

Title: Information Technologies and Knowledge Representation for the Benefit of Diverse & Marginalized Communities of Users

Organizers:

- Abebe Rorissa, University at Albany, State University of New York, USA
- Devendra Potnis, University of Tennessee at Knoxville, USA
- Hemalata Iyer, University at Albany, State University of New York, USA
- N. Tatjana Versaggi, General Electric (GE), USA

Key Participants: All of the organizers

Abstract:

This Session for Interaction and Engagement is meant to stimulate a vibrant discussion mainly focusing on how information technologies and knowledge representation systems can be leveraged to benefit diverse & marginalized communities of users. In particular, we will focus on: (1) the challenges and opportunities associated with the application of information and communication technologies for the development of marginalized communities across the world by extending the people-process-technology paradigm grounded in the business process management literature, by adding “information” as a new dimension, and (2) design of information & knowledge representation systems, including ontologies, for domains less known to diverse user groups and development of taxonomies for multinational enterprises located in different parts of the world. The information dimension would frame the discussion centering on information access, use, organization, policies, and security, with the potential to inform the design and use of emerging technologies and systems to effectively serve diverse user communities.

Description:

Purpose and intended audience

Application of information and communication technologies for the development (ICT4D) of marginalized communities represents socio-technical shifts across the globe. However, every year a majority of ICT4D projects fail to accomplish their goals, sub-optimally utilizing millions of tax-dollars across the world (Potnis, 2015). The standards used for assessing ICT4D projects are dominated by theoretical concepts, frameworks, and key performance indicators grounded in the business literature. For instance, people-process-technology is a popular lens used for evaluating ICT4D projects (Mohan & Potnis, 2015).

However, there is evidence that access to and use of information and communication technologies (ICTs) is not a sufficient condition for benefitting from their transfer and/or adoption (Chib & Harris, 2012; Rogers, 2016). Marginalized communities’ ability to effectively seek and use information helps them exploit opportunities created by access to ICTs (Potnis, 2015). In addition, to serve a diverse group of users, appropriate systems, technologies, and tools

are also needed. Hence, we argue that it is time to extend the people-process-technology lens by proposing “information” as a new dimension. This new dimension would focus on organization, representation, access to, and use of information, information ethics & policies, and information security. It also has the potential to inform the design and use of information technologies and knowledge representation systems for diverse environments, user groups, and addressing sociotechnical shifts.

Therefore, the purpose of this session is to showcase the role of information (and its access, or lack thereof) as a dimension covering the organization, representation, sharing, and use of information in various sectors (e.g., health, engineering, international arenas, etc.) for the benefit of diverse & marginalized communities. It is also meant to allow audience members to share their experiences working with and/or studying diverse & marginalized communities with respect to ICT use and access to information in all its forms to meet specialized information needs of these communities. Some of the organizers will also lead discussions on the role of people, process, and technology dimensions in evaluating ICT4D projects they have completed in the past.

Issues surrounding information technologies & knowledge representation systems, their use and adoption, and impact on access to vital sources of information by diverse & marginalized communities of users are relevant across a broad spectrum of audience groups such as academics, practitioners, policy makers, international and national non-governmental organizations, and, to a lesser extent, businesses.

Proposed activities including agenda, ramp-up (development), and follow-through:

Organizers are researchers and practitioners who will share their scholarship and research findings revealing the role of people, process, technology, and information for improving socioeconomic, financial, health, and innovative work environments and to support diverse and marginalized communities in various parts of the World.

This 90-minutes Session for Interaction and Engagement will begin with each of the four organizers providing some background information that will serve as a framework for interactive discussions (5 minutes each). *Abebe Rorissa* will focus on the gulf between those that are beneficiaries of ICT innovations and those that lack the means and access. He will highlight, using the people-process-technology-information framework, potential challenges that lack of access to ICTs may create in terms of information access & sharing by particularly marginalized communities condemning them to a further underserved community status. *Devendra Potnis* will share his findings from collaborative research on the role of information in providing affordable access to financial services and products to the poor in Mexico and India. He will illustrate the role of information in financial inclusion of the unbanked poor using two case examples: Banco Azteca, a bank in Mexico, and Equitas, a microfinance institution in India.

Hemalata Iyer will provide an overview on issues relating to access and representation of Complementary and Alternative Medicine (CAM) information and resources. Use of CAM has increased considerably, and this trend has implications and challenges for consumers and healthcare systems in the United States and elsewhere as well as information providers who

serve diverse communities of CAM users. She will also focus on some of the challenges by providing illustrative examples from case studies of two systems of CAM, Ayurveda (NIH) and Siddha, and how appropriate ontologies will play a role in meeting these challenges. *N. Tatjana Versaggi*, as an organizer who is a practitioner, will discuss the taxonomic methodology that the Knowledge Sharing Team has developed at General Electric (GE), a multinational conglomerate, to address issues faced by diverse groups within GE, that are distributed across the world and with an added layer of linguistic diversity, to describe the same things. She will also emphasize the critical need to design taxonomies to support the sharing of knowledge to reconcile those sometimes-extreme variations in terminologies and definitions of terms.

Sixty (60) of the remaining 70 minutes will be reserved for an open and interactive discussion and activities around the following questions/prompts:

1. Other than the broad challenges and factors responsible for lack of ICT use such as socio-economic development, what unique properties of marginalized communities can you think of that mainly contribute to challenges faced by these communities around the World?
2. What are the roles of citizens, governments, businesses, non-governmental organizations, information service agencies & professionals, and other stakeholders in addressing barriers to ICT use for information sharing by underserved communities in general and developing countries in particular?
3. What modifications to the people-process-technology-information framework would you recommend?
4. What would be the pressing and challenging issues and barriers in developing CAM ontologies and other knowledge structures for holistic systems of medicine less known to user populations? Also, think of possible strategies and solutions.
5. Many of the CAM systems originated outside the United States. The cultural contexts into which these have been transplanted impacts its meaning and interpretations drawn from its representation on the Web, in this case the contemporary United States. Think about issues and problems of web representation of a CAM domain for users unfamiliar with the system and list one or more of them.
6. What are other specific approaches and considerations that you recommend for addressing varying user needs in developing taxonomies for a multinational enterprise?
7. What other factors might influence term and definition development besides location?

Members of the audience will be given post-it notes with different colors matching the questions. They will be asked to write their responses to the first question first using a post-it note with a specific color and put their response on an area of the wall labelled with the question. Eight (8) minutes will be given for posing each question and collecting/pasting responses on the wall. After responses to each question are collected by one of the organizers, audience members will then be given an opportunity to provide any additional responses, identify major issues for future discussions, and/or takeaways with respect to that question.

Finally, during the last 10 minutes: (1) organizers, with input from audience members, will summarize responses from the audience to the questions above, including the main takeaways of

the interactive discussions, and make some concluding remarks, and (2) audience members will also be invited to offer any additional recommendations & suggestions with respect to ICT use and information access by diverse & marginalized communities. Within a month after the conclusion of the conference, a short summary of the discussions, takeaways, recommendations, solutions, and policy prescriptions will be posted to a blog site. A link to the blog post will also be shared with audience members who provide their email addresses.

Relevance to the Conference/Significance to the Field:

Our session directly addresses the conference theme because access to ICTs and information as well as information sharing by diverse & marginalized communities is, among other things, about inclusion and exclusion. As we have outlined above, the session will also resonate and be of interest to academics, practitioners, policy makers, international and national non-governmental organizations, and, to a lesser extent, businesses.

At the conclusion of the interactive discussion, audience members will be asked to recommend potential solutions to and/or actions to mitigate the challenges identified during the session that the various stakeholders can apply and/or take in order to minimize the burden on marginalized communities and benefit them in their search for information relevant to their daily activities and lives. We believe that the outcomes of the discussions generated through this interactive session and research reports by the organizers will enhance future research and discussions as well as inform ongoing ICT4D projects for creating an equitable and sustained information future for diverse & marginalized communities across the world.

Duration: One 90-minute session

Special Requirements: A room that has basic presentation/projection technology and conducive for interactive discussions where audience members can comfortably move around.

REFERENCES

- Chib, A., & Harris, R. (2012). Linking research to practice: Strengthening ICT for development research capacity in Asia. Singapore: ISEAS Publishing.
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- Potnis, D. (2015). Beyond Access to Information: Understanding the Use of Information by Poor Female Mobile Users in Rural India. *The Information Society* 31(1), 83-93.
- Rogers, S. E. (2016). Bridging the 21st century digital divide. *TechTrends*, 60, 197–199.