

Skill Toolkit

# **SIDEWAYS LEARNING**

## **DATA ANALYSIS**

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*Data analysis is the process of looking at the information that has been collected and using it to guide future thoughts and actions.*

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### **THE STORY**

KenCall is Kenya's largest global call center and business process outsourcing company. International businesses across the globe look to KenCall to provide customer service call centers, information hotlines and other business services. In 2009, KenCall launched M-Kilimo, a call line to provide agricultural information, advice and support over the phone to small-scale Kenyan farmers. In the midst of a severe drought and famine in Kenya, this was a vital service. Farmers reported problems and asked agricultural questions related to climate and weather conditions, fertilizer and soil preparation, seed and planting, and the selling and marketing of produce and livestock.

KenCall and M-Kilimo's objective was to provide high quality and reliable information to farmers. This had previously been a bureaucratic challenge. Extension Workers, government employees of the Ministry of Agriculture, have caseloads of almost 10,000 farmers each. They responded to individual questions from farmers with different sized farms, assorted crops or animals, and in diverse regions – all factors that need to be considered in order to guide the recommendations made. When answers weren't readily available, it took time for the Kenyan agricultural ministry to consult with scientists, university researchers and other experts to provide current information, and then translate those suggestions into a language that each farmer could understand.

KenCall realized that they needed a more efficient method to provide farmers with needed information. They restructured the M-Kilimo operation and built in ongoing data collection and analysis to better serve their callers. M-Kilimo began by hiring telephone operators with professional degrees in agricultural sciences and experience in the local communities where rural farmers live. They designed a simple data management system so that each time a farmer called for information, these highly trained

and culturally sensitive operators collected data on the farmers who called in – an average of about 200 calls per day. Farmer profiles included data on farm location, the amount of land cultivated, the number and type of animals raised, seed varieties, soil type and condition, fertilizer used, local water sources, climate conditions in the region, access to electricity, the language and dialect spoken, and their preferred methods of receiving information. Over time, when farmers called in with questions, data was available to ensure that the advice provided was accurate, relevant, and individualized. This data also helped the government Agricultural Extension Services office to commission relevant research based on the actual needs and questions that farmers have, rather than providing generic scientific studies that did not always have relevance.

◀ For more information

KenCall

<http://www.kencall.com>

M-Kilimo. Kenya Farmer's Helpline

<http://www.m-kilimo.com/>

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## DESCRIPTION

Data are increasingly seen as important public resources – published and made accessible to people who wish to understand basic information that shapes a field or sector. Data collection refers to information gathered through a systematic inquiry, usually linked to a series of questions asked or observations made. Information is collected through surveys, questionnaires, interviews, and dialogue.

Data analysis aims to provide a general impression of information through a discussion of responses and observations. Data analysis seeks to “read” the data, paying attention to the breakdown and categorization of information, and noticing patterns or themes that influence a more straightforward understanding of information collected. Information can be interpreted in many ways so data must be collected from multiple sources. Data analysis considers the different contexts and perspectives that may create contradictions in how issues are understood. Data analysis can help identify needs, determine possible services, or evaluate programs currently in place. This may lead to a change or enhancement of services based on factual data. Thus, the collection of information and its analysis are essential for innovation and change.

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## DEVELOPING AN INNOVATION MINDSET

Data collection that simply yields information will lack a clear purpose or utility if an analysis does not provide supplementary context or perspective.

## HOW TO

### Step 1

#### *Data collection*

Pose questions to guide the collection of information. Seek out responses to those questions through a systematic collection of data through observations, survey, interview, or focus groups. A system to manage your data, such as a basic table or chart, is helpful to keep track of how you intend to collect and organize responses. Sample data collection chart:

Questions to guide data collection.	Observation	Survey	Interview	Focus Group
What type of farmer uses the M-Kilimo call line?	X	X		
What information do farmers need from a call line?		X	X	
How does information received from the call line help farmers?		X	X	X

#### Ask questions such as:

- Who uses this service? What do I need to know about this user? (i.e. a description of the users)
- Why do they use this service? (i.e. a description of users' actions)
- What do they like or dislike about this service? (i.e. a description of users' opinions)
- What other services would users like? (i.e. a description of users' suggestions)

Use these related skills: [Question](#), [Survey](#), [Interview](#), [Create](#)

### Step 2

#### *Read the data*

Simple data analysis considers answers for the initial questions posed. “Read” the information collected to understand possible meanings, categories and relationships. Categorize those meaning based on the words, themes or relationships that you notice.

For example, count the number of responses in each category to determine statistical relevance for a result. Or identify themes – recurring ideas, phrases, words, perspectives – and tally how often these themes occur throughout the information collected. Group recurring ideas, phrases, words, perspectives to reveal patterns and a bigger picture story about the data. These answers or “findings” might be typed up in a simple format, such as a chart or table, so that relevant information is easier to share.

Use these related skills: [Critique](#)

#### ◀ Back to the story

KenCall considered what more was needed to provide farmers with the most accurate information to improve their farms. They realized that information needed to be individualized to meet the particular needs and conditions of each farmer. This would require up to date knowledge about the region, farm history, agricultural practices, as well as language skills and cultural knowledge to facilitate communication. KenCall decided to slowly build a database of individual farmer profiles by asking trained agricultural experts to survey every farmer that called.

#### ◀ Back to the story

As the database of farmer profiles grew, KenCall learned that common questions centered on crop rotation and seed varieties. Keeping track of this information helped them to build expertise in these areas and make recommendations that would help to build farm productivity.

*Step 3**Interpret the data*

Data can typically be interpreted in multiple ways. Discussing data can help to develop more complex understanding of information by suggesting multiple meanings and analyses. Develop simple vignettes, fictionalized stories based on themes reflected in the data. Use these stories to demonstrate different ideas, contexts, and perspectives. Pay attention to new questions about this issue that emerge.

**Ask questions such as:**

- How can these findings be applied to a real context?
- What additional questions do I have?
  - Are there inconsistencies or gaps in the information?
  - What perspectives are included or left out?
- What does the data analysis suggest for next steps?

Use these related skills: [Cross Sector Analysis](#)

**LIMITATIONS**

- Data analysis takes time and can yield too much information to process.

**RESOURCES**

- **IDEO – Human Centered Design Toolkit**  
<http://www.ideo.com/work/human-centered-design-toolkit/>
  - Hear: This toolkit will help users design data collection instruments and guide data analysis.
  - Create: This toolkit explains how to use data to develop new solutions that transform problems into opportunities.
- **MindLab**  
 Method cards are available to support design thinking and qualitative research. A seven step process guides users to reflect, gather and analyze data, and prototype new developments.  
<http://www.mind-lab.dk/en/methods>
- **Ushahidi**  
 Ushahidi is a non-profit tech company that specializes in developing free and open source software for information collection, visualization and interactive mapping.  
<http://ushahidi.com/products/swiftriver-platform>

**◀ Back to the story**

As operators for different regions shared data, they started to see that weather patterns had a huge effect on farm productivity. KenCall sought the expertise of climatologists and environmental scientists to provide additional information.

**◀ Back to the story**

As farmer profiles became more complex, the job of the operator became more challenging. There is now a greater need for even more training to use the system. This has generated expenses that KenCall had not anticipated. They are currently seeking funding to further enhance the M-Kilimo project.

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