Rapid Assessment tools are Information Systems

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Abstract

The information systems literature reveals that many manual information gathering and analyzing systems share some common characteristics that qualify them to be label as the information systems. These characteristics are: presence of facts, transformative activity to manipulate those facts, signals to act upon the processed data, and if action is taken, then will they help achieve the desired results. It is found that many rapid assessment tools used after a disaster struck also share these characteristics. This paper will discuss two rapid assessment tools, which are in use by disaster managers and international relief agencies, and will assess them against the IS characteristics given in the literature.

Keywords: Information Systems, Disasters, Rapid assessment, REA, IRA

1. Introduction

The information systems literature reveals that there are many manual systems that do not always store data in a conventional way, as the traditional information systems do. In these systems, tasks are completed manually through practiced routines and there is limited reliance on information stored in, and retrieved from either the fixed computerized databases or paper based files (Lederman and Johnston, 2007). These manual systems may include some paper artifacts (cards or tokens, rather than files) or have physical components often using tools such as whiteboards (Schmidt, K. and Simone, 1996). These artifacts may also include data collection forms or questionnaires. While there may be some written information on these artifacts, they do not function as traditional data stores (Lederman and Johnston, 2007).

As describe by Lederman and Johnston, it was proposed that, in deciding whether or not a system is an information system, the following test should be applied:

1. Does it provide facts for the system to manipulate? These facts may be values in a data file or they might be the colors of magnets or the placement of flight strips on a table. A fact is an element that avails itself for transformation.
2. Does it exhibit some sort of transformative activity? That is, does it take up the facts and manipulate them in some way that changes the state of the system?
3. Does this transformation result in a signal for a system participant to react to? This signal might be a value in a table or a change in the arrangement of an ambulance card in an ambulance allocator's box. A signal is an indicator that presents itself for action.

4. Is it a system where action results (through traditional feedback by users or some other type of response) leading to the fulfillment of goals?
(Lederman and Johnston, 2007)

Many researchers have developed rapid assessment tools, which are frequently used by the disaster managers and international relief organizations. These tools help collect the information required to assess the impacts of disasters in various sectors, such as humanitarian suffering or environment. The information is required at every stage of disaster management (Guha and Lechat, 1986). In this paper we will describe two rapid assessment tools and their uses then they will be examined against the tests described by to find if they qualify to be treated as IS (Lederman and Johnston, 2007).

2. Rapid Assessment Tools

Various rapid assessment tools are in use to assist the disaster managers (personnel involved in post disaster response and recovery process) and many relief agencies. Examples of two such tools are: Rapid Environmental Impact Assessment tool or REA (environment) and tool for humanitarian assistance IRA (HTTP2).

3. Rapid Environmental Impact Assessment (REA)

The Guidelines for Rapid Environmental Impact in Disasters (REA) provide a means to define and prioritize potential environmental impacts in disaster situations. Ideally 2-3 people complete the assessment tool. A simple, consensus-based qualitative assessment process, involving narratives and rating tables, is used to identify and rank environmental issues and follow-up actions during a disaster (Kelly and Charles, 2005).

3.1 How REA works

The REA tool consists of five main parts and ten annexes, which may hold the narratives, facts and data gathered by the field staff. The main parts include an Introduction to the REA, and modules on Organization and Community Level Assessments, Consolidation and Analysis of assessment results and Green Review of Relief Procurement. The Annexes include information sources, forms used in the assessment and information useful in managing the REA process. At least the Organization Level Assessment and Consolidation and Analysis modules should be used in any disaster impact assessment, while completion of the Community Level Assessment is strongly recommended. The Green Review module can be used independently of the other modules.

The Organization Level Assessment module focuses on critical environmental issues from the perspective of government, non-government and private relief organizations. The assessment uses narrative and rating forms covering environmental issues, which can arise in a disaster and provides limited guidance on how to address these issues.

The Community Level Assessment focuses on critical environmental issues from the perspective of communities affected by a disaster. This module consists of guidance questions and response of them can be noted either on the form it’s self or on a separate paper sheets.

The consolidation and analysis process can be completed using only one assessment, but it is recommended that both assessments be incorporated into the consolidation and analysis process when possible.

The purpose of the Consolidation and Analysis module is to develop a single prioritized list of environmental issues, which should be addressed in relief and recovery efforts. This module is not intended to generate a detailed report on the REA assessment but provide a simple tabular presentation of critical issues identified in the assessment and an indication of further action to address these issues.

Four types of actions are anticipated as a result of the consolidation and analysis results:

1. The modification or redesign of existing relief or recovery efforts
2. The design of new projects to resolve or mitigate critical issues.
3. The acquiring of additional information to determine the nature, extent or importance of a specific issue.
4. Advocacy on behalf of disaster survivors with appropriate authorities or organizations to address a critical issue.

The results of the consolidation process should be transferred to a second form dealing with Issues and Actions. This form has three columns, one for the issues consolidated from the previous form, a second for an initial identification of actions to address these issues and a third for an overall prioritization of the issues listed. (A fourth column can be added to indicate who will have responsibility for specific actions if this is appropriate.) (Kelly and Charles, 2005)

3.2 REA in Practice

The REA tool has been used for several large-scale disasters, and it has proved its usefulness. One of such events is the tsunami of Banda Aceh (HTTP3).

In Dec 2004, Banda Aceh city in Indonesia saw the worst natural disaster. More then 100,000 people lost their lives, in Sumatra alone. As a first step towards assessing the impacts of disaster on the environment, the Ministry of Environment commissioned an assessment of impact. The tool used was Rapid Environmental Impact Assessment tool (HTTP3).

3.3 Does REA pass the IS test?

Let’s see if the REA qualifies for being labeled as information system based on the questions outlined by Lederman and Johnston.

Question 1: Does it provide facts for the system to manipulate?

As mentioned above, few people use the REA tool at a time. They collect the information required in the tool. The response can be stored or captured on separate sheets of paper.

Question 2: Does it exhibit some sort of transformative activity?

The data captured on the forms goes through processing phase and a list of most pressing environmental issues are outlined, during consolidation and analysis process. This is a single prioritized list of issues that need immediate attention.

Questions 3: Does this transformation result in a signal for a system participant to react to?

The result of the transformative activity is a list of most pressing issues, which need immediate attention. The concerned authorities that are conducting the assessment enlist a set of actions parallel to each distinct issue. These set of actions act as the signals to initiate an activity, to deal with the prioritized issues.

Question 4: Is it a system where action results (through traditional feedback by users or some other type of response) leading to the fulfillment of goals?

Each action specified is along with the issue that it can help to solve. The authorities are named who will be responsible for the specific action and actual actions are taken.

(For more details on the process of REA, please see (Kelly and Charles, 2005)

4. Initial Rapid Assessment tool

The Initial Rapid Assessment (IRA) is designed to provide a quick overview of how a population has been affected by crisis, including who is likely to be at greatest risk of mortality and acute morbidity and why? It also helps identify priorities within and across sectors for an initial comprehensive humanitarian response and follow-on sector-specific assessments.

The Initial Rapid Assessment (IRA) includes three key documents:

Initial Rapid Assessment (IRA) Tool: The IRA Tool is essentially a template for the primary data collection and recording at field level. It is targeted at the team members of field assessment teams. In addition to the questions in the tool, it includes specific data collection and recording notes, or tips, to assist team members in using the tool correctly in the field.

Initial rapid assessment (IRA): Guidance Notes for Country Level: The Guidance Notes for Country Level provide an overview of how to organize and begin an IRA, during the pre-crisis period and when the crisis hits, but at national level rather than field level. It is targeted at national stakeholders, such as the country Clusters that will lead the activity, conduct the analysis and act based upon the findings. It assumes some level of technical or sector-specific expertise and analytical capacity.

Initial rapid assessment (IRA): Guidance Notes for Field Level: The Guidance Notes for Field Level explain how to conduct the field data collection component of the IRA. The Guidance Notes for Field Level should be used in conjunction with the IRA Tool and the specific point-by-point data collection and recording guidance included in the tool. This document is targeted at field data collection team members, and assumes that they are generalists who may have public health-related knowledge but do not have advanced technical expertise in the sectors covered by the IRA.

Because speed is vital, the IRA should be started within the first 72 hours after the onset of a crisis. Initial reporting for decision makers and funding appeals should quickly follow completion of fieldwork, and a fuller report should be issued within two weeks of the start of the IRA (HTTP2).

4.1 How IRA works

The data collection process in IRA includes collection of primary & secondary data. The secondary data can be of two types: the pre-crises secondary data and the in-crises

secondary data. The Pre-crisis secondary data include information to provide the baseline, or reference point for comparison, that enables meaningful conclusions to be drawn about effects of the crisis and priority responses. It also identifies the pre-crisis vulnerabilities of the population, and national capacities for emergency response – organizational, human and material -- among government, national NGOs and Red Cross/Red Crescent Societies, private sector and civil society as well as critical gaps therein. The In-crisis secondary data include information about nature, scope and extent of the emergency; Identify the most affected regions and populations/ vulnerable groups and choose sites for field IRA; Assess changes to national and local capacity due to the crisis; Monitor changes in international capacity for assistance; Identify security and logistical considerations affecting delivery of humanitarian response and implementation of field data collection. Much of the secondary data listed (listed in the Annexes 2 and 4 of the IRA tool) can be collected prior to assessment teams' departure to the field. However, it will usually be necessary to gather more recent and detailed secondary data in the affected area before doing field assessments at specific locations in order to enable to form a clearer, more detailed and up-to-date analysis of the situation at local level; fill gaps in data on pre-crisis conditions; and finalise the choice of locations for field assessment.

The primary data is collected at the community level and is required to identify priority sites and sectors for humanitarian response; provide a qualitative picture about the range of impacts of the emergency and influencing factors; validate or modify the assessment provided by secondary data; and ensure that affected populations participate in identifying priorities for the immediate response (HTTP2).

4.2 IRA in Practice

Since 23 July heavy rainfall in the Carpathian Mountains on the border between Ukraine and Romania has resulted in rising high waters of the Rivers Dniester and Prut. Areas most affected by floods were rural; urban areas remained intact. Vulnerability of population is determined by several factors, including extent of damage to the housing and infrastructure, and social status. IoM and WHO conducted initial Rapid Assessment after the heavy rainfall (HTTP1).

4.3 Does IRA pass the IS test?

Let's see if the IRA qualifies for being labeled as information system based on the questions outlined by Lederman and Johnston.

Question 1: Does it provide facts for the system to manipulate?

IRA tool recommends collection of both primary and secondary data on the situation before the event occurs and after the event occurs.

Question 2: Does it exhibit some sort of transformative activity?

The field site assessment teams submit the data collected from various incident sites to the higher-level teams (national cluster teams). The cluster teams process and reviews the data, which helps them have an overview of the problems and prioritize the issues.

Questions 3: Does this transformation result in a signal for a system participant to react?

Cluster coordination team (national stakeholders representing the country) generates a brief report on the basis of transformed data available from the previous step (see question 2). This provides decision makers and donors with essential information (and information gaps) on the crisis at national level and concerning specific sites and sectors. These set of actions act as the signals to initiate an activity, to deal with the prioritized issues.

Question 4: Is it a system where action results (through traditional feedback by users or some other type of response) leading to the fulfillment of goals?

The analysis of the reports is conducted at two levels: field level and country level. The analysis at country level result in finding: the effects of the emergency, description of magnitude and nature of the emergency, magnitude and demographics of population affected, magnitude and range of effects on national capacities, expected evolution, pre-crisis situation, including seasonal, inter-annual and long-term trends, description of most vulnerable populations and factors/mechanisms creating vulnerabilities. This analysis report results in actual measures taken to reduce the suffering of the affected community.

(For more details on the process of IRA, please see (HTTP2)

5. Conclusion

Researchers have developed many rapid assessment tools to assist the relief personnel in disaster management and post-disaster recovery. Both the rapid assessment tools discussed above have the characteristics outlined by Lederman and Johnston. The rapid assessment tools are widely used by the disaster managers and international relief organizations. They are the best tools to gather the information required to help in response and recovery phase. The paper has shown that these rapid assessment tools have the characteristics that enable them to be categorized as the information systems. If these manual information systems are assisted with the advance technology then they can play their part in the disaster management more effectively.

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