Managing Information for Real-Time Decision Support at Community Level

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ABSTRACT

Management of real time information systems is gaining importance in all sectors and facets of human life. Varying from their applications in aviation, military, government, space technology, earth science, robotics, human cognitive, life support systems, disasters and emergencies, they emerge in diversified forms and natures. This paper identifies various contexts in the decision making processes of community livelihood; contextualizes the relevant information for taking time-critical decision, conceptualizes appropriate decision making methods, tools, and technologies for proper implementation, and manages an appropriate decision support system focusing knowledge acquisition and learning. Along this perspective, the paper establishes a decision support system framework in the aspect of early warning system in reaching out to grass roots community people at their own language, sign, and interpretation; provides knowledge support during disaster management, especially during post-disaster; provides information support in agriculture related matters, focusing pest control, and pre and post harvesting issues; provides emergency health assistance support during road accidents, or emergency health cases, or epidemic breakouts; and finally provides collaborative learning to improve e-governance at community level.

Keywords: Collaborative Learning, Decision Support System, E-Governance, Human Development, Knowledge Acquisition

INTRODUCTION

Time-critical decisions prefer a balanced source of content and at the same time rely on a robust infrastructure, which are necessarily essential for human capacity development and aid in fast-track decision making during emergencies (Gilad, 2000). Information infrastructure they belong, evolving from internal to external to virtual networks, essentially form some sort of social network. Contents of time-critical decision support systems are crucial, sensitive and ever-growing, but must belong to people of communities who could be inquisitive, inexpert or inattentive or naïve or ignorant. Contents gathered along these forms of decision support system (DSS) merely follow any pattern, algorithm, or procedure, but must be capable to provide solution or support while desired. Failing to do so, gears up exponential death of the network which they belong, as many already have vanished around the globe despite having shining start.

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A vital pillar of leadership, in terms of knowledge acquisition and development is the ability to gather, assess and understand the right data in right time and utilize them effectively to drive visible changes. Furthermore, while these data are being floated within a social network or networks that are being shared by communities of common interest, sharing of the data with the right people in the right time is equally important. Enterprise systems and strategic initiatives, both in the for-profit and non-profit sectors have been actively promoting the idea of accumulation and dissemination of data and at the same time they are being used to form a common platform in supporting institutional (organizational/ community/ local/ national/ regional) activities (Nelson, 2004).

In the quest of creating more intelligent content system and building more informed decisions, tools like data mining, data warehousing including adopting algorithms (in research and development sectors at the back end) and business intelligence applications (in commercial or non-commercial sectors at the front end) are developed to collect and deliver data to those who would be mostly benefited (Nelson, 2004). To reach out the right people and at the right time with requisite data for making knowledgeable decision is largely a vast area of research. Scope of this paper will not allow going through in-depth technical details and logical arguments along this research arena. However, the paper will carry out some synthesis on these issues in terms of practical applications for community development and knowledge acquisition in establishing a decision support system. As Nelson (2004) argues that, decision support is not just a tool or a piece of technology to support reporting; instead it is about making sure that people have the right data, just in time. He further argues, “Raw data, transformed results and analytically based conclusions flow through the network to support the goal of helping people make better decisions – not just those based on “gut” (pp.1). In this context, this author strengthened these arguments that, the data need to reach the right people at the right time, but also in right form so that they are being easily understood and make informed decision at better convenience.

In terms of making critical decision in situations like, natural disasters or earth quakes, management of information becomes extremely crucial to reach the destination in time and in correct format, so that the decision can be taken without any time delay. Situations like, flash flood or monsoon rain or landslide or road-accidents also desires time-critical path to reach the destination. Steady but aggravated situations like draught or pest control or flood control desires information to be reached at the destination that would be easily understood. A hurricane of strength 10 or an earthquake of 6 Richter scale is almost not understood by community people and often wrong decisions were being taken or many times this sort of important precautionary information are being largely ignored. The same applies to health related epidemics or human made disasters. Exact nature, scope of emergency and precautionary measures to be taken immediately for mitigation should be able to reach the destination at the right time and appropriate format.

This paper next is going to put forward an exploratory literature review on time-critical decision making systems, their implications for taking intelligent decisions, especially focusing community people. Next, it provides an information management framework and a few applications around the framework that may be seen as transformation of these services from service providers to the actual users, including a few tools and techniques of such systems. There are significant challenges along this route that are being faced by researchers and also during operationization of similar systems. Before the conclusion, the paper points out to a few future research hints to establish a complete, comprehensive and consistent real time decision support system in the area of community livelihood.
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