE WORKBOOK

Social Sciences and Humanities Research Council of Canada
Conseil de recherches en sciences humaines du Canada
Canada

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About your Instructors

Uvasara Dissanayeke
Uvasara Dissanayeke is a Senior Lecturer in the Department of Agricultural Extension, Faculty of Agriculture, University of Peradeniya. She has an undergraduate degree in Agriculture, specializing in Agricultural Extension, and a Master of Philosophy in Development Communication and Extension. Currently, she is reading for her PhD at the University of Colombo - School of Computing and her research includes 'Developing and testing mobile learning tools for young farmer communities'.

Uvasara is also a visiting lecturer in the Postgraduate institute of Agriculture, University of Peradeniya. She teaches postgraduate courses such as Information and Communications Technology (ICT) for Development.

Gordon Gow
Dr. Gordon Gow is Associate Professor of Communication and Director of the Graduate Program in Communications and Technology (MACT) in the Faculty of Extension at the University of Alberta (Canada). From 2003-2006 he was lecturer in the Department of Media and Communications at the London School of Economics, where he was Director of the Graduate Programme in Media and Communications Regulation and Policy. In 2016 he was awarded a McCalla Professorship at the University of Alberta.

His research interests involve the social impact of information and communication technologies (ICTs) in the areas of community engagement, public health, agriculture, and international development. He has been visiting Sri Lanka since 2005, collaborating on various research projects with LIRNEasia and Wayamba University of Sri Lanka. He is currently developing a Joint Education and Training Initiative with partners in Canada, Sri Lanka, and elsewhere to promote and study the adoption of low cost ICTs for communities of practice in areas such as agriculture and social support services.

Helen Hambly Odame
Dr. Helen Hambly joined the Capacity Development & Extension program in the School of Environmental Design and Rural Development at the University of Guelph (Canada) in 2003. She teaches communication for social and environmental change, research design and qualitative methods and analysis. Helen's research interest crosses information, communication and rural society. She has co-authored or edited three books and over 20 refereed papers on topics such as rural development, communication processes, agricultural knowledge translation and transfer, and information and communication technologies for rural and agri-food innovation. She leads the R2B2project.ca which is a major research initiative in Canada on rural Internet. She has also worked in international R&D programs and has professional work experience with the The World Bank, United Nations and the International Development Research Centre (IDRC). She currently is Chair of the Independent Steering Committee of the CGIAR Research Program on Roots, Tubers and Bananas. She is unable to attend the course in person but she has co-developed the community engagement methods and participatory design techniques session

Chandana Jayathilake
Chandana Jayathilake is a Lecturer in the Information and Communications Technology (ICT) Centre at Wayamba University Sri Lanka. Chandana graduated from the University of Peradeniya with a BSc honors degree in year 2002 and he obtained his Master's degree in Information Technology from Sri Lanka Institute of Information Technology in year 2007. He is currently reading for his doctoral studies at Wayamba University of Sri Lanka. His research interest is the area of eLearning, ICT for Agriculture Development (ICT4AD) and Web Technologies.

Chandana joined this SSHRC funded project as GRA in 2013 and contributes to planning and managing ICT Rapid Prototyping and the community Campaigns in Sri Lanka.

Udith K. Jayasinghe-Mudalige
Dr. Udith K. Jayasinghe-Mudalige is the Professor (Chair) of Agricultural Economics and Business at Wayamba University of Sri Lanka and the Principal Scientist for the National Science Foundation of the "National Thematic Research Project on Food Security in Sri Lanka". He has published widely in the areas of food and agricultural economics and environmental and resource economics, served as a consultant economist to institutions including the World Bank, UNICEF, the FAO and the Sri Lankan government, and in 2014/15 was the Visiting Fulbright Professor at the University of Massachusetts. He is unable to attend the course in person but he has co-developed the campaign management and planning evaluation session.

Ken Lee
Ken Lee is a graduate student in his final year at the University of Alberta (Canada). His research interests focus on improving digital literacy through the study of technical support communications as learning opportunities for enhanced knowledge transfer. He plans to extend this area of study further with doctoral studies in user acceptance and use of technology for increased adoption of innovative technologies.

After completing his certificate of technology with honours from the British Columbia Institute of Technology, Ken completed his undergraduate degree in communications with awards from Royal Roads University. He is currently employed as an IT administrator in Vancouver, BC.

Sean McDonald
Sean Martin McDonald is the CEO of FrontlineSMS. Frontline technologies are used by thousands of organizations to reach tens of millions of people, saving lives, improving healthcare, and building inclusive societies. Frontline was named the #1 Technology NGO in the world and was listed by the Nominet Trust Social 100 in 2014. Sean is an affiliate with Harvard University's Berkman Center. Sean is an advisor to the Center for Internet & Society, Digital Democracy, DoSomething.org, ECPAT USA, TechChange, and UNDP. Sean is a lawyer, barred in New York (US). He holds a J.D. and an M.A. in International Peace and Conflict Resolution from American University.

Rob McMahon
Dr. Rob McMahon is an Assistant Professor at the University of Alberta (Canada) and teaches in the Master of Arts in Communication and Technology (MACT) and Master of Arts in Community Engagement (MACE) programs. His PhD dissertation in Communication Studies from Simon Fraser University, "Digital Self-Determination: Indigenous Peoples and the Network Society in Canada", was awarded the Dean of Graduate Studies Convocation Medal. Rob worked as a postdoctoral researcher with the First Nations Innovation Project at the University of New Brunswick and co-founded the First Mile Connectivity Consortium, a national non-profit association of Indigenous technology organizations.

Rob's research focuses on the appropriation of broadband and Internet technologies by First Nations and Inuit communities in Canada. His approach involves working with communities to ensure that their voices are heard in all stages of research. He and his partners are also exploring ways to house project data and build research capacities in communities and are involved in efforts to contribute to digital policy and regulation.

Faria Rashid
Faria Rashid an MSc Candidate in Capacity Development and Extension collaboration with International Development Studies from the School of Environmental Design and Rural Development (SEDRD) at the University of Guelph (Canada). She is currently working as Research Assistant for "Mobilizing Knowledge for Sustainable Agriculture" project. Faria is also working as Research Intern for the Institute for Community Engaged Scholarship (ICES) run by University of Guelph. Previously, Faria worked as Junior Professional Consultant with United Nation Development Program (UNDP Bangladesh) in the Poverty Reduction Cluster.

Faria's research interests involve rural development projects and use of ICT. Currently, Faria is working on her MSc thesis on "Women's use of Information and Communication Technologies (ICTs) in community radio in Bangladesh."

Nuwan Waidyanatha
Nuwan Waidyanatha is Director and Chair of the Sahana Standards and Interoperability Committee, and a LIRNEasia Research Fellow working collaboratively with multiple national and international stakeholders applying his academic and industrial experience designing and developing early warning systems and interoperable information exchange platforms. Nuwan works closely and advises the Sarvodaya Shramadana Movement, Sri Lanka's largest humanitarian NGO. Previously, he worked as a Software Architect/Operation Research Analyst for Infocraft Limited, Business Analyst for Sri Lanka Institute of Information Technology, Analyst Programmer for APS Healthcare (USA), and Operations Research Lecturer at the University of Montana (USA). Nuwan has been involved in ICT4D research and partnership development work in collaboration with the University of Alberta since 2012 and is co-developer of the technology training and rapid prototyping session.

Syllabus

An Introduction to Technology Stewardship for ICT Adoption and Use in Agricultural Communities of Practice

Faculty of Extension | University of Alberta
School of Environmental Design & Rural Sociology | University of Guelph
Department of Agribusiness Management | Wayamba University of Sri Lanka
Sahana Software Foundation
FrontlineSMS

Course Dates: Sept. 29 - Sept. 30, 2016
Location: Sri Lanka Department of Export Agriculture, In-Service Training Centre; Elwala, Matale.

Course instructors:	Dr. Gordon A. Gow, University of Alberta Chandana Jayathilake, Wayamba University of Sri Lanka Dr. Helen Hambly, University of Guelph Uvasara Dissanayeke, University of Peradeniya Nuwan Waidayanatha, Sahana Software Foundation Sean McDonald, FrontlineSMS Dr. Udith Jayasinghe, Wayamba University of Sri Lanka Dr. Rob McMahon, University of Alberta
Teaching Assistants:	Kenneth Lee, Graduate Student, University of Alberta Faria Rashid, Graduate Student University of Guelph
Course website:	https://eclass-cpd.srv.ualberta.ca/login/index.php

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ABOUT THE COURSE

Course Description

Technology stewardship is a leadership role that almost any practitioner can assume. In this role, a Technology Steward is someone who works with a community of practice to encourage the adoption and use of digital technologies for communications, training, and knowledge transfer.

Technology Stewards need to know how to engage their community members to identify opportunities and challenges; they need to be able to acquire and configure appropriate digital information communication technology (ICT) platforms to support innovative practices; and they need to be able to evaluate and report the outcome of their efforts back to the community and to organizational sponsors. This course is designed to introduce practitioners to these basic skill sets and to equip them with the means necessary to begin an exploratory campaign using low cost ICTs with their own community of practice.

The medium range goal of implementing a Technology Stewardship program is to promote experimentation with digital ICTs, and to build capacity for innovation within a community of practice. Technology Stewards should aim to create a culture of innovative thinking among their community members with the long term objective of enhancing the range of real choices available to practitioners when it comes to sharing information and mobilizing knowledge with digital ICTs.

This is a pilot course that is being delivered as part of an ongoing action research project and will be offered at no cost to participants.

The project team is grateful for the support it has received from the Social Sciences and Humanities Research Council of Canada, the Faculty of Extension at the University of Alberta, Wayamba University of Sri Lanka, Guelph University, the Sahana Software Foundation, FrontlineSMS, and the Sri Lanka Department of Export Agriculture.

Course Outcomes

By the end of this course, students should be able to:

- Identify and describe the key principles and activities involved in technology stewardship for inclusive innovation;
- Lead a community engagement activity to identify a key need or priority for a limited duration communication campaign using low cost technologies.
- Plan, design, and implement a technology prototype and related activities needed to carry out a limited duration communication campaign using low cost technologies;
- Plan, design, and implement an evaluation plan to assess and report on the outcome of the communication campaign and their involvement as a technology steward;

Course Materials

Course Handbook (to be provided at registration)

Course Schedule

Key Course Dates

Course Schedule
Sept. 28 Participants arrive at In-Service Training Centre; Elwala, Matale Registration and Reception (TBC)
Sept. 29 (specific times to be confirmed) Welcome Session 1: Principles and Practices of Technology Stewardship Break for Lunch Session 2: Community Engagement Methods and Techniques
Sept. 30 Session 3: Technology Training and Rapid Prototyping Break for Lunch Session 4: Campaign Evaluation and Impact Assessment Course Conclusion
Oct/Nov Campaigns and course follow-up

Module Overviews

Pre-Course

Required Readings
None

Activities & Assignments

- Participants should make arrangements for travel to and from accommodations at the In-Service Training Centre, Elwala, Matale.
- Participants must complete the registration process and provide required consent for Research Ethics when they arrive on site;
- Participants will need to obtain access to the course website and ePortfolio platform when they arrive on site.

Session 1: Principles and Practices of Technology Stewardship

Topics

- Technology Stewardship and Communities of Practice
- Three Streams of Activities
- General Principles for Creating Successful Campaigns
- Orienting your Campaign
- Campaign Communication Modes
- Planning a Campaign Strategy
- Effective Technology Stewardship in Action

Learning Outcomes
After completing this module, students should be able to:

- define a community of practice, relate that definition to their own situation, and explain the role of a technology steward by listing three key streams of activity involved in stewardship;
- analyze a use case scenario and correctly identify various campaign orientations;
- analyze a use case scenario and correctly identify the predominant communication mode;
- analyze a use case scenario and describe the key elements of a campaign management strategy.

Required Materials
Course Handbook

Supplementary (Optional) Materials
Not applicable

Activities & Exercises

- ePortfolio set up
- Opening remarks and introduction to the instructional team
- Watch the short video "Answers in the Air"
- Worksheet 1.1(a): Discussion on Communities of Practice
- Worksheet 1.1(b): Discussion on Principles of Stewarding
- Worksheet 1.2: Classifying Community Priorities
- Worksheet 1.3: Identifying Campaign Communication Modes
- Worksheet 1.4: Managing a Campaign

Session 2: Community Engagement Methods and Participatory Design Techniques

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Topics

- Understanding a community of practice in terms of Life Cycle, Constitution, and Orientation
- Identifying and Prioritizing Problems in a community of practice
- Introduction to Participatory Methods and Techniques of Community Engagement
- Using problem tree analysis to identify communications-related challenges and priorities for a community of practice
- Formulating a clear campaign objective
- Tools and techniques for developing a detailed use case scenario for campaign planning

Learning Outcomes
After completing this module, students should be able to:

- Identify and describe a community of practice within the scope of their professional responsibility;
- Describe and critique a set of participatory methods and techniques that can be used to engage a community of practice in a participatory action research activity;
- Effectively apply a problem analysis technique to identify and prioritize communication-related challenges and/or opportunities with an identified community of practice;
- Formulate a clear campaign objective for an identified community of practice in relation to an prioritized communications-related challenge or opportunity;
- Develop a hypothetical use case scenario and outline a campaign plan for an identified community of practice in relation to a prioritized communications-related challenge or opportunity.

Required Materials
Course Handbook

Supplementary (Optional) Materials/ Reading and Resources
Not applicable

Activities & Exercises

- e-Portfolio update and review (students to move the artifacts generated in the previous session to their ePortfolio)
- Worksheet 2.1: Brainstorming session: Trainees working in pairs, to answer the question "As knowledge workers, why and how do we engage with our communities?"
- Worksheet 2.2: Questionnaire / checklist 1 on 'Key characteristics of a community of practice in terms of life cycle, constitution and orientation'
- Worksheet 2.3: Creating a Spider diagram with the trainees
- Worksheet 2.4: Creating a Problem tree diagram with the trainees
- Worksheet 2.5: Introduce the Interactive campaign design matrix
- Worksheet 2.6: Developing a Use Case diagram for your community
- Worksheet 2.7: Checklist 2 Check community orientation
- Homework assignment: use case design matrix

Session 3: Technology Training and Rapid Prototyping

Topics

- Technology acquisition strategies: using what you have + low cost platforms
- Introduction to FrontlineSMS (installation, features, connecting to cellular network, troubleshooting)
- Turning your use case diagram into a workflow
- Applying your workflow to FrontlineSMS
- Prototyping and testing FrontlineSMS for your campaign
- Collecting data from FrontlineSMS
- Data integrity and ethical handling of personal information

Learning Outcomes
After completing this module, students should be able to:

- Identify a selection of low-cost communication platforms and describe how each might contribute differently to the communication needs of a specific campaign;
- Demonstrate how to turn a use case into a workflow for a campaign using FrontlineSMS;
- Design and prototype an implementation of FrontLineSMS for a specific communications campaign;
- Demonstrate how to export and save usage data from FrontlineSMS as part of a campaign;
- Recognize and describe how to manage key issues and concerns regarding data integrity and ethical handling of personally identifiable information;

Required Materials
Course Handbook

Supplementary (Optional) Materials/ Reading and Resources
FrontlineSMS Data Integrity Guide

Activities & Exercises

- ePortfolio update and review
- Review and discuss DOEA-N and use case scenarios developed from previous session
- Introduction to FrontlineSMS (set up, features, etc.)
- Choose a use case scenario and develop a FrontlineSMS workflow for it
- Implement the workflow and test it using FrontlineSMS
- Examine the usage data generated by FrontlineSMS and discuss its potential value/limitations for evaluating a campaign
- Discuss data integrity and ethical handling of information as it pertains to the campaign
- Q&A session about FrontlineSMS

Session 4: Managing Campaigns and Planning Evaluation

Topics

- Introduction to planning evaluation and impact assessment (process and campaign)
    - What is success?
    - Continuous improvement as a guiding principle
- Designing a campaign evaluation plan
    - Campaign versus process evaluation
    - Asking the right questions, about the right influences, at the right point in time
- Preparing for and collecting data for campaign evaluation
- Data collection techniques and tools
- Analyzing data and effective reporting of results to community and sponsors
- Applying lessons learned to future campaigns

Learning Outcomes
After completing this module, students should be able to:

- Understand the role and types of evaluation employed to support continuous improvement
- Explain the importance of managing a campaign by evaluating it from both a process and campaign (outcome) perspective;
- Adapt and apply a series of tools to create an evaluation plan for their campaign;
- Select and implement one or more data collection methods and tools appropriate for the campaign evaluation plan;
- Conduct a process evaluation by reflecting on the workshop; and,
- Demonstrate how to effectively report the outcome of a campaign evaluation to key stakeholder groups

Required Materials
Course Handbook

Supplementary (Optional) Materials

Not applicable

Activities & Exercises

- ***Dr. Udith Jayasinghe to join by Skype***
- ePortfolio update and review
- Class discussion about evaluation - compare and contrast campaign/process evaluation
- Class discussion about asking the right questions during evaluation
- 'Brain Break' - Group discussions about evaluation planning (applied to DOEA North case study)
- Preparing a campaign evaluation plan (Identify objectives from campaign design matrix)
- Working through the evaluation planning process:
    - Worksheet Activity 1: (Planning Timeline and Checkpoints)
    - Worksheet Activity 2: Identifying the right questions (Question Bank)
    - Worksheet Activity 3: Choosing the right data, collection methods, and tools (Data Collection)
- Create an evaluation plan for their campaign using appropriate tools and techniques
- Review and discuss sample evaluation plan (DOEA North case study)
- How to effectively report results of a campaign evaluation (work through hypothetical scenario)
- Dr. Udith - lecture on theoretical models for evaluation: Insights for the future
- Facilitated discussion on process evaluation (workshop reflection)

Course Conclusion and Follow up Activities

Topics

- Completing the ePortfolio
- Planning and launching a campaign with your community
- Developing a Community of Practice as technology stewards
- Debrief and plenary discussion
- Presentation of certificates of completion

Learning Outcomes

After completing this module, students should be able to:

- complete an ePortfolio that includes samples of artifacts generated during the course
- share their ePortfolio with others
- complete an action plan statement that sets out their objectives for a follow up activity
- plan, implement, and evaluate a limited duration campaign with their community
- locate and utilize resources available to assist them with their campaigns

Required Materials

Course Handbook

Supplementary (Optional) Materials

Not applicable

Activities & Exercises

- ePortfolio update and review (students to move the artifacts generated in the previous session to their ePortfolio)
- Action Plan statement
- Course Evaluation Forms
- Debrief and open discussion with participants
- Recognition of Completion presented to students
- Contact information for students needing assistance with campaigns
- Closing remarks

Course Assessment & Graded Activities

Course Assessment

Students are assessed on an complete/incomplete basis for this course. Students must participate in all of the activities and complete the exercise as required to be considered to have completed the course.

The ePortfolio serves as a repository of student work and will be used by the course instructors to determine if a student has fulfilled the course requirements.

Students completing the course will be presented with a certificate of completion.

SESSION 1:

PRINCIPLES AND PRACTICES OF TECHNOLOGY STEWARDSHIP

WORKSHEETS

Worksheet 1.1 (a): Discussions on Communities of Practice

Let's begin with defining a Community of Practice in this case and thinking about the role of a technology steward.

Review Case Study 01: DOEA North <u>PART A</u>

Discuss each of these questions in your group and write down your responses.

- Using the definition presented in this session, what possible communities of practice might you find in the Melsiripura District?
  - What are the possible shared domains of interest for these farmers and DOEA-North officials?
  - How might they develop and share information as a group?
- Who might be a good candidate for a technology steward in this case?
  - Who understands the community well?
  - Who can assist with technology and support?

Notes:

Worksheet 1.1(b): Discussion on Principles of Stewarding

Let's examine the community's priority, its ICT assets, and the principles that will guide the steward in helping the community.

Review Case Study 01: DOEA North <u>PART B and PART C</u>

Discuss each of these questions in your group and write down your responses.

About the work of stewarding	**(Chapter 9)**
Review the key principles of stewarding:	**Discuss with your group and write your notes here**
Vision before technology: What is the priority need that the community members identified at the meeting?	
Keep it simple**:** What is the simplest solution for this community at this point in time? What are some of the advantages and disadvantages that it offers?	
Understand failure/build on success**:** What are some signs of success if a technology solution is effective? Where will you look, or what kind of information will you need to see these signs of success? True or false: the technology must work as intended for it to be a successful campaign. If true, then why? If false, then why not?	
Use the knowledge around you**:** Who are the people mentioned in this case study that could assist a technology steward?	

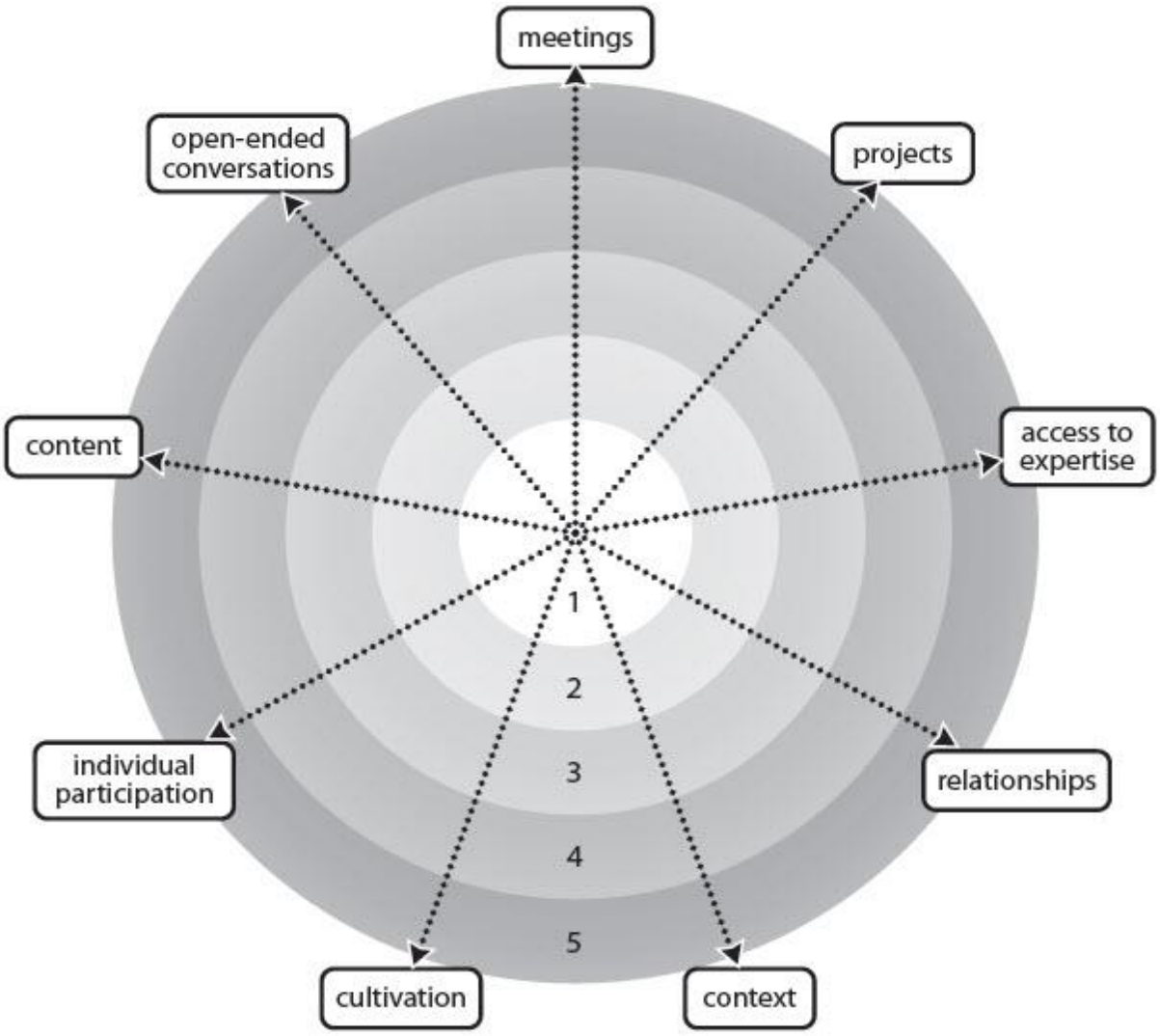
Adapted from Wenger, White & Smith (2009). *Digital Habitats: Stewarding Technology for Communities.* Portland: CPSquare.

Worksheet 1.2: Classifying Community Priorities and Campaign Objectives

Let's classify and rank the identified priorities of the community into one or more orientations.

Review Case Study 01: DOEA North <u>PART D</u>

Use the Spider Diagram to plot out the three community orientations in this case. Use the scale on the diagram to rank each orientation, with 5 being most important.



Now identify the primary orientations for some other cases with different kinds of priorities

Local Needs or Wants	
A community determines that it needs to find an easier and more cost effective way to organize its monthly meetings and provide updates on other gatherings	▢ Meetings ▢ Conversations ▢ Project Management ▢ Content Sharing ▢ Access to Expertise ▢ Social networking
A community wants to store a collection of digital photographs showing damage from a recent storm	▢ Meetings ▢ Conversations ▢ Project Management ▢ Content Sharing ▢ Access to Expertise ▢ Social Networking
Community members need an easier way to find other farmers or experts with knowledge about cultivating a special crop variety	▢ Meetings ▢ Conversations ▢ Project Management ▢ Content Sharing ▢ Access to Expertise ▢ Social Networking
An Extension officer wants to establish a discussion forum for questions and answers from his/her community members	▢ Meetings ▢ Conversations ▢ Project Management ▢ Content Sharing ▢ Access to Expertise ▢ Social Networking
Community members want to create a training program for young farmers	▢ Meetings ▢ Conversations ▢ Project Management ▢ Content Sharing ▢ Access to Expertise ▢ Social Networking

Discussion Question

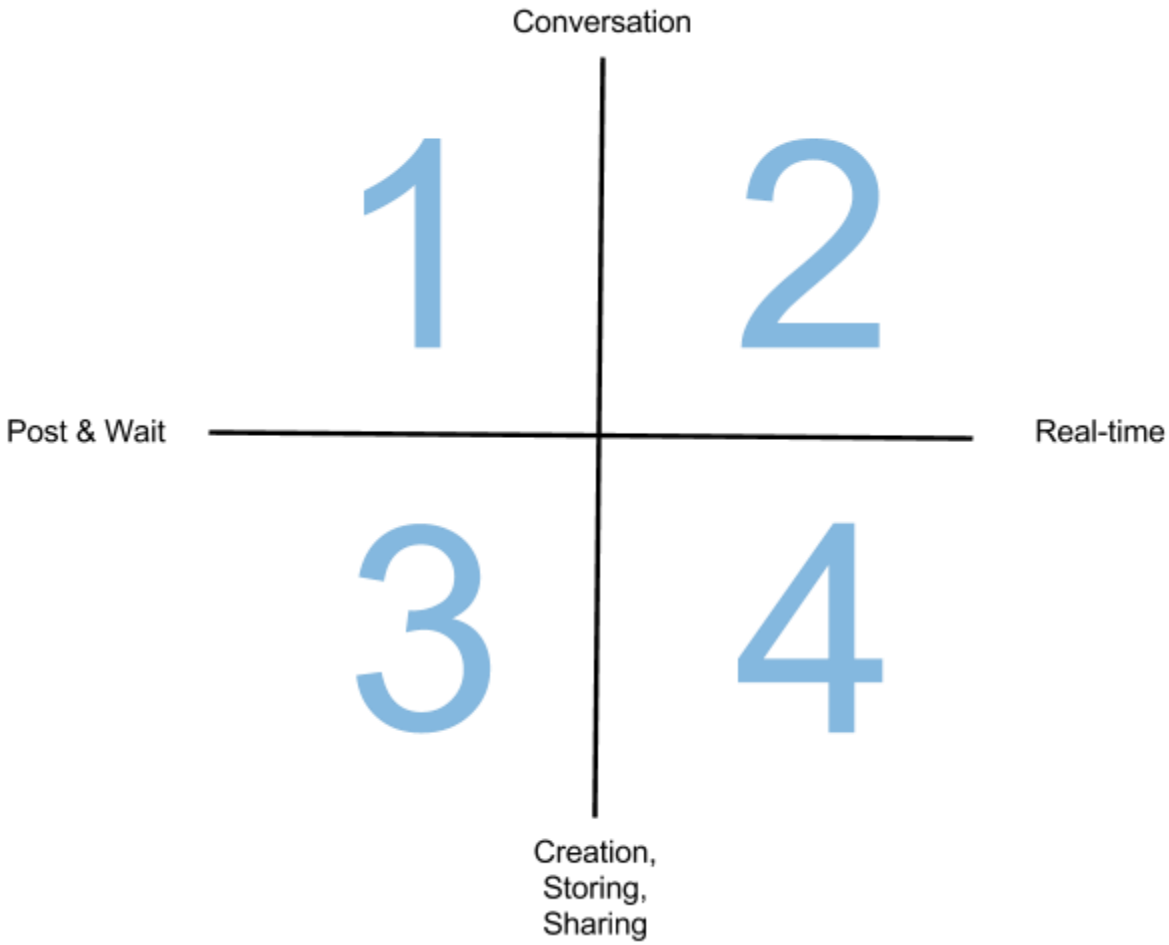
How might these different orientations affect the types of tools or communication methods you might use to address each of these priorities?

Worksheet 1.3: Identifying Campaign Communication Modes

Let's categorize the primary campaign communication for the case study.

Review Case Study 01: DOEA North <u>PART E</u>

Using the matrix below mark the quadrant that you think best describes the primary communication mode for the DOEA North campaign.



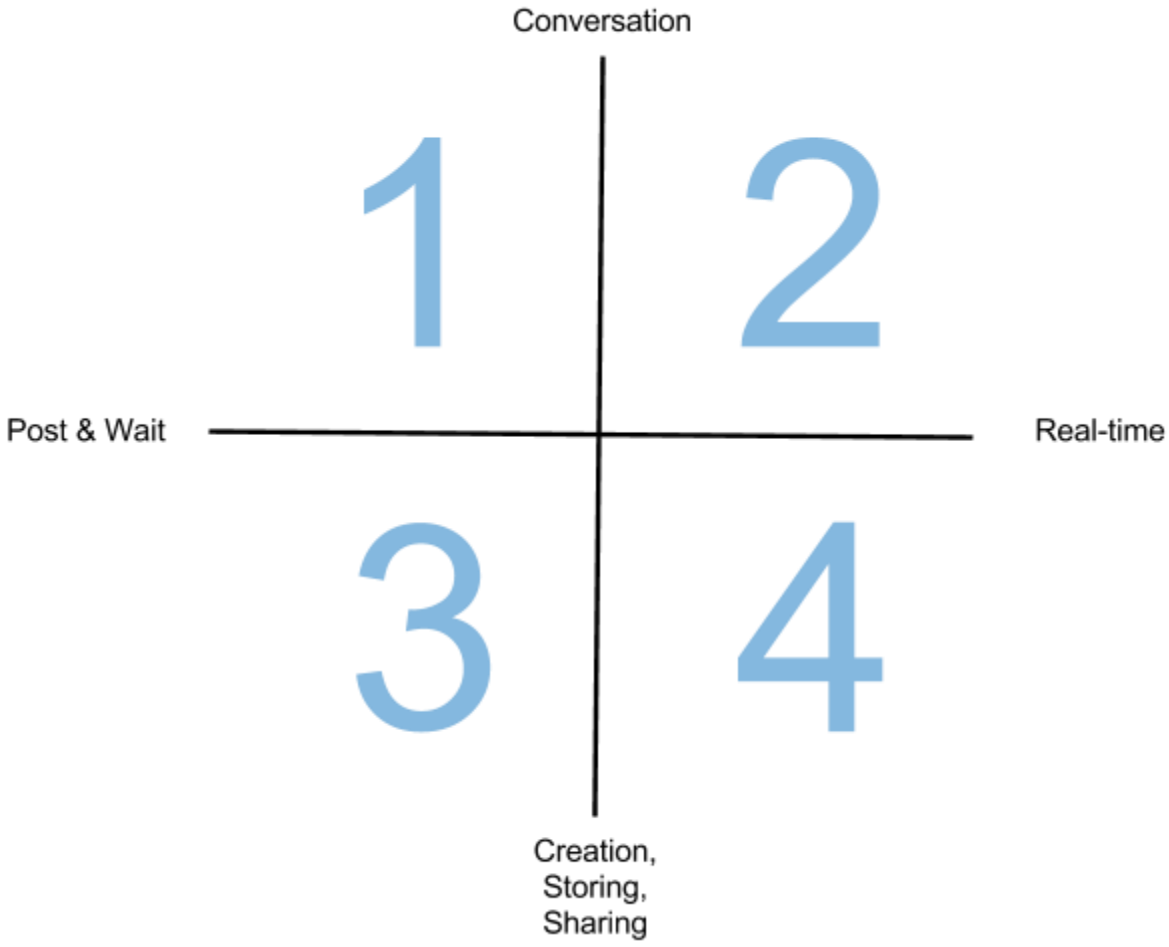
Exercises

Now look at the table below and try to categorize the dominate communication mode for each of the campaigns listed. Note that some campaigns may overlap across modes!

Exercise	Campaign Description
A	A radio station runs a campaign and asks its listeners to call or text with questions during its weekly farm radio broadcast;
B	The community members create a campaign to use their mobile phone to report any risks or hazards in the area. These reports are then plotted on a map and posted on the Internet for DOEA or government officers to see;
C	Farmers participate in a campaign that enables them to use their mobile phones to access a database with current market prices on crops;
D	*Challenge: an extension officer launches a campaign that let's him use the camera on his mobile phone to record short videos in response to questions from farmers about their crops;*

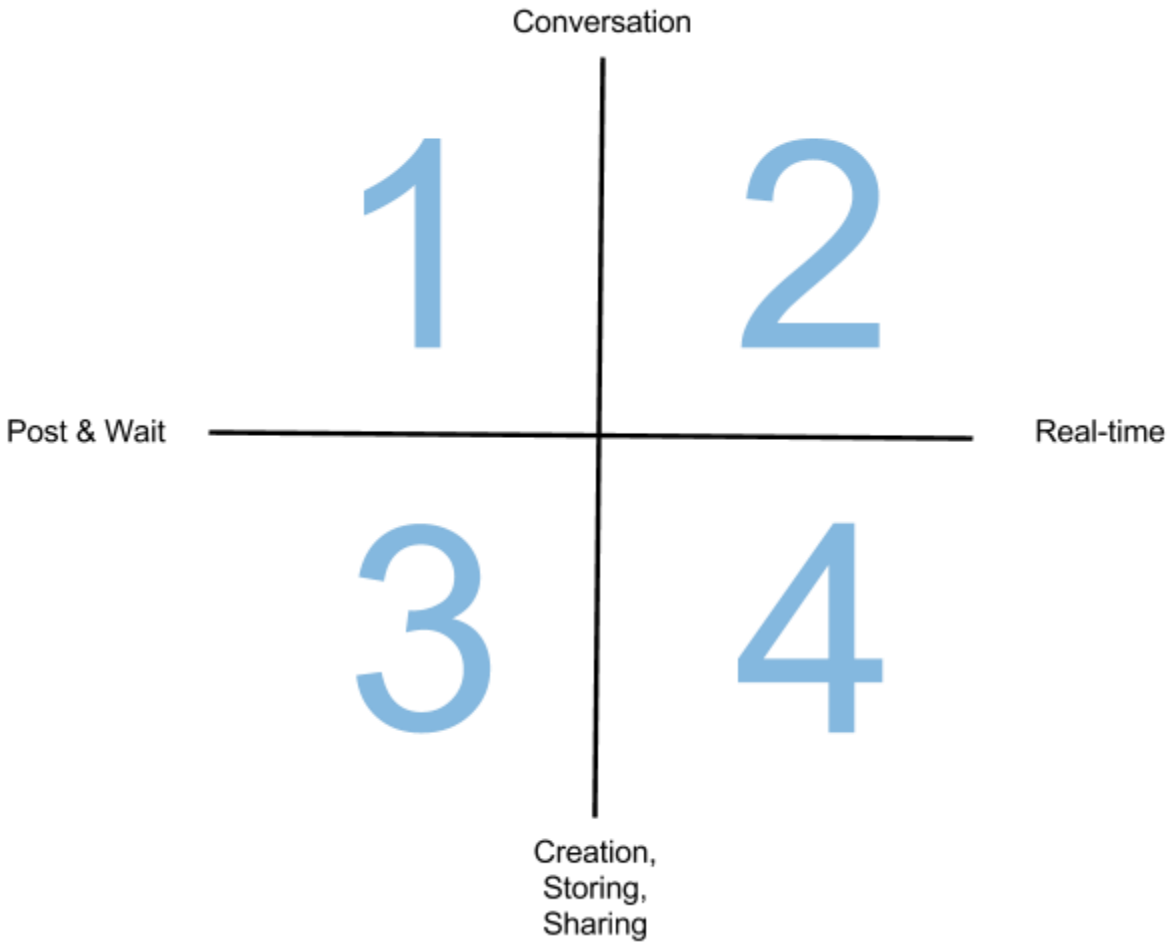
Exercise A

A radio station runs a campaign and asks its listeners to call or text in with questions during its weekly farm radio broadcast;



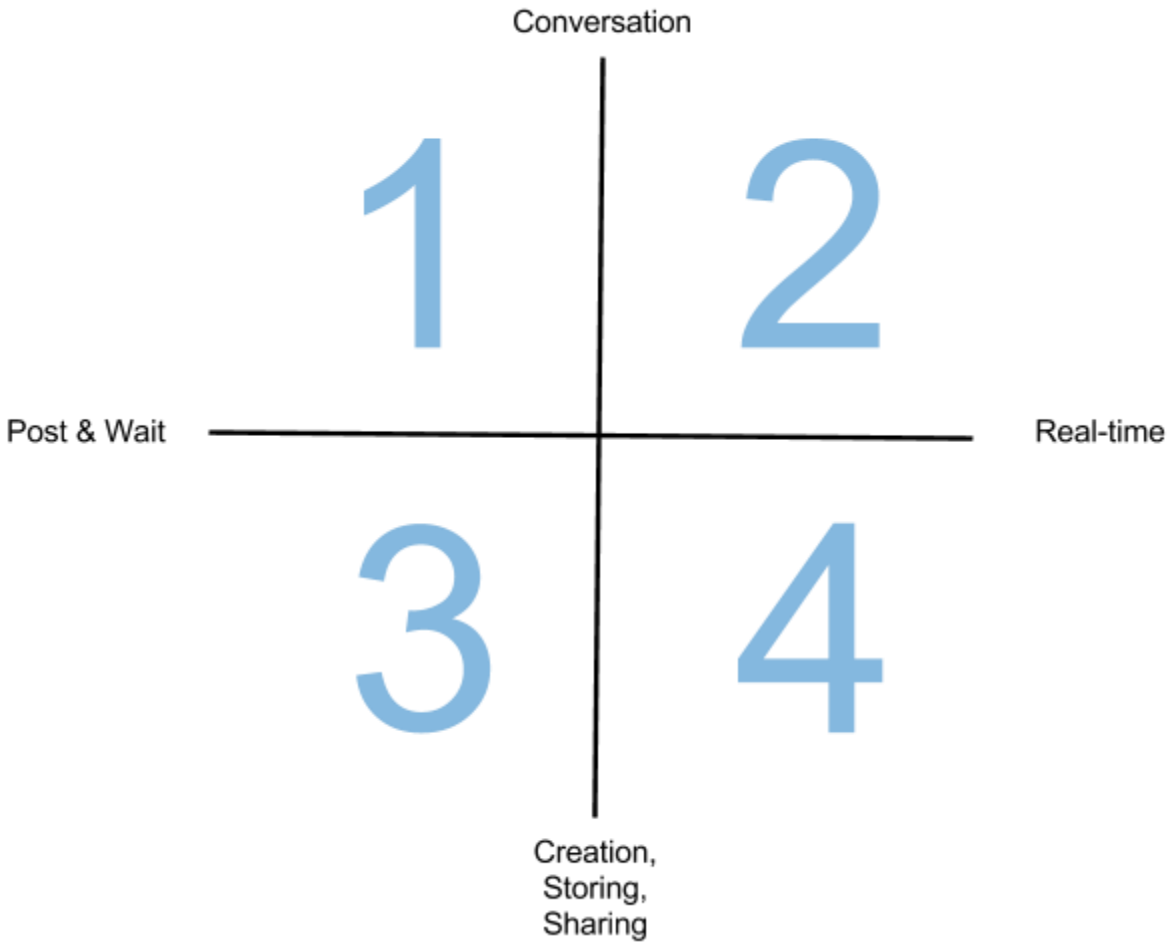
Exercise B

The community members create a campaign to use their mobile phone to report any risks or hazards in the area. These reports are then plotted on a map and posted on the Internet for others to see;



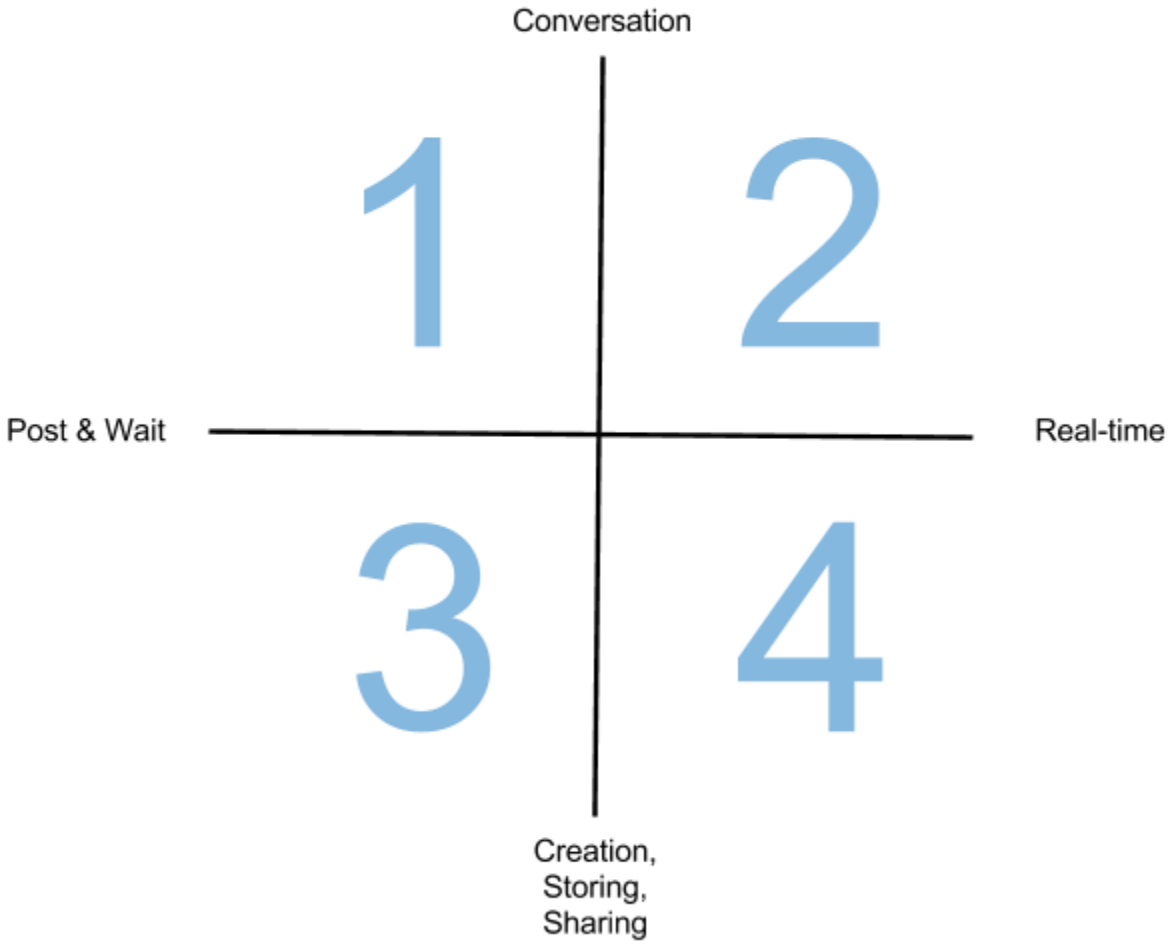
Exercise C

Farmers participate in a campaign that enables them to use their mobile phones to access a database with current market prices on crops;



Exercise D

Challenge: an extension officer launches a campaign that let's him use the camera on his mobile phone to record short videos in response to questions from farmers about their crops;



Worksheet 1.4: Planning and Managing a Campaign

Review Case Study 01: DOEA North <u>PART F</u>

Planning a campaign strategy involves several activities:

- Assess your community's state of readiness for a campaign
  - Do a simple inventory of technology that is currently available to the community
  - Identify the resource and administrative considerations related to the campaign
- Select a technology and build a prototype
- Plan to launch and monitor the campaign
- Plan for closing the campaign
- Plan for evaluation of the campaign

Discuss these questions with your group and write down your answers.

What technology and software did the DOEA-N case use for its campaign? How was it determined that this technology was most suitable? What alternatives might they have considered?

Where did the resources come from to support the campaign?

Do you think the steward required any special training, administrative or financial support to set up the technology for the campaign?

How did they decide when to run the campaign?

How long did the campaign run from start to finish? Could it have been done in less time?

What happened at the end of the campaign?

In your opinion, what was the steward's most important role during the campaign?

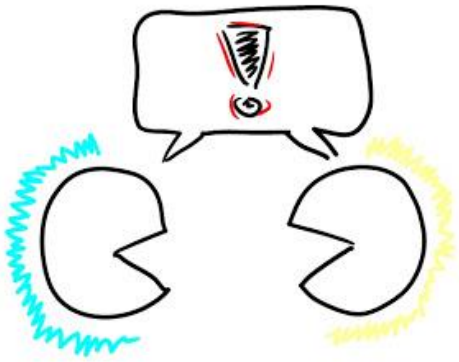
SESSION 2:

COMMUNITY ENGAGEMENT METHODS AND PARTICIPATORY DESIGN TECHNIQUES

WORKSHEETS

Worksheet 2.1: Brainstorming

It Takes 2 for Better Brainstorming (Pair Exercise)



Phase 1. Work in Pairs: Think, Pair, Share (2 minutes)

On your own, think about the following question:

As technology stewards, why do we work closely with communities?

Now turn to the person next to you and discuss your opinions on the previous question. As a pair, write your top two (2) answers on a card that your facilitator provides you with.

Phase 2. Plenary (2 minutes)

The facilitator will collect your cards and post them on the wall, grouping them by common themes.

You and your partner will have the opportunity to share two (2) examples from your answers.

Worksheet 2.2 Understanding the Community (Life Cycle) – CheckList

Characterizing your Community

1. Where is your Community in its lifecycle?

- ☐ Just forming
- ☐ Self-designing
- ☐ Growing and restless
- ☐ Stable and adaptive

2. For how long have you been working closely with your community?

- ☐ Less than 3 months
- ☐ 3-6 months
- ☐ 1 year
- ☐ More than one year

3. What are the different types of members representing your community?

Category	**Approximate number of members**
Farmers	
Extension officers	
Input suppliers	
Buyers	
Community leaders	
Others (Please mention)	

4. How spread apart is your community in terms of its location?

- ☐ Mostly from the same village
- ☐ Spread across one DS division
- ☐ Spread across one district
- ☐ Spread across one province
- ☐ Spread across one country

5. How often do community members meet face-to-face?

- ☐ Weekly
- ☐ Monthly
- ☐ Every 3 months
- ☐ Rarely

6. How diverse is your community in terms of the following:

Not diverse	**1**	**2**	**3**	**4**	**5**	**Very diverse**
Gender	☐	☐	☐	☐	☐	
Ethnicity	☐	☐	☐	☐	☐	
Religion	☐	☐	☐	☐	☐	
Income	☐	☐	☐	☐	☐	
Education	☐	☐	☐	☐	☐	
Access to Technology	☐	☐	☐	☐	☐	

7. How much do you wish to control the boundaries of your community? Does your community need:

- ☐ To be private and secure
- ☐ To have open boundaries
- ☐ Have both public and private spheres

8. In addition to technology what other resources are available to you?

- ☐ Information and knowledge (ex. Market prices of vegetables, specialist advice, etc.)
- ☐ Time and labour
- ☐ Capital and small funds
- ☐ Land and natural resources
- ☐ Organizational support (ex. Community based organizations, group support, networks, etc.)

Notes:

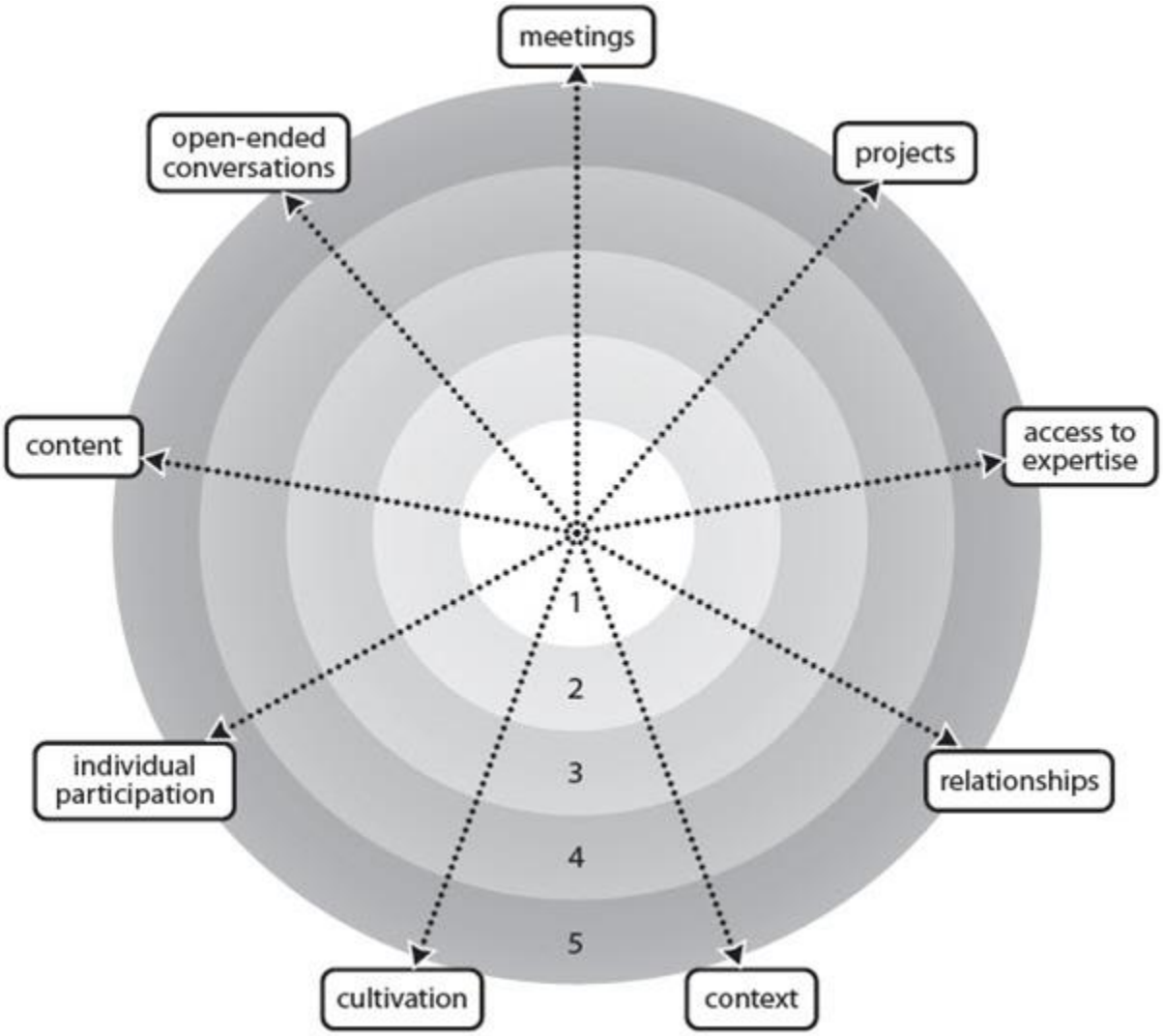
Source: Digital Habitats

Worksheet 2.3: Spider Diagram and Checklist

The Spider Diagram can be used to create an orientation profile for your community. This means thinking more about the different variants and orientation of the community. It is a little bit like cooking your favourite food. You need to think about the different ingredients (variants) of the food and also take other considerations (orientations) into account such as the amount of time you have to prepare your meal.

In the Spider Diagram tool we use a checklist of orientations that rates each aspect or Each orientation by allocating a value from 1 to 5 (1=irrelevant, 5=Very important), and then using the chart below to visualize the results by joining the points.

The Spider Diagram can be used to study the current status of the community as well as to visualize the desired status. You can use the diagram again to monitor and evaluate changes in orientations. This exercise can be performed as a group or individually.



Spider Diagram - Checklist

Use this table to understand how important each orientation aspect for your community.

Rate from 0 -5 where 0 = Irrelevant, and 5 = Very important under importance.

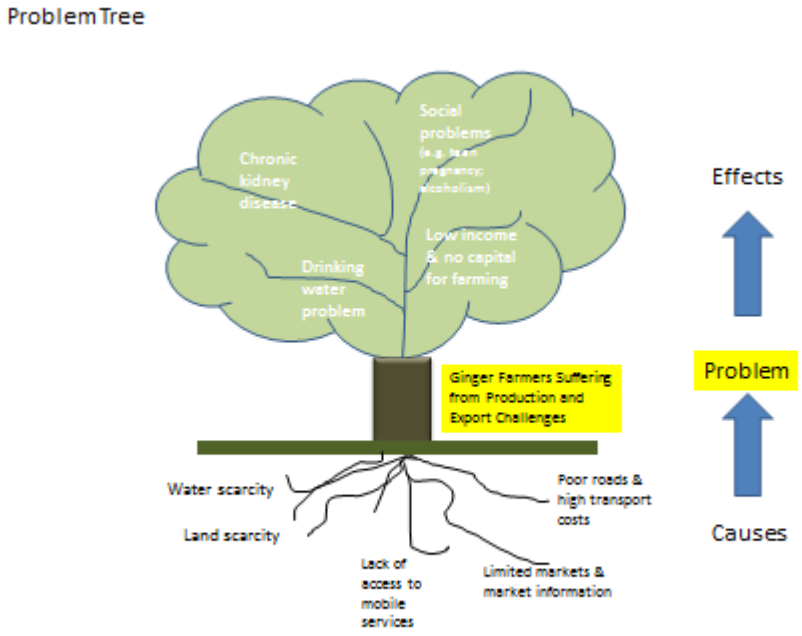
Importance	Orientations	Variants	Key Activities	Metrics
1 2 3 4 5 6 ☐ ☐ ☐ ☐ ☐ ☐	**Meetings**	☐ **Face-to-face/blended** ☐ **Online synchronous** ☐ **Online asynchronous**		**# users in each variant**
1 2 3 4 5 6 ☐ ☐ ☐ ☐ ☐ ☐	**Open-ended conversation**	☐ **Single-stream discussions** ☐ **Multi-topic conversations** ☐ **Distributed conversation**		**# users in each variant**
1 2 3 4 5 6 ☐ ☐ ☐ ☐ ☐ ☐	**Projects**	☐ **Practice groups** ☐ **Project teams** ☐ **Instruction**		**# users in each variant**
1 2 3 4 5 6 ☐ ☐ ☐ ☐ ☐ ☐	**Content**	☐ **Library** ☐ **Structured self-publishing** ☐ **Open self-publishing** ☐ **Content integration**		**# users in each variant**

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐	**Access to expertise**	☐ **Questions and requests** ☐ **Access to experts** ☐ **Shared problem solving** ☐ **Knowledge validation** ☐ **Apprenticeship/ mentoring**		**# users in each variant**
1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐	**Relation-ships**	☐ **Connecting** ☐ **Knowing about people** ☐ **Interacting informally**		**# users in each variant**
1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐	**Individual participation**	☐ **Levels of participation** ☐ **Personalization** ☐ **Individual development** ☐ **Multi-membership**		**# types of users in each variant**
1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐	**Community cultivation**	☐ **Democratic governance** ☐ **Strong core group** ☐ **Internal coordination** ☐ **External facilitation**		**Type of cultivation in each variant ??**
1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐	**Service context**	☐ **Organization as context** ☐ **Cross-organizational** ☐ **Other related communities** ☐ **Public mission**		**# service users in each variant**

Sources: Digital Habitats (p.153-153);
Gareau, T. et al, 2010. Journal of Extension 48(5)

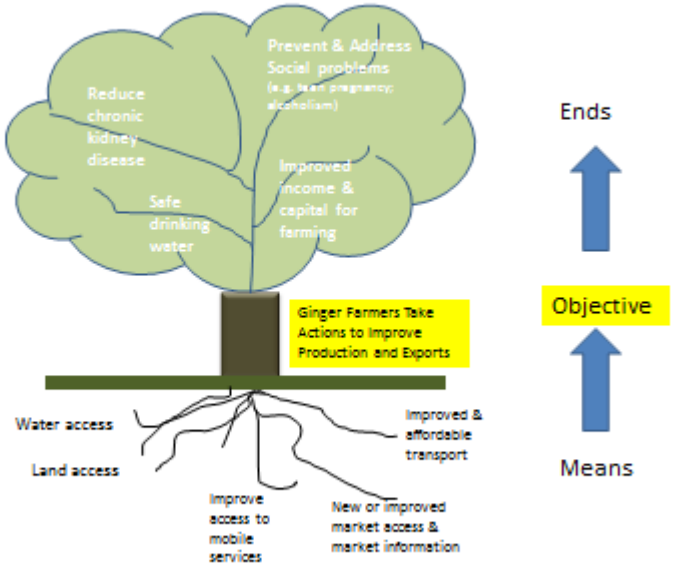
Worksheet 2.4: Problem Tree Diagram

Example of a Problem Tree diagram:



Notes:

Opportunity Tree



Notes:

Worksheet 2.5: Interactive Campaign Design Matrix

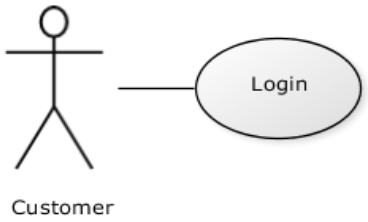
WHAT IS THE PROBLEM TO BE ADDRESSED? **(This information coming from problem tree exercise, and checklist information)**			
WHAT IS THE COMMUNITY DEVELOPMENT (change/innovation) GOAL OF THE CAMPAIGN?			
Objectives (of the campaign)	**Questions to Guide Activities**	**Source(s) of Information / Resources Required**	**Notes for project team (also used for M&E)**
Objective 1:	1.1 1.2 1.3		
Objective 2:	2.1 2.2		
Objective 3: (etc.)	3.1 3.2 3.3 3.4 (etc.)		

Notes:

Worksheet 2.6(a): How to Draw a Use Case Diagram

Group Exercise

A use-case diagram describes the behavior of a system from a user's standpoint. It identifies different *actors* who would use the system and different *functional requirements* of users from the system.



Activity

- Decide on an '*ICT based solution*' for one of the problems you identified during the '*Problem Tree exercise'*.

Ideas: _____

_____

_____

_____

- In your group, agree on an 'ICT based solution.' _____
- On Card A (provided by your facilitator), identify the "main actors (including people and systems) in the 'ICT based solution' you selected.
- On Card B (provided by your facilitator), identify the main functions these actors need to perform with the 'ICT based solution.'
- Using your cards, create a Use Case diagram to show the people using the 'ICT based solution' and the functions they expect from the system.

Plan your Use Case Diagram:

Notes:

Worksheet 2.6(b): Use Case Diagram based on DOEA-N Case Study

A Technology Steward can draw a use-case diagram to identify main functional requirements of a system. The activity can be performed in collaboration with the community members, so that the community's interests are well represented in the diagram. The following sections were extracted from the DOEA-N case study to draw the Use Case diagram.

Box 1: DOEA-N Case Study

The Challenge for Livelihood Communication

In 2013 the Department of Export Agriculture-North working closely with the community and in collaboration with Wayamba University of Sri Lanka (WUSL) held a community meeting and identified a priority need for improving the timeliness and frequency of livelihood communication between DOEA-N Extension Officers and their beneficiary farmers. At the meeting it was suggested that communication technology might help to improve general messaging regarding farmer group meetings, subsidiary schemes, plant materials distribution, fertilizer recommendation and crop price notifications. One ongoing challenge for the community and the Extension officer is the cost and time it takes to reach the community with information updates either by post or through personal visits. A cost-effective method of exchanging short messages could reduce some of these costs and the time requirements.

At the community meeting, both the Extension officer and community members agreed that the most important need was to improve communications for scheduling meetings and providing the community with updates on other gatherings. Secondary needs that were raised during the meeting included finding a faster, more efficient way to access expertise by contacting the Extension officer with questions about pest management, diseases, or cultivation techniques. The Extension officer also indicated that it would be helpful in some instances to be able to reply with a single answer back to the whole group rather than on an individual basis. The Extension officer also imagined the possibility of creating a content database of frequently asked questions based on message inquiries he received from the community.

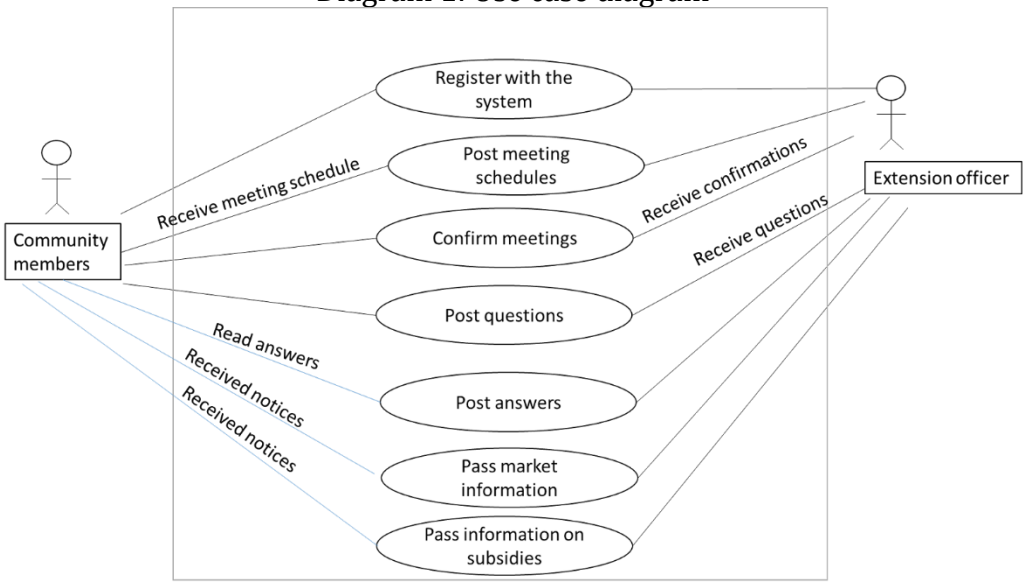
Based on the information presented in the DOEA-N case study (Box 1) a detailed list of requirements from the users' point of view were identified. The requirements for the system are presented in Table 1 below.

Table 1: List of requirements of actors

Actors	Activities
Community members (Farmers)	Register in the system Receive meeting schedule Confirm meetings Post questions related to; pest management diseases cultivation techniques
Technology Steward (Agriculture Extension officer)	Register in the system Post meeting schedule Post updates of gatherings Sharing new technology/methods Pass market information Pass information on subsidies schemes, Pass information on planting material distribution Pass information on fertilizer recommendations

The Table 1 shows a list of user requirements against different types of users. For example, the Extension Officers need to post meeting schedules through a ICT based tool.

Diagram 1: Use case diagram



Use Case diagrams can be used to answer the question of 'What will the system do for its users?". These are mainly used in requirement analysis stages to clarify the functioning of a system.

There are four important parts in a Use Case

1. Scenario: A sequence of events which happen when a user interacts with a system

2. Actor: Actors are the different groups of people who use the system (e.g. Farmers, agriculture instructors, input suppliers)

3. Use Case: task / activity performed by the user (e.g. request price information) There are two types of users:
   - primary users (active users are those who initiate activities)
   - and passive users (those who only passively participate in activities)

4. Value/Outcome: The intended value or process improvement created by performing the task as outlined, described:
   - "As an A, I would like to do B, so that [User] can C more D."

Notes:

SESSION 3:
TECHNOLOGY TRAINING
AND RAPID PROTOTYPING

Resources Provided by Instructors

SESSION 4:

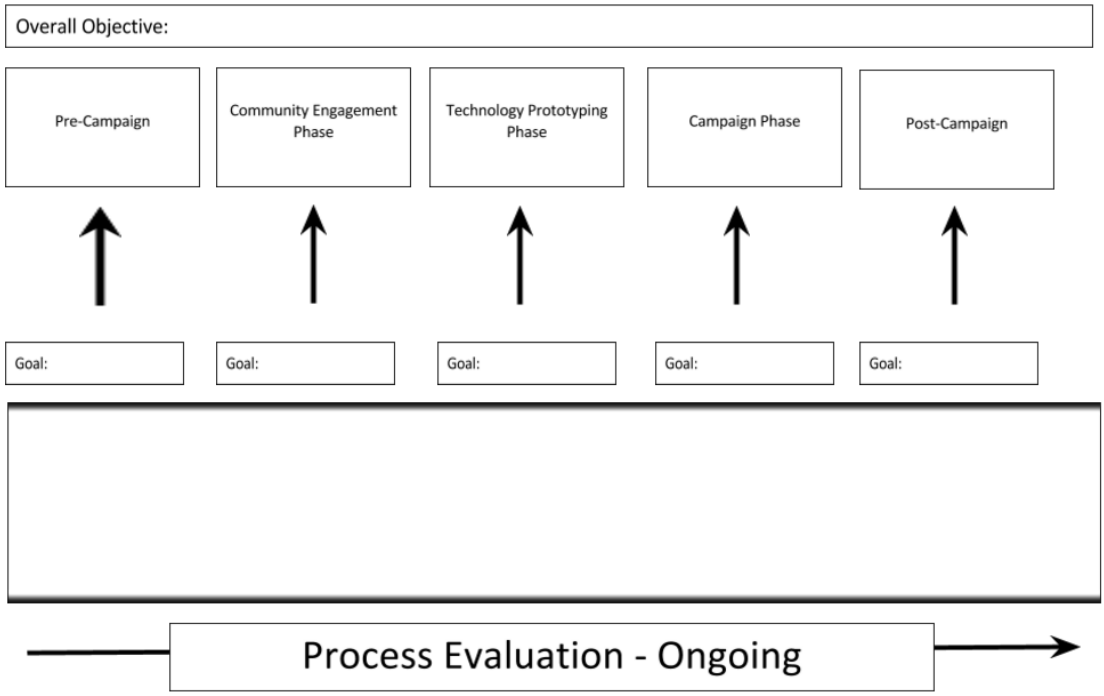
MANAGING CAMPAIGNS

AND PLANNING EVALUATION

WORKSHEETS

Worksheet 4.1: Planning Timeline and Checkpoints

This exercise will be completed using poster sized printouts of the tool below and several versions of Worksheet 4.2. Refer back to the campaign objectives that you identified in the **Interactive Campaign Design Matrix** you completed in Session 2.



Notes:

Worksheet 4.2: Question Bank

Planning Checkpoint: _____

Goal:

Technology and Training Rapid Prototyping	**Support of the Sponsor**
_____ _____ _____	_____ _____ _____

Role of the Steward	**Community Readiness**
_____ _____ _____	_____ _____ _____

Worksheet 4.2: Question Bank

Planning Checkpoint: _____

Goal:

Technology and Training Rapid Prototyping	**Support of the Sponsor**
_____ _____ _____	_____ _____ _____

Role of the Steward	**Community Readiness**
_____ _____ _____	_____ _____ _____

Worksheet 4.2: Question Bank

Planning Checkpoint: _____

Goal:

Technology and Training Rapid Prototyping	**Support of the Sponsor**
_____ _____ _____	_____ _____ _____

Role of the Steward	**Community Readiness**
_____ _____ _____	_____ _____ _____

Worksheet 4.2: Question Bank

Planning Checkpoint: _____

Goal:

Technology and Training Rapid Prototyping	**Support of the Sponsor**
_____	_____
_____	_____
_____	_____

Role of the Steward	**Community Readiness**
_____	_____
_____	_____
_____	_____

Worksheet 4.2: Question Bank

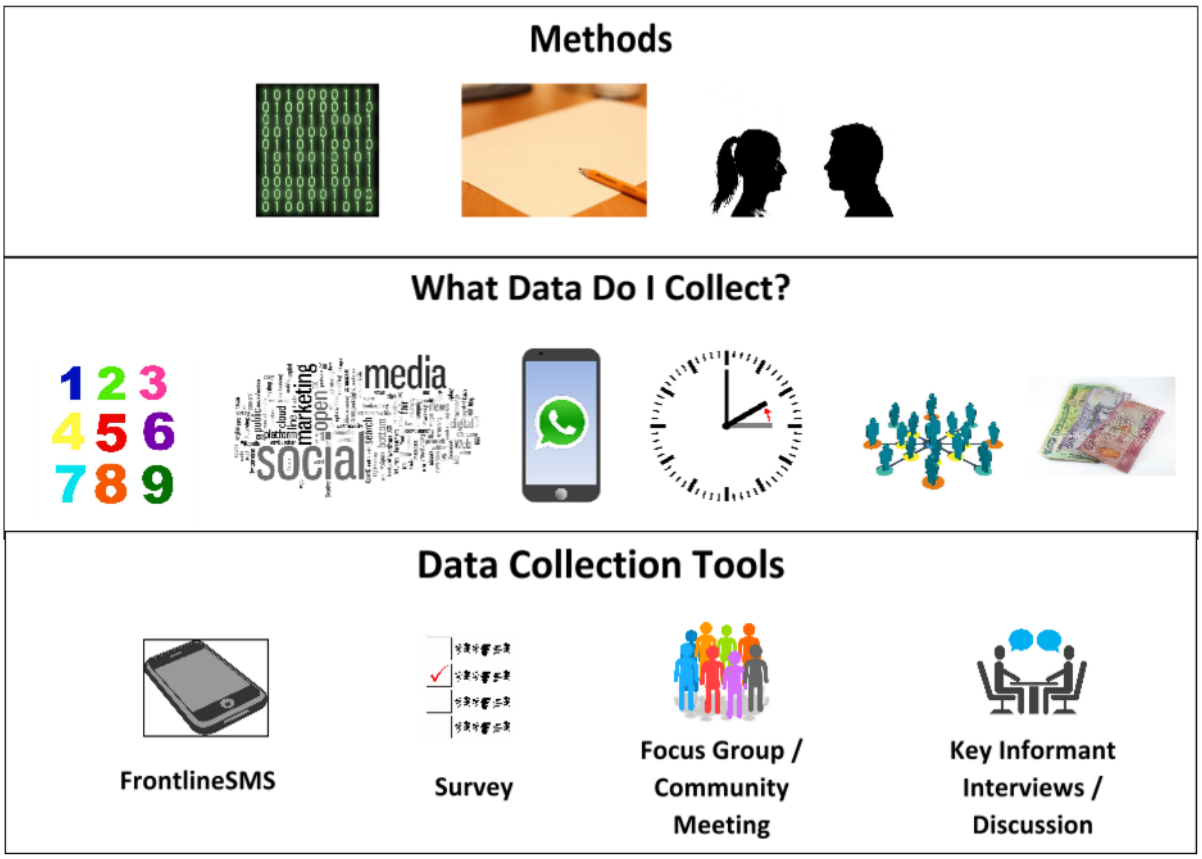
Planning Checkpoint: _____

Goal:

Technology and Training Rapid Prototyping	**Support of the Sponsor**
_____	_____
_____	_____
_____	_____

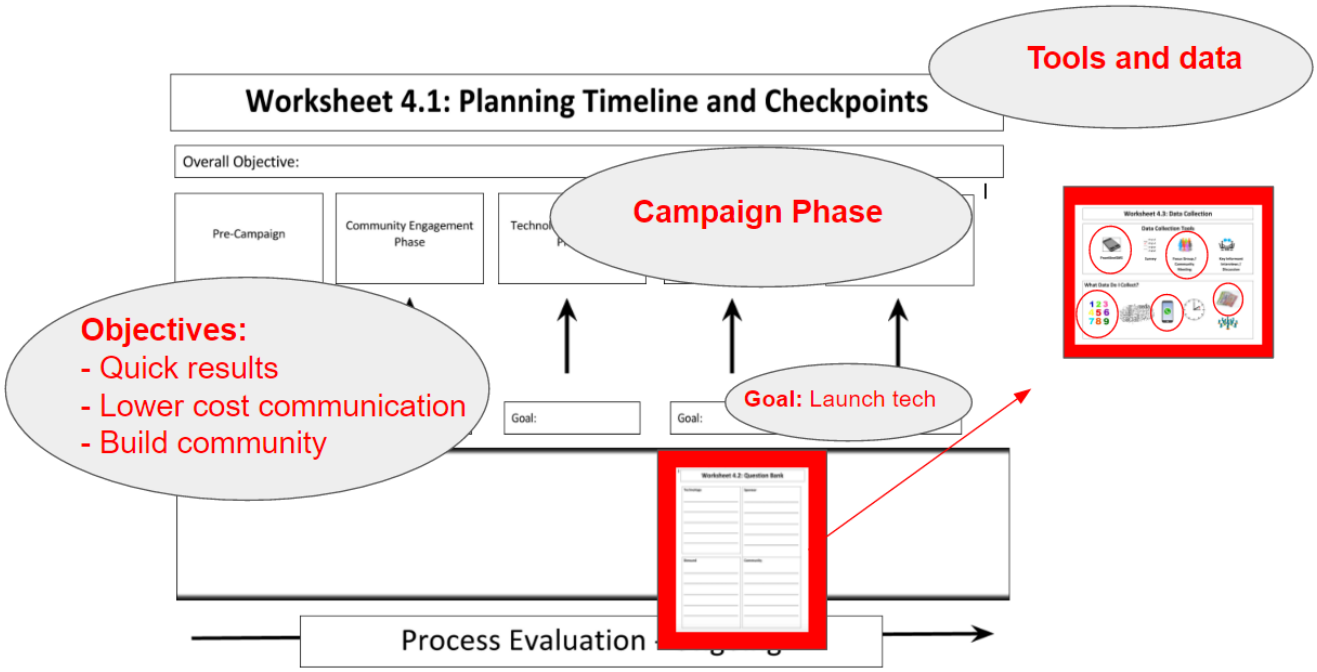
Role of the Steward	**Community Readiness**
_____	_____
_____	_____
_____	_____

Worksheet 4.3: Data Collection



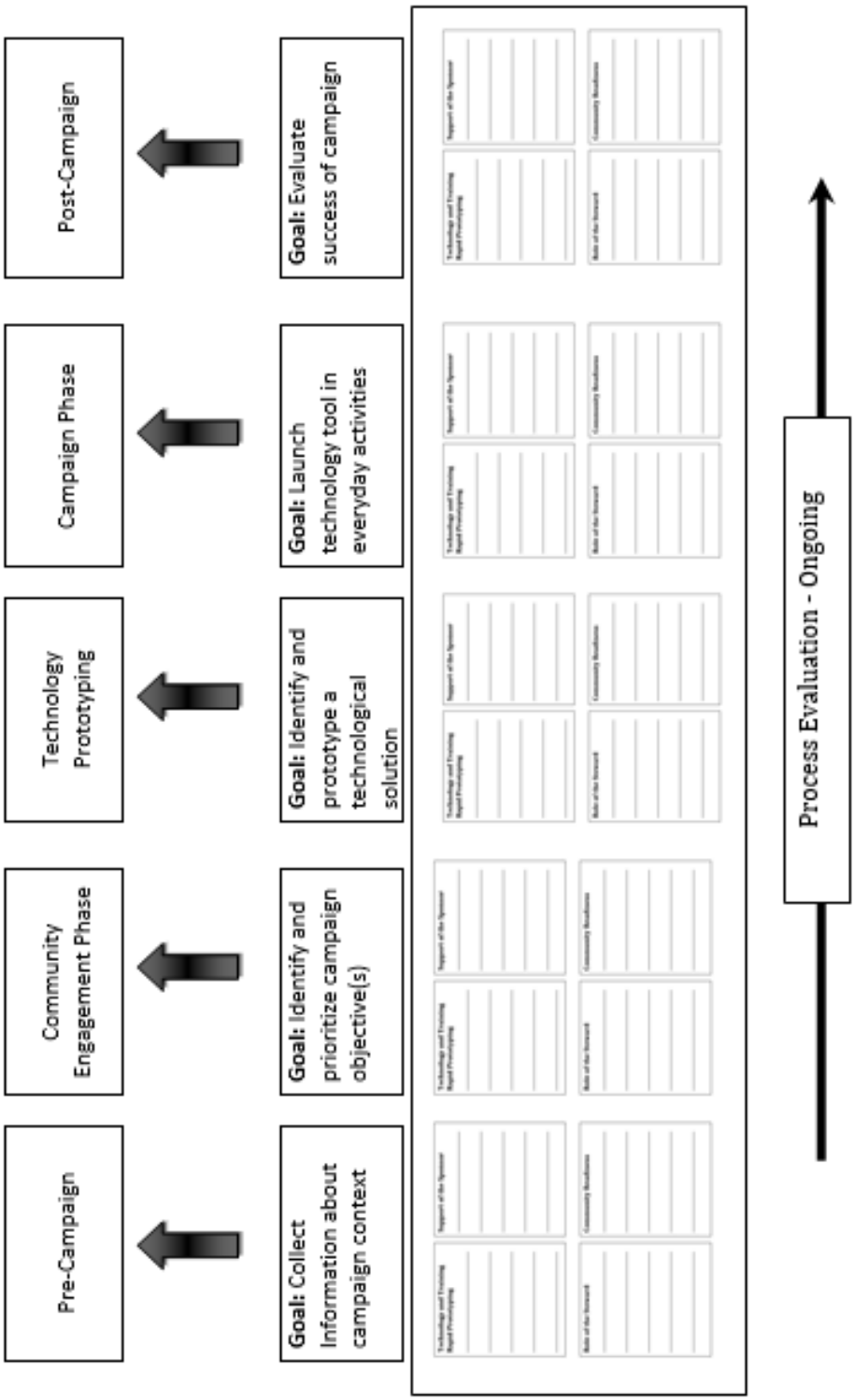
Notes:

Worksheet 4.4: Building a Campaign Evaluation Plan



Notes:

Worksheet 4.5: Campaign Evaluation Plan for DOEA North Case Study



Question Bank: Pre-Campaign

Goal: Collect information about campaign context

Technology and Training Rapid Prototyping (Frontline SMS)

_____

_____

_____

Support of the Sponsor (DOEA North and Wayamba University)

_____

_____

_____

Role of the Steward (DOEA North Extension Officers)

_____

_____

_____

Community Readiness (Farmers in the DOEA North Jurisdiction)

_____

_____

_____

Question Bank: Community Engagement

Goal: Identify and prioritize campaign objective(s)

Technology and Training Rapid Prototyping (Frontline SMS)

_____

_____

_____

Support of the Sponsor (DOEA North and Wayamba University)

_____

_____

_____

Role of the Steward (DOEA North Extension Officers)

_____

_____

_____

Community Readiness (Farmers in the DOEA North Jurisdiction)

_____

_____

_____

Question Bank: Technology Prototyping

Goal: Identify and prototype a technological solution

Technology and Training Rapid Prototyping (Frontline SMS)

_____

_____

_____

Support of the Sponsor (DOEA North and Wayamba University)

_____

_____

_____

Role of the Steward (DOEA North Extension Officers)

_____

_____

_____

Community Readiness (Farmers in the DOEA North Jurisdiction)

_____

_____

_____

Question Bank: Campaign

Goal: Launch technology tool in everyday activities

Technology and Training Rapid Prototyping (Frontline SMS)

_____

_____

_____

Support of the Sponsor (DOEA North and Wayamba University)

_____

_____

_____

Role of the Steward (DOEA North Extension Officers)

_____

_____

_____

Community Readiness (Farmers in the DOEA North Jurisdiction)

_____

_____

_____

Question Bank: Post-Campaign

Goal: Evaluate success of campaign

Technology and Training Rapid Prototyping (Frontline SMS)	**Support of the Sponsor (DOEA North and Wayamba University)**
_____	_____
_____	_____
_____	_____

Role of the Steward (DOEA North Extension Officers)	**Community Readiness (Farmers in the DOEA North Jurisdiction)**
_____	_____
_____	_____
_____	_____

Worksheet 4.6: Six Questions

Aim	To provide the basis for understanding impact assessment of ICT4D projects
Intended Learning Outcome	The participants should be able to explain the six steps involved with carrying out an impact assessment systematically

1	**WHY**	**Rationale for Impact Assessment**	Can include both the externally-stated rationale, and the internal purpose for the organization/s driving the impact assessment. In most cases, the external rationale will be one or more of: • *retrospective achievement* – post-hoc assessment of what has been achieved from investments to date; • *prospective priorities* – pre-hoc assessment of future development project investments; • *accountability* – enabling agencies to be held to account for their ICT4D spending	
2	**FOR WHOM**	**Intended audience**	Typical audiences include: • ICT4D investment decision-makers; • ICT4D policy decision-makers; • ICT4D project decision-makers; • ICT4D project users/beneficiaries; • Other ICT4D stakeholders	
3	**WHAT**	**To be measured**	A mixture of the indicators the: • key audience will best consume • most feasible to measure, and • assessment team is most familiar with This may also include identifying the conceptual framework guiding the impact assessment	

4	**WHEN**	**At what point in the ICT4D project lifecycle indicators to be measured**	The classic impact assessment failure has been to assess ICT4D pilots rather than fully-scaled-up projects; and to assess too early in the project's history	
5	**HOW (1)**	**Selected indicators to be measured**	Alongside the specific measurement issues, a key element here will be the extent of participation of project users in measurement (and in more upstream processes such as selection of indicators)	
6	**HOW (2)**	**Results to be reported, disseminated and used**	Probably the most important and the most overlooked element in the whole process, with some impact assessments being conducted but having little impact Includes questions on whether indicators are reported "as is", or communicated via causal models, case sketches, stories, etc.	

Notes:

Worksheet 4.7: Value Chain

Aim	To provide the basis for understanding on ICT4D value chain
Intended Learning Outcome	The participants should be able to explain the key elements of ICT4D value chain and their interrelationships

<table>
<tr><th colspan="3">Input – Process – Output Model</th><th colspan="3">Targets for Assessment</th></tr>
<tr><td>Precursors</td><td>Data systems
Legal
Institutional
Human
Technological
Leadership
Drivers/Demand</td><td rowspan="4">R
E
A
D
I
N
E
S
S</td><td rowspan="2">Awareness,
Infrastructure,
Digital divide</td><td rowspan="3">"e-readiness" assessment typically measures the systemic prerequisites for any ICT4D initiative (e.g. presence of ICT infrastructure, ICT skills, ICT policies)

One could also assess the strategy that turns these precursors into project specific inputs, and the presence/absence of those inputs</td></tr>
<tr><td colspan="2">Strategy</td></tr>
<tr><td>Inputs</td><td>Money
Labor
Technology
Values and Motivations
Political support
Targets</td></tr>
<tr><td colspan="2">Implementation</td><td rowspan="2">A
V
A
I
L
A
B
I
L
I
T
Y</td><td rowspan="2">Supply,
Maturity stage</td><td rowspan="2">Implementation of the ICT4D project turns the inputs into a set of tangible ICT deliverables

One can assess the presence and availability of these intermediate resources</td></tr>
<tr><td>Intermediates / Deliverables</td><td>Telecentres
Libraries
Shared telephony
Other public access Systems</td></tr>
</table>

<table>
<tr><td colspan="2">Adoption

Use

Sustainability

Scalability</td><td>U
P
T
A
K
E</td><td>Demand, Usage, Use divide</td><td>Assessment typically measures the extent to which the project's ICT deliverables are being used by its target population

Broader assessment could look at the sustainability of this use over time, and at the potential or actuality of scaling-up</td></tr>
<tr><td>Outputs</td><td>New communication patters
New information & decisions
New actions & transactions</td><td rowspan="4">I
M
P
A
C
T</td><td rowspan="4">Efficiency, Effectiveness, Equity</td><td rowspan="4">As the name suggests, only this focus actually assesses the impact of the project

One can divide it into three sub-elements:

1. Outputs: the micro-level behavioral changes associated with the ICT4D project

2. Outcomes: the specific costs and benefits associated with the ICT4D project

3. Development Impacts: the contribution of the ICT4D project to broader development goals</td></tr>
<tr><td>Outcomes</td><td>Financial and other quantitative benefits
Qualitative benefits
Disbenefits</td></tr>
<tr><td colspan="2">Exogenous Factors</td></tr>
<tr><td>Development Impacts</td><td>Public goals (e.g. MDGs)</td></tr>
</table>

Notes: