

# Pantoto: A participatory model for community information

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## ABSTRACT

Addressing the digital divide is about making information technology and its benefits accessible to all. This task demands solutions to physical access as well as meaningful access to ICT applications. One of the most basic needs of communities is access to accurate and relevant information. Dissemination is one of the most powerful applications of ICTs, from which far too few underserved communities have been able to benefit. Many efforts are underway to address this need by creating web sites. The task of creating locally relevant information resources, not to mention keeping them current is a daunting task, which we believe is unsustainable with current approaches. In this paper, we discuss a participatory model for creating and managing community information.

## Keywords

Collaborative, communities, knowledge management, participatory, sustainable, empowerment, semantic web.

## INTRODUCTION AND MOTIVATION

Information is power! True, as long as it is up-to-date and relevant to its intended beneficiaries. All around the world people are becoming increasingly aware of the importance of information in their lives, such as local market prices for produce, the benefits and eligibility rules for assistance programs, health information, government publications etc. Projects deployed in India (SARI [4], Gyandoot [1], Mahiti Ghar in Panaji - Goa, Tarahat [6]) demonstrate that the awareness of the power of information is by no means limited to urban or wealthy populations. Not surprisingly, the underserved communities are very interested in information that can help them.

Our work is primarily motivated by these observations:

- To have *access to accurate and relevant information* is of importance to everyone.
- Enthusiasts and organizations with budgets have been creating web sites to provide information, market their services and goods, and more. They create web sites because they reach their audience. However, an average user is still a consumer in the "information highway",

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not a producer or an active participant.

- Effective content creation is difficult. Content that is incomplete, inaccurate, or does not meet the needs of its target audience is common. Keeping content up-to-date is even more difficult. Change is inevitable and information must be updated to be beneficial.
- Most often domain experts are not tech savvy and the tech savvy people are not the domains experts for the solutions they are creating. This often causes miscommunication, poor results, and time delays.
- Most web pages are free in form and free in content. This makes it difficult and sometimes impossible to meaningfully search and process information.

In summary, the effectiveness of an information system depends on accurate, current, and relevant information.

With existing models, it is difficult to create and maintain such systems without a support staff. We think that the way to overcome this problem is to allow the beneficiaries to be included in the management of their information.

## PROPOSITION

There is a need for a sustainable model for creating and managing community information. Such a model must at least satisfy the following:

- Must be sustainable.
- Must be participatory. Locally relevant information requires that the voices of the beneficiaries are heard.
- Must allow distributed content development. Distributing content management to appropriate members of a community makes the task feasible since (1) the task is subdivided, (2) people who are interested and qualified deal with their part of the overall content, (3) people in geographically different places can create content, and (4) the bottleneck of relying on personnel dedicated to creating and managing web content is greatly reduced or eliminated.
- The service must not dependent on any particular hardware or software platforms.
- The service must be easy to learn and use.

Given the currently available technologies, we propose a web-based application for community information management that is simple to use, participatory, and collaborative.

## PANTOTO: A PARTICIPATORY MODEL FOR COMMUNITY INFORMATION

*Pantoto* is a participatory information resource creation and management system. It provides support for three main areas related to community information: content creation and management; representation for community participants; and information-centric communication.

**Content:** All information (content) is created through forms by community members. We call each contribution a *pagelet*, which is a structured web page. All contributions are stored in a database and the web-pages are created dynamically. Pagelets are organized into categories in a manner familiar to many web sites. Thus, creating natural ontologies [8]. All pagelets are structured, providing semantics for the pagelet content. Structure makes it possible to perform meaningful searches and other processing of information. The structures of pagelets are defined with *templates*, which is a mechanism for defining relevant fields for a given kind of information. For example, self help group member information, daily report of a kiosk operation, description of an artisan product are all kinds of templates. Templates are created by authorized users, called *editors*, who are given the authority of managing certain categories of information.

In order to deal with changes, which are inevitable, *Pantoto* supports evolution of information in two ways. To correct or update information authors simple edit and save their pagelets. The update is instantly available for all. For structural changes editors can edit templates. These mechanisms deal with changes to information that are bound to occur. Finally, in order to accommodate information that is sensitive and should not be shared with all, we support access rights.

**Representation:** All community participants have their own online identities called *personas*. Participants have their own space in the system for maintaining their contributions and communications.

**Communication:** Interaction is essential for communities. We support an information-centric form of communication. Users can react to pagelets with public or private responses. Private responses goes to the authors of pagelets and public messages are visible to everyone.

The *Pantoto* system, with its content creation mechanism satisfies the requirements of distributed up to date content creation that is easy to use. The personas and communication mechanisms provide online identity and means of interaction and support a participatory model.

### APPLICATIONS

We have piloted several communities. Some examples are, a corporate community that is creating new markets for alternative energy products; a monitoring and evaluation program for the concurrent monitoring of development schemes in India; a dealer and customer network;

a baseline survey for an urban slum. We also use *Pantoto* extensively in our company for intranet uses.

As *Pantoto* provides a ready to use environment for meeting the information needs, the potential applications are many and diverse. Some of the applications we are investigating are:

- e-governance to transmit information between the government and citizens,
- community information centers, where various information is disseminated to communities,
- self help group management and information centers,
- monitoring and evaluation of projects.

*Pantoto* provides online support for networking and assists in collaboration and gathering quality information. The communities that will get the most are those who have frequently changing or expanding information needs and benefit from strong networking. As such, NGOs are one of the most interesting user groups. *Pantoto* can help NGOs by providing a platform that facilitates distributed information gathering that can easily and rapidly be collected in a repository. The repository provides access to information over long periods of time with convenient searching.

### EXAMPLE

To illustrate the use of *Pantoto*, we will provide a brief overview of one of our pilots for monitoring and evaluation of development schemes in India.

*Overview of the community:* To gather and document information regarding how funds were utilized for government schemes.

*Stakeholders:* The community in question here consists of:

- a. Field workers who gather information about how the funds were utilized,
- b. Experts (such as economists, gender specialists, etc) who review the incoming reports,
- c. The director of monitoring project, and
- d. Central government.

*The process:* The data in question is collected from all villages over several districts. As the field workers gather the information they make it available online. When the reports come in they are reviewed by the experts and the director. When there are any questions or problems, they are communicated to the field worker who submitted it. The field worker either makes corrections or clarifications regarding the issue. On a monthly basis a report is submitted to the central government.

This process allows the rapid collection of information, provides means for midcourse correction, makes it easy to locate information in numerous ways and create reports.

### IMPLEMENTATION

The implementation is platform independent. It is a client

server architecture, where the server is implemented using Java[2] and the client is a standard web browser. Absolutely all functionality of the system is offered through the web browser. The system runs on various operating systems, web servers, and database management systems.

#### **CURRENT STATUS**

The version 1 of Pantoto has been completed. We have worked on different kinds of pilots and continue to do so. We are seeking collaborative work in the area of social applications. We also have worked on corporate solutions.

#### **FUTURE WORK**

Our work gets stronger through our interaction with other organizations, individuals, and communities. We will be doing more pilots that will be targeted at the not-for-profit sector. We will continuously interact with communities and other organizations and institutions to further develop our model. On the software development front, we are working on information processing and analysis, local language support, alternative user interfaces, and several other enhancements.

#### **RELATED WORK**

*Mail lists* send emails that are posted by subscribers to all the subscribed users of a given topic of interest. *Online groups*, such as Yahoo groups [9], improve on the mail lists by providing an organized archive of messages that is accessible through a web site. They often have other features for making relevant information available, such as related documents. Both facilities do not organize information in a manner that supports long-term use, which leads to issues like periodically repeating topics.

*Directory services* such as The Open Directory Project [7] use participatory models, involving thousands of editors from all over the world, to organize the information on the Web. This model have proven to be very valuable and popular information portals are making use of them. These are not systems for user interaction and contributions.

*Web sites* that are static are not so useful as well as hard to keep up-to-date. Those that are dynamic are more useful as they present information based on user input. But they are hard to create and require investments on technical staff. Most of the content in both static and dynamic web sites is not collaborative. Collaborative initiatives such as SourceForge.net [5] are tailored to special-purposes. Wiki Wiki Web [10] is a popular system for generic content creation that is quite useful, however, the content is unstructured, making processing difficult.

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