

**“PANeGOV: Understanding Democratic eGovernance in Asia”  
IDRC Project Number: 104935**

**“eParticipation: Developing an Web-based Legislative  
Intelligence System for the Philippine Senate”**

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Technical Report: June 2009 - November 2011

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## **I. Synthesis**

The emergence of the knowledge-based economy has ushered in a growing recognition of knowledge as an economic resource and at the same time challenging the role of information and communications technology (ICT). As a general-purpose technology (GPT) that is powering the current information revolution, ICT is seen as a tool that enables a wide array of transformation. From economics to governance and even in development, the role of ICT has evolved from the transactional view (e.g. automation) to that of the transformational [1].

This transformational view is at the heart of the discourse on the on-going techno-economic paradigm shift: viewing the role of ICT as an enabler, a tool that opens the potential for growth through integration and transformation of products and services [2]. This potential is true not only in business and economics but also in governance specifically in political participation.

This project sees the transformational role of ICT as one that challenges the existing models of political participation in the Philippines. This paper pushes the idea of e-transformation in participation resulting into an integrative democracy [3] that highlights the importance of recognizing a) democracy as a social practice and b) the imminent role of information resulting to the development of new frameworks in viewing the practice of participation.

In the Philippines, a central theme in the on-going socio-political reform effort is enabling participation in the process of governance. Expressed through the empowerment of citizens through the cascading administrative and resource control to the local governments, existing laws like the Republic Act No. 7160 (R.A. 7160), which is an Act Providing for a Local Government Code of 1991, and the Social Reform and Poverty Alleviation Law (R.A. 8425) bring forth new responsibilities resulting to the constant test of ensuring participation of local governments and their constituent communities in the process of governance. In addition, the e-Commerce Law of 2000 (R.A. 8792) mandates government agencies to make government services available on-line to citizens clearly provides a basis for moving towards electronic participation (eParticipation) or the enabling of active participation of citizens in the process of governance through the use of ICT.

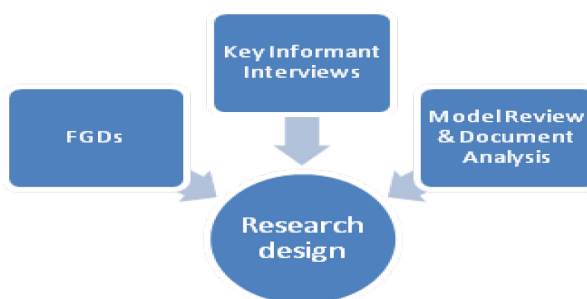
Parallel with this growing recognition of the importance of participation and the potency of ICT is the value of sourcing the right information/knowledge and routing these to potential users. This trend thus paves the way for the scope of this project which is the use of the internet as a 24/7 tool, some established document management (DM) and innovative natural language processing (NLP) techniques to serve not only as a tool to leverage information vis-à-vis knowledge, but also to effectively become an alternate view on how to enhance “democratic participation” in the process of local governance thus resulting to the question,

*“How can knowledge and ICT be leveraged to ensure an integrated approach to democratic participation in policy-making?”*

The study was pilot tested at the Senate’s Blue Ribbon Committee (BRC), also known as the Committee on Accountability of Public Officers and Investigations, which is a regular Philippine Senate committee that has within its jurisdiction all matters relating to, including investigation of, malfeasance, misfeasance and nonfeasance in office by officers and employees of the government, its branches, agencies, subdivisions and instrumentalities. The current mechanisms in place limit the opportunity for stakeholders to actually express their views about issues that are handled by the committee.

With the emphasis on participatory governance, this study centers on the use of ICT in the Philippine legislative process. We integrated both top-down (legislature to citizens) and bottom-up (citizens to legislature) approaches in the development of the framework. Current trends in document management (DM) and natural language processing (NLP) were taken into account in the development of a web-based, open-source eParticipation system.

As an applied research, the project utilized qualitative methods for its design. This research design is consistent with the triangulation approach that consisted of the following elements as shown in Figure 1:



**Figure 1: Elements of the Project's Research Design**

The data gathered by the use of these design elements were used as the main inputs for the project’s information systems development methodology. Given the complex nature of the project and the need for close collaboration with the various stakeholders, the rapid applications development (RAD) was a natural choice for the project team.

The team conducted key informant interviews, and collected pertinent documents from BRC-BROOM. At the same time, numerous site visitations allowed the team to appreciate the operating environment of Blue Ribbon Committee-Blue Ribbon Office Management (BRC-BROOM). These inputs formed the initial design basis for the eParticipation system.

On the conceptual side of the system development effort, the team considered two models of eParticipation as the primary conceptual basis for system design. These models are that of the OECD [12] and Ann Macintosh's [11] stages of eParticipation.

According to [12], for government to strengthen its relations with the citizens, it must do the following:

1. Disseminate information on policy-making on its own initiative, or provide citizens access information upon their demand;
2. Ask for and receive citizens' feedback on policymaking;
3. Encourage citizens to actively engage in decision-making and policy-making.

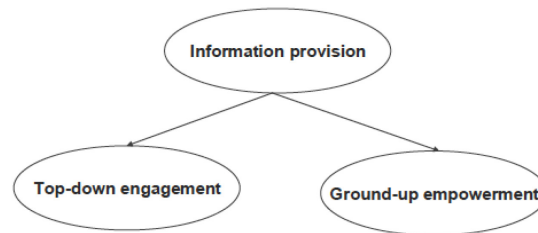
This model is similar to the levels of participation presented in [11], which could be used to describe the use of technology to enable participation. These levels are:

1. e-enabling, where technology is used to provide relevant information in a format that is both more accessible and more understandable.
1. e-engaging, where technology is used by government to engage citizens in participating in policy-making.
2. e-empowering, where technology is used by citizens to empower them in influencing policy-making.

## **II. Introduction**

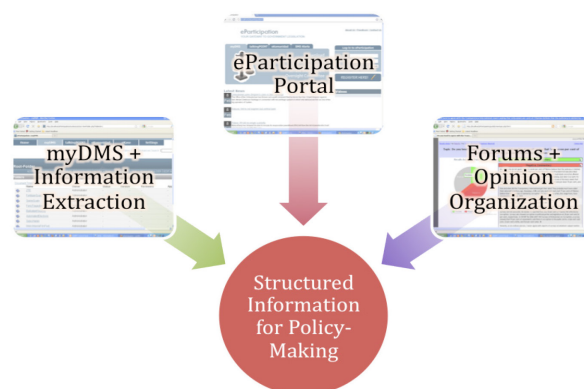
The increase use of ICT in different sectors makes it a viable medium for e-Government and eParticipation. Macintosh (2007) outlined an eParticipation framework as shown in Figure 2. As shown, eParticipation has two aspects: top-down and bottom-up. The interplay of the two components is vital in sustaining the whole eParticipation framework. Transparency and pushing of information of government empowers citizenry to participate. Empowered citizenry's active participation may lead to good government and governance, as well as towards crafting of more pertinent policies. The main medium between these two components is texts and language that resemble in conversations and

documents. The main goal is to structure the information from unstructured text coming from both directions.



**Figure 2. eParticipation Framework  
by Macintosh (2007)**

An eParticipation portal was, thus, developed to have both components of top-down engagement and bottom-up empowerment involved. Describing Figure 3, an open-source Document Management System leverages the top-down (government to grassroots) pushing of information to citizenry, while an online forum scheme was implemented to leverage the bottom-up empowerment by allowing for citizenry (or netizens) to actively participate, post opinions and comments, and interact with government and other citizenry. As documents and information being pushed, as well as netizens' opinions and comments, increase in size and magnitude, information get obfuscated more easily, especially since the main sources of information are in texts within documents, comments and opinions. These reiterate the need to structure the information found in these unstructured texts coming from both components. This is where the portal utilizes Language Technology tools to augment the two components and structure the information and open possibility to facilitate policy-making and interaction, information retrieval, and may even open up creation of new information from the structured data.



**Figure 3. ICT Tools for eParticipation Utilizing Language Technology**

It pursues to surface the issues involved in addressing the question,

“How can knowledge and ICT be leveraged to ensure an integrated approach to democratic participation in policy-making?”

### **1.1The Context: The Senate Blue Ribbon Committee**

The study was pilot tested at the Senate’s Blue Ribbon Committee (BRC), also known as the Committee on Accountability of Public Officers and Investigations, which is a regular Philippine Senate committee that has within its jurisdiction all matters relating to, including investigation of, malfeasance, misfeasance and nonfeasance in office by officers and employees of the government, its branches, agencies, subdivisions and instrumentalities. The committee is also concerned with the implementation of the provision of existing laws and statutes on nepotism; it has in its powers to conduct investigations (in aid of legislation) of any matter of public interest. In the event of existence of probable cause, the committee can recommend prosecution to appropriate agencies. The current process allows for concerned citizens and civil society groups to file position papers on current legislative issues. ‘Public hearings’ are aired on television on committee hearings that tackle highly controversial issues. To add, there remains the issue of legislature's ability to process the information that is electronically provided. An increased in the number of (electronic) submissions would at best require the legislature to hire more staff members to process the said submissions. At worst, public participation would end at the stage of submission as legislature (or to be more precise, legislative committees) and receiving of information through the hearings that are aired on television.

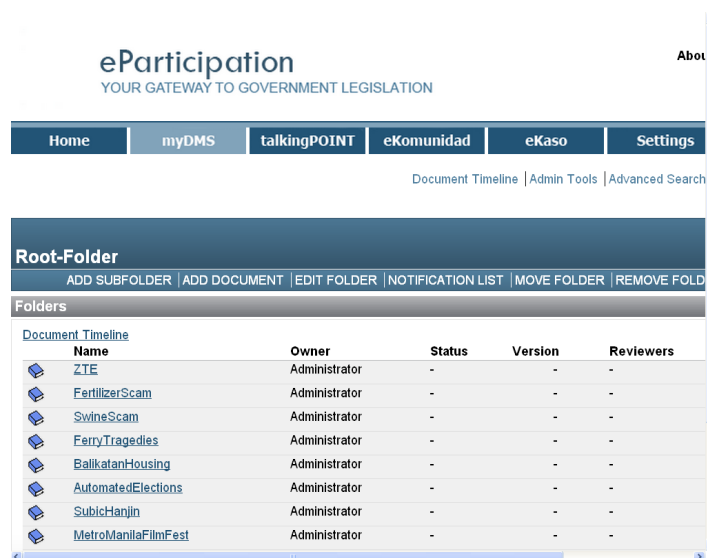
The traditional solution is to hire more staff to process the increased number of submissions. Another solution is for the legislature to require structured inputs from stakeholders to facilitate information processing. And currently, there is no electronic document management system infrastructure in the Blue Ribbon Committee (BRC), specifically in the Blue Ribbon Oversight Office Management (BROOM) of

the Philippine Senate. In fact, only one person is tasked and knowledgeable of the agency's documents filing, cataloguing and retrieval procedures, and incidentally, is about to retire.

These current mechanisms in place limit the opportunity for stakeholders to actually express their views about issues that are handled by the committee.

Currently, there is no electronic document management system infrastructure in the Blue Ribbon Committee (BRC), specifically in the Blue Ribbon Oversight Office Management (BROOM) of the Philippine Senate. In fact, only one person is tasked and knowledgeable of the agency's documents filing, cataloguing and retrieval procedures. The study, therefore, had a layer of modeling the business rules and process to implement the document management system (shown in Figure 4) before information extraction research were conducted and implemented. Although the whole experience of the business process modeling is a very related discourse, the focus of this section is on the information extraction and the technical aspect of the technology.

Information extraction is the process of transforming unstructured information of documents into a structured database of structured information. The underlying architecture is based on Hobb's (1993) Architecture: text zoning, preprocessing, filtering, pre-parsing, parsing, fragment combination, semantic interpretation, lexical disambiguation, co-reference resolution, and template generation. Modifications to the architecture, such as the sequence and functions of modules, were done to address the idiosyncrasies of the documents available in the government agency.



Root-Folder					
ADD SUBFOLDER   ADD DOCUMENT   EDIT FOLDER   NOTIFICATION LIST   MOVE FOLDER   REMOVE FOLDER					
Folders					
Document Timeline					
Name	Owner	Status	Version	Reviewers	
ZTE	Administrator	-	-	-	
FertilizerScam	Administrator	-	-	-	
SwineScam	Administrator	-	-	-	
FerryTragedies	Administrator	-	-	-	
BalikatanHousing	Administrator	-	-	-	
AutomatedElections	Administrator	-	-	-	
SubicHanjin	Administrator	-	-	-	
MetroManilaFilmFest	Administrator	-	-	-	

**Figure 4. Document Management System**

## 1.2 Scope of the Project

With the emphasis on participatory governance, this study centers on the use of ICT in the Philippine legislative process. ICT solutions applied to the legislative process will focus on three (3) factors that would enable participation. These factors are: a) retrieval/extraction of relevant information (pull); b) routing of information (push) to intended recipients; and c) storage of information.

The study integrated both top-down (legislature to citizens) and bottom-up (citizens to legislature) approaches in the development of the framework. Given the complex nature of the project and the need for close collaboration with the various stakeholders, the research design used qualitative methods for triangulation such as focus group discussions, key informant interviews and model review and document analysis.

Given these factors, current trends in document management (DM) and natural language processing (NLP) were taken into account in the development of a web-based, open-source eParticipation system. The document management system (DMS) is the application for storing, retrieving and tracking electronic documents and/or images of paper documents. Augmenting this with NLP allows for automatic organization of data obfuscated in texts found in documents that can facilitate better searching and retrieval of documents, as well as mining knowledge found in the voluminous documents in the DMS.

NLP, or the modern-day nomenclature, language technology (LT) provides an interesting solution to this problem. NLP studies the problems of automated manipulation and understanding of natural human languages. A particular NLP area is information extraction (IE), which is the acquisition and analysis of data from unstructured text, and transformed into structured information. Unstructured texts refer to documents which can have varying formats, composition and writing styles, point of views, and varying topics from one document to another. These would include raw data or texts from email texts, web pages, newsgroup and forum postings, news articles, research papers, business reports, and other forms involving human texts. Thus, IE techniques provided a way to identify relevant information from large amounts of texts. Using IE approaches, documents can be searched, mined or discovered, organized and interpreted into more understandable and concise forms. Structured information will include the identification of relevant entities in the texts such as people, organizations, places, dates, monetary amounts, figures, and establishing the relationships between and among these entities. Another NLP application used in this study is the automatic opinion clustering or classification. With the forums feature of the eParticipation system, enabling e-citizens to contribute and express their views on particular topics, the automatic opinion clustering component allows for automatic grouping of these inputs into a summarized form so that the law-makers will have an idea of the leaning of public opinion on the matter at hand.

### **III. Project implementation and management**

Subscribing to the tenets of descriptive research and case study approach, the paper's methodology can be summarized into three phases: a) Review of Models and best practices; b) Requirements Definition



and c) Prototype Construction & Validation of Results. The initial phase (Review of Models) saw the review of existing democratic and eParticipation models. Best practices on eParticipation and NLP applications were reviewed by the group.

With the intention of capturing the requirements of the stakeholders, the second phase made use of data gathering tools such as the key informant interviews, participant observation and review of existing documents and related information systems. The stakeholder requirements were captured through regular consultations and focused group discussions (FGDs) with identified stakeholders, which include:

- the Senate MIS staff, who will be maintaining the system once it is deployed;
- the Senators and their staff, who will be using the knowledge generated by the system to aid them in their legislative duties;
- academe-based researchers, non-government organizations, government offices, including the Philippine Commission on Women, and the media, who will be evaluating the impact of the system; and
- select interested public.

After defining the stakeholder requirements, a functional prototype was designed and developed through rapid development cycle, with continuous verification of stakeholder requirements. Prototype development entails use of programming and database management platforms. A system quality assurance group was formed for internal quality control for the system capabilities and documents. As the study is being undertaken, regular validation of prototype was conducted with the Senate MIS staff and Senate's BRC staff. As one of the main users of the eParticipation system, their feedback and comments were, as much as possible, incorporated into the system's design. During these validation sessions, the Senate users were able to anticipate the possible changes/improvements in their processes and methodologies in case a full-scale eParticipation system is deployed.

The final phase deals with the evaluation and final verification of the system capabilities with the stakeholders through pilot-testing techniques. External experts were tasked to evaluate and benchmark the prototype's capabilities. Lessons learned from the process of design and implementation was documented.

**Table 1. Summary of Project Activities**

<b>Milestone/Activity</b>	<b>Problems / Issues Encountered and Resolutions Adapted (if any)</b>
<b>Survey of Best Practices in eParticipation</b>	As the documented practices as European based, there was a need to adapt to the Philippine setting.
<b>Completion of Requirements Definition</b>	
<b>Initial Construction and Validation for eParticipation web portal</b>	As there were diverse stakeholders, scheduling of the consultation encountered difficulties. We also had problems getting the Senate Blue Ribbon Committee to own the project. There were also changes in the Committee's leadership, which affected their commitment to the project.
<b>Initial construction of PANeGov project website</b>	
<b>Construction of eParticipation prototype, which includes the following modules:</b> <ul style="list-style-type: none"> <li>- Document Management System (<i>myDMS</i>)</li> <li>- Information Extraction System (<i>myDMS</i>)</li> <li>- Comment Organizer (<i>talkingPoint</i> and <i>eKomunidad</i>)</li> <li>- eKaso (Case Monitoring System for BRC)</li> </ul>	The different modules of the system were built independently by several groups of students being mentored by the proponents. Integration of the modules became a major problem towards the end of the project. 2 additional systems developers were hired to help in the integration.
<b>Prototype testing</b>	Conversion of existing printed copies of the BRC documents took time and effort.
<b>Culminating Workshop - Focus Group Discussion and Project Demonstration</b>	FGD and Project Demo series were completed in Nov 2010
<b>Policy Formulation</b>	Quo Vadis symposium was held in Feb 11, 2010
<b>Prototype deployment to Senate BROOM</b>	Currently the prototype is hosted at DLSU-CCS (accessible at <a href="http://eparticipation.dlsu.edu.ph">http://eparticipation.dlsu.edu.ph</a> ). Online access to Senate BROOM personnel is provided. The Senate BROOM requested that opinion solicitation tools (i.e., <i>talkingPoint</i> and <i>eKomunidad</i> ) be disabled at the moment. We hope for the eventual full deployment of the eParticipation system at the Senate MIS.

#### IV. Project outputs and dissemination

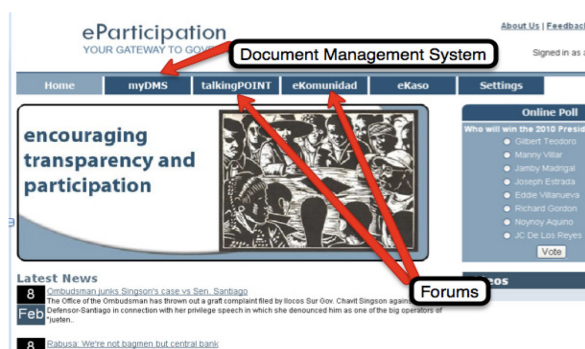
Using the rapid applications development approach, the design and the implementation of the eParticipation system with its components are described in this section. The components are mainly the web portal, the document management system (myDMS), the case management system: *eKaso* (in English, eCase), and the forums for expressing citizens' views: talkingPoint, and *eKomunidad* (in English, eCommunity). The web portal (shown in Figure 5) holds together the different components of the eParticipation system. It includes the links to the other components. It is also a venue for information dissemination.



Figure 5. eParticipation portal

The eParticipation portal integrates the Document Management System (DMS) and the Online Forums with the Information Extraction and Opinion Organization technologies, respectively (see Figure 6.a). Moreover, the portal provides for features that exploit the structured information coming from the two language technologies and allows users to access or view these structured data. For the Document Management System with Information Extraction, keyword searches are not limited to just the filenames since more complex database queries are available. Moreover, visual modes of reporting by exploiting the structured database from information extraction are made available. An example can be shown in Figure 6.b where case activities of the Senate Committee can be visually reported through a timeline by utilizing extracted date information from related documents in a case.

The scheme of the interaction of the DMS and the online forum, as well as the rules and regulations established in the study for governing the forums, hinges on principles of e-Democracy. These discussions, again, covers another whole set of discourse that will not be covered by this project. Nevertheless, the same principles of e-Democracy lead to the scheme of having two forums that addresses issues of inclusivity and exclusivity[6] of netizens and having set-up the forums as a self-managed system of eParticipation as envisioned by Banathy[7].



**Figure 6.a. eParticipation Portal Integrating DMS and Online Forums**

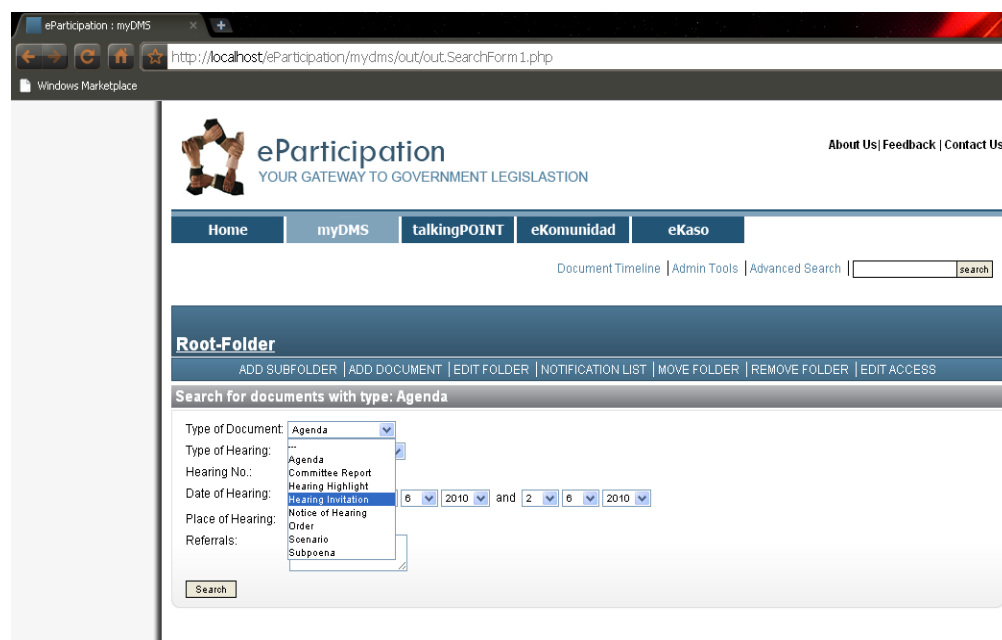


**Figure 6.b. Timeline Report for Senate Blue Ribbon Committee Cases**

### A. DMS: myDMS

myDMS is an open-source document management system that is used to track and store electronic documents related to the on-going cases under Senate BRC. To facilitate efficient search and retrieval of these voluminous documents, the study utilized an NLP tool called information extraction (IE) that extracts relevant information in a document and stored them in a structured format. The IE engine

eliminates the need to manually read entire documents and manually provide searchable keywords for each document. This allows recently uploaded documents to be readily searchable and retrievable (Figure 7). Equally important is the structured data output of the IE engine from these documents that contribute to a growing database suited for knowledge mining.



**Figure 7. Advance Search feature of myDMS**

The Senate's BRC is constrained by regulations that documents duly signed, endorsed, and stamped are the only official documents of the committee allowed. Some of which are considered confidential, and others can be released to the public if needed. This means that the documents released by BRC are only those that have gone through the process. Computationally, these documents have to be scanned, recognized (through an optical character recognition system), edited and finally, used as a document by the system. For the current implementation of the IE engine, 100 documents have been reviewed by the BRC, and relevant entries in the documents have been identified for the templates necessary for each kind of document for information extraction.

The eParticipation information extraction architecture can process different types of Blue Ribbon Committee documents. Although the Document Management System can handle any file types, only documents that manifest a regular format are processed. These documents are hearing highlights, hearing invitations, senate memorandums, documented evidences, requested administrative documents, complaints, endorsements, referrals, notification or notice of hearings and committee reports. As a result, the system handles different templates for each type of document. Considering this, the system's semantics would still be able to differentiate what template to use for a specific document.

Figure 8 shows the architecture of the system. The modules are the preprocessor, pre-parser, semantic tagger, co-reference resolution, template filler and evaluation. Under the preprocessor, there are 6 submodules: tokenizer, sentence splitter, cross-reference, part of speech tagger, unknown word and named entity recognition.

In a nutshell, a document undergoes initially the Pre-processing stages as follows:

1. Sentence Splitting, which removes headers and breaks down input document into series of sentences;
2. Tokenizing, which simply breaks down sentences and detects word boundaries;
3. Cross-referencing, which further sifts through the tokens and looks for entities (names) in the sentences following Schwartz and Hearst[14] acronym detection;
4. Part-Of-Speech (POS) Tagging, which annotates the tokens within the sentence with appropriate Part of Speech Tags using LingPipe[15];
5. Unknown-Word Detection, which classifies words that are unclassified or unknown from the POS Tagger process. It uses the ANNIE POS Tagger[16] to represent the unknown words and classify them for post processing; and
6. Named Entity Recognition, which uses LingPipe's[15] Dictionary Mapping named entity recognition or a look-up table dynamically added by the cross-reference phase;

The Pre-Parser module follows pre-processing stage. This module establishes the phrases (noun and verb phrases) in the POS-tagged sentences using LingPipe[15]. Having established these phrases, the Semantic Tagger follows which is responsible for extracting candidate values for each field found in a certain template of a document. The Semantic Tagger makes use of the outputs provided by the previous modules to determine the correct candidate values. It basically goes over a certain document and finds the candidates by the use of semantic rules or patterns. The Co-Reference Resolution follows which uses the algorithm of Ruslan Mitkov[17] for anaphora resolution. The algorithm was augmented to address cataphoric resolutions, which were present in the documents of the agency.

Finally, the Template filler follows which normalizes the Semantic Tagger entries such as dates, values and names to standardize these entries before adding to the database.

The study used 50 documents from the agency (Blue Ribbon Committee) for evaluation. The system supports seven kinds of documents and of those 50 documents, 5 are notice of hearing documents, 5 are agenda documents, 5 are order documents, 12 are subpoena documents, 10 are scenario documents, 8 are hearing invitation documents, and 5 are hearing highlights documents. Each type of document has their own set of fields and one of every type of document was used as basis in obtaining the rules for the various fields for the document of its type. Each notice of hearing document has the same format across every notice of hearing documents and this also applies to the other type of

documents. Establishing the fields for each document type involved a series of focus-group discussions with different stakeholders ranging from private citizens to non-government organizations (NGO's) and even to representatives from Commission (government) on Women.

In evaluating the extraction performance in terms of accuracy, the representatives from the government agency manually derived and provided the gold standard (or the correct answer). The gold standard is matched with the output of the information extraction module to which a score of an absolute score of 1 or 0 is given if it's an exact match or not, respectively. A non-exact match also constitutes added, removed or altered words from the correct answer. The IE system obtained an accuracy of 95.42%

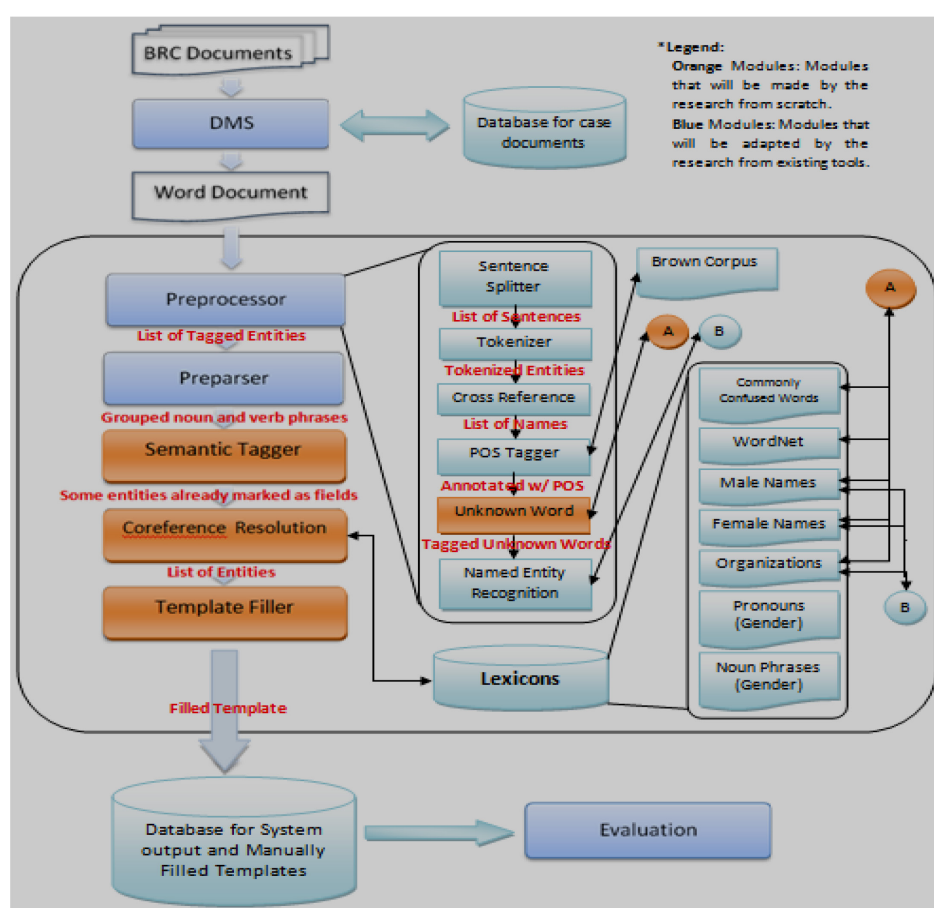


Figure 8. Information Extraction System Architecture for eParticipation

## B. DMS/CMS: eKaso(or eCase)

Though originally not part of the study, eKaso was conceptualized to address the problems of data handling, updates, retrieval and processing of the complaint cases filed at the Senate's BRC. The study implemented a web-based centralized solution for the handling of these cases, as well as its quick retrieval at various locations. A timeline to visualize the progress of the cases at hand are displayed. eKaso addresses the top-down or push of information from the BRC to the concerned citizens.

### **C. Forum: talkingPoint**

For the bottom-up participation component, a web-based opinion detection and classification system, aptly named VoxPop, was developed. It allows for the public to voice out their opinions regarding topics of discussion (created by moderators) by posting on the eParticipation system (as shown in Figure 9). VoxPop is able to (1) detect opinions based on the input text of the respondents, (2) annotate opinions to separate them from non-opinions, (3) classify opinions by polarity (as shown in Figure 10a) and by topic, (4) clustered together these opinions, and (5) present them through graphical representations of the data (as shown in 10b). The system has three main modules, namely: the opinion detection module, the opinion classification module and the clustering module.

VoxPop works in a three-step process. First, each commentary is analyzed to automatically discover which segments of the commentary are opinions. This is done through word and sentence structure analysis. Second, detected opinions are classified according their polarity (i.e., positive, negative or neutral) using linguistic knowledge-bases such as SentiWordnet[4] and WordNet[13] using the synsets of adjectives and adverbs in the contexts. Once opinions are grouped according to polarity, they are then clustered according to topic using K-means clustering algorithm. Currently, the opinion detection and classification, as well as data clustering, only process English commentaries. Attempts have not been made to include multilingualism in its analyses (e.g. code-switching between local languages like Tagalog or Filipino and English).



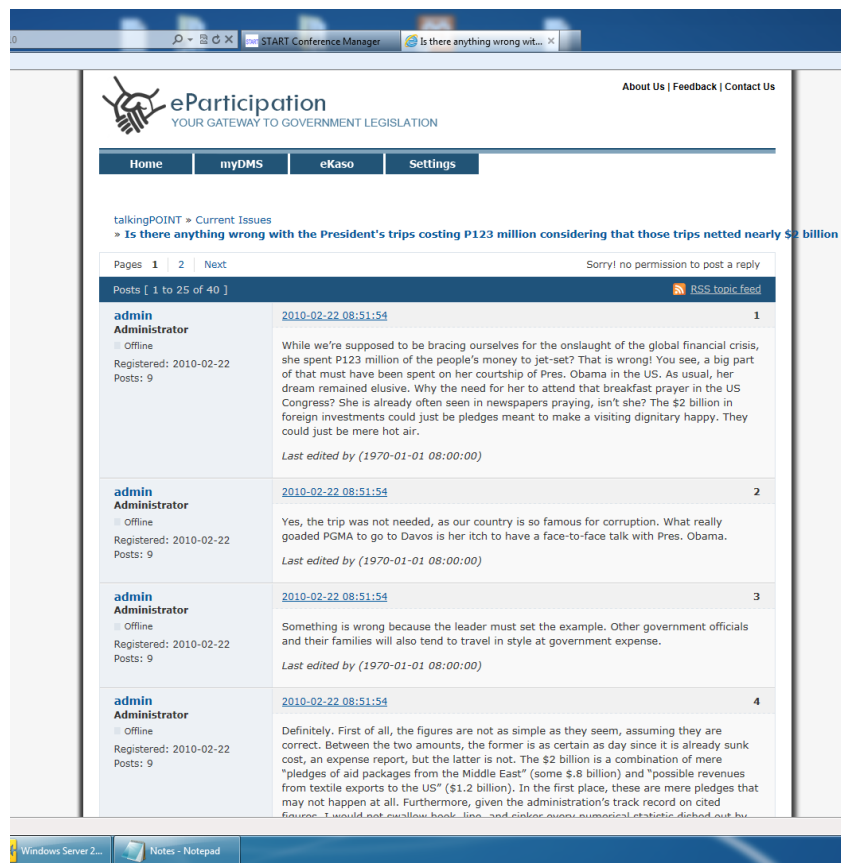


Figure 9. Sample forum of talkingPoint

To test the talkingPoint module, 1002 commentaries tackling 22 topics were taken from a local newspaper's website, the Philippine Star [5] and served as data for evaluation. The output of the system was compared to a manually-classified (through a linguist) commentaries to whether these are opinions or not. The system showed an accuracy of 68%. The knowledge-base to support the opinion clustering has to be populated and contextualized, and the integration of linguistics rules and knowledge has to be explored so that a greater accuracy can be obtained. Semantics such as double negatives have not been properly detected by the system, and affects its classification. For instance, the statement "I hope Noynoy does not fail us" outputs a high negative score, rather than a positive score because of the double negation.

The low accuracy of VoxPop is attributed to the following:

1. A set of words does not necessarily denote the sentiment. Consider the statement, "Noynoy should just stay home and play PSP". This is clearly a negative opinion of President Noynoy Aquino, but the words in the sentence alone do not suggest that it is an opinion, and a negative one. As seen in the sample opinions, Filipinos express their sentiments very subtly, and use sarcasm often. It is difficult to teach the computer to recognize this.

2. There is a fine line between opinions and facts. It is suggested in literature that the opinions are normally expressed through subjective words such as adjectives and adverbs (e.g., good, bad, outstanding, etc.). As the example above shows, this is not exactly true.
3. The knowledge-bases used are not built for sentiment detection in political commentaries. Because of this, there are words that denote different sentiment polarity once used in political commentary. For example, “high” in SentiWordnet has a positive polarity but when used as “high expenditures”, polarity becomes negative.

Work is still being done to improve the accuracy of VoxPop.

Management of the forums and netizens as well as the processes adopted for promoting, regulating and cultivating skills of netizenship are very related and in fact, determined the configuration and business processes of the 2 forums (talkingPoint and eKommunidad), which also considers inclusivity and exclusivity [6]. The following research questions arose during the conceptualization of the business processes and forums configurations:

- What mechanisms should be in place to motivate people to join such forums?
- How will people know that such a forum exists?
- What mechanisms should be in place for netizens to establish trust such that their opinions would really impact and influence policy-making?
- Who should be the moderator of the forums that will manage the discussions?
- In advocating eParticipation for all, the forums should be open to all citizens. How are the identities of the participants verified? Do they need to be identified? What if some groups have certain agenda to manipulate or dominate a discussion forum? If identities were verified, would concerned citizens openly contribute their own opinions about highly controversial issues of national significance?
- What kind of democratic theory are we advocating and reinforcing? How will participants be invited into the forum? Who chooses the “appropriate” participant?

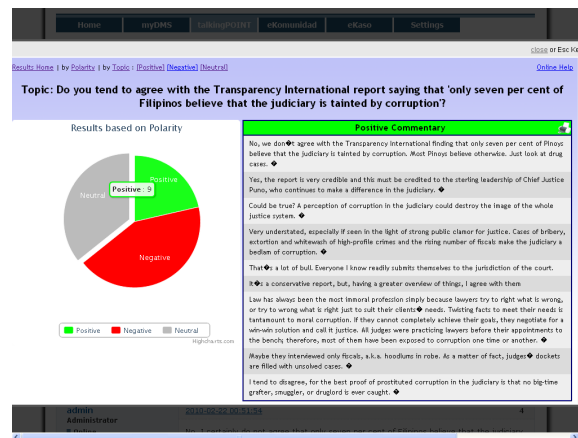


Figure 10(a). Opinion Classification by Polarity

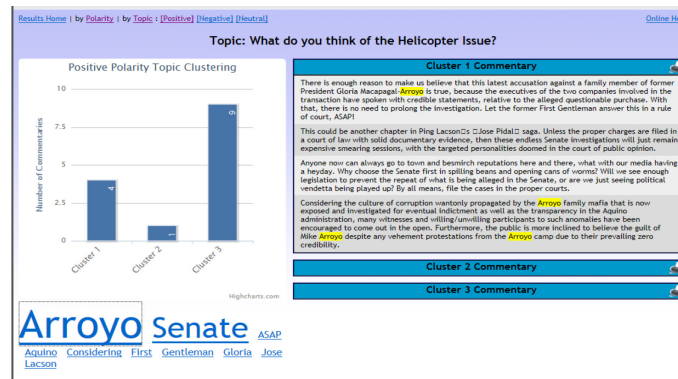


Figure 10(b). Opinion Clustering by Topic

A whole discourse on managing forums and netizens as well as the processes adopted for promoting, regulating and cultivating skills of netizenship are very related and in fact, determined the configuration and business processes of the forum. Nevertheless, the focus of this section is on the technical aspect or the Language Technology used in the forum.

#### D. Forum: eKomunidad(or eCommunity)

Being a virtual community, the identified queries and concerns in talkingPoint led to the integration of another forum called eKomunidad (meaning, eCommunity). eKomunidad can be seen as a virtual community of non-government organizations, concerned citizen groups, media, and others, that can

influence policy-making. The virtual community will be created and maintained by the community itself [7]. Membership to the community is verified and approved by the community itself, and should also be self-managed. The community also undertakes the creation of forums and their respective topics. Participants in the forums will only include the community members. Marginalized people groups such as the youth, physically-handicapped and women would have their clear voice in the eKomunidad, since they will be represented by their recognized organizations.

## **V. Research Findings**

Since My 2011, we have been convincing the Senate BROOM to own and host the eParticipation system through their Senate MIS. They have requested the removal of the forums (namely, talking and eKomunidad) and the information extraction engine, due to organizational constraints. As their immediate need is a document management system, what is accessible at the portal (<http://www.eparticipation.dlsu.edu.ph>) are myDMS and eKaso. In the end, the engagement in eParticipation gave the following realizations to the project team:

1. Definition of eParticipation: Available literature on eParticipation is mainly focused on European and US experiences. Although, the eParticipation experiences of these countries are useful, the project team recognizes the need to “contextualize” these models to fit the local setting. In short, there is a need to adapt these models to the Philippine setting. Would there be conflicts to the documented “best practices” when they are placed in the Philippine setting? Should we follow the top-down consultation (wherein the government initiates participation) or the bottom-up approach (where the citizens influence policy-making)? Should technology be the motivating factor in participation or should it be the users who would dictate which technology is appropriate for participation? These provocative questions are indeed a lingering concern for the project team. The team recognizes that the question is beyond the reach of technology. This brings to light the importance of adopting a socio-technological perspective in the use of ICT to enhance participation.
2. Preparing or creating institutions. The two main initiators of eParticipation are (1) the government for the top-down consultation, and (2) the non-government agencies for bottom-up approach. For eParticipation systems to work, new structures/units in government agencies have to be formed. In the case of the Senate, the closest unit to manage this eParticipation system is the MIS department. However, they are currently responsible only for the electronic data processing needs of the Senate. There is a need for new institutions/structures/units/policies to address technology-driven initiatives of the government.

3. Bridging the Human Capacity Gap. This challenge refers to the readiness of the host institution to adapt an “eParticipation culture”. In particular, this refers to the openness of the host institution to accommodate on-line tools to promote participation in the BRC investigation process. Though the Senate BROOM is willing to host the entire eParticipation system (i.e., myDMS, eKaso, talkingPoint and eKomunidad), they are going to initially use the document management systems, which include the myDMS and eKaso.
4. Use of appropriate and new ICT tools. Consistent with the search for the appropriate eParticipation model, the appropriate ICT tools must now support the designated model. SMS is an obvious tool of choice for participation, for it is widely accessible to the participants. However, its use also opens issues that need to be carefully considered. Filipinos are known to be active SMS users, thus encouraging to them participate is less a concern than the processing of the messages that they will send. What would be the appropriate response of the eParticipation system, such that the participation is maximized, while cost is also considered. Technology could be used to filter and classify messages for appropriate responses. The team is also exploring the applicability of the Web 3.0 model coupled with the possible use of mobile technologies.
5. “Evolution” of eParticipation. The previous findings on the need for institutions, development of human capacity, and the emerging role of ICT seem to point to an on-going evolution of participatory practices in the BROOM. The occurrence of hindrances to participation can be seen as being brought about by the following:
  - a. Traditional functions-roles vs. new opportunities: New opportunities for participation through the use of Web 2.0, EDMS and NLP require new policies and job functions in the organization. This clearly shows the need to recognize organizational implications of e-Participation efforts;
  - b. Reluctance of the BROOM to fully adopt e-Participation system: Due to its emerging nature, this reluctance of the part of BROOM can be directly attributed to the lack of expertise to administer-maintain-sustain the e-participation system. This also highlights the MIS side of e-participation: Issues on Cost-Benefit, System Implementation, Maintenance & Sustainability must be addressed;
  - c. Develop leaders and champions for e-Participation: Part of the evolving practice of e-participation is the need to develop a new perspective on e-Participation. This new perspective intends to go beyond Web 2.0 and social media towards the need for advanced visualization techniques. The team views this as the value-driven view for e-Participation: recognizing the need to fully utilize the transformational power of ICT through new AVTs (e.g. NLP and EDMS)

In the end, it was very clear to the project team that ICT remains to be an enabling tool for eParticipation. The project team recognizes the fact that the real challenges will be within institutions: the need for leadership and organizational policies that will help adapt and sustain innovative ICT applications for good governance.

## **VII. Information Dissemination**

The eParticipation project was demonstrated several times within the university and at the Senate Blue Ribbon Committee. These demonstrations aimed to solicit feedback. Aside from these informal venues, a Focus Group Discussion on eParticipation was organized last October 15, 2010 (program is shown in Appendix A). Representatives from the academe, Senate, NGOs involved in women and transparency issues shared their opinions about the eParticipation project. The system was also exhibited at the Open eGovernance Forum held in Palawan on November 8-10, 2010. We organized the *Quo Vadis Symposium* last February 11, 2011, where the central theme is participation's role in good governance and disaster management (program is shown in Appendix B). This symposium was attended by representatives from Congress, local government units, the weather bureau PAG-ASA, and the academe. DLSU's University Research Coordination Office also hosted a lecture on interdisciplinary research entitled "*Developing Natural Language Processing Application for eParticipation*" on August 19, 2011, where the proponents presented the results of this project to the academic community (program is shown in Appendix C).

On the academic side, the proponents discussed the findings of this project in two papers and presented in the following international conferences:

- "Information Extraction and Opinion Organization for an eParticipation Framework for the Philippine Senate" which was accepted for oral presentation at the Conference on Human Language Technology for Development (HLTD 2011), held in Alexandria, Egypt on May 2-5, 2011. Also published online through <http://hltd.org/pdf/HLTD201131.pdf>
- "eParticipation towards Legislation: the Case of the Philippines" which was accepted for oral presentation at the ePart conference 2011, held in Delft, the Netherlands, on August 29-September 1, 2011. The paper is published by Trauner Druck.

The results of the project have also been published online through <http://panegov.net/index.htm>, and through a De La Salle University-sponsored event held last August 19, 2011 (see Appendix D for details).

## **VIII. Activities and Evaluation on Harmonizing Gender and the Project**

This section discusses the set of activities, considerations and acculturations done during the whole duration of the project with respect to gender concerns, equality, and women empowerment. This was a continuously conscious and conscientious effort for the group as the project members preconceive the notion of ICT being generally gender-equal and neutral. Although, it is noteworthy that the Philippine setup already has the general culture for gender sensitivity and women empowerment[18].

The narrations on the activities on Gender Sensitivity and Women Empowerment by the project are based from the guidelines from the Philippine Commission on Women[19] on ICT Projects.

### **a. Project Formulation**

Project Formulation entailed the planning, preparation & documentation of the project plan, objectives of project and milestones. During this stage, the project management team composition is lead by a female program leader, two (2) male and one (1) female project leaders for the 3 main modules of the program. It is very clear that the participation, and in fact, leadership and steering of the program is done by a woman, nevertheless, the project management team had a good balance of insights during the project formulation.

Part of the activities during the formulation, especially in the validation of business process modeling of the Blue Ribbon Committee's Office Management, as well as the outlining the impact of the project, was the focus group discussions (FGD) to which women leaders and representatives balances the stakeholders' contribution of insights for the project. In fact, the proponents managed to get representation from the Philippine Commission on Women, thru Exec. Director Emmeline Verzosa, that directed the proponent's attention to the guidelines on gender harmonizing in project implementations.

### **b. Project Organizational Structure**

On top of the project management team's gender-balanced structure, the implementation and research teams that were formed for the three main activities and submodules of the project were serendipitously gender-balanced. All in all, there were 6 men and 5 women researchers, programmers, and developers for the project implementation team, spread out in 3 teams. It could be reported that, although each contribution of the team could be attributed to a member, there were no real mechanism in place to sex-disaggregate the contributions of each member and would entail a thorough review of documentations to attribute the contributions and provide a sex-disaggregated data.

### **c. Web Portal Design**

Gender-sensitivity considerations were made on the web portal's design and database back-ends. First, on the look-and-feel of the user-interface, women members of the myDMS team were asked if they have any issues or insights about the interface, to which they found none. It may be a manifestation of the obfuscation of the gender-sensitivity in the Philippine culture and in the context of computer programming. Nevertheless, the inquiry brought about having a modification in the database design to include gender in user-account details in the database. This can actually lead to sex-disaggregated data that could readily be retrieved or extracted and made studies of. This is critical, as a simple gender field in user-accounts in the database design, can actually allow attribution of comments in the forums by specific gender and statistical data could be mined from it. In the same manner, the portal's main page provided a link to the Philippine Commission on Women's Portal ([www.pcw.gov.ph](http://www.pcw.gov.ph)) to allow for users to be aware of the portal and the gender issues and advocacies that could be revealed by clicking/following the link.

## **VI. Recommendations**

Adhering to the descriptive-applied research tenets, the authors used the e-Transformation concept and rapid applications design approach to highlight the major findings and initial recommendations. Table 1 provides a summary of the system feature and the possible implications of implementing an eParticipation system in the Philippine Senate.

Based from the possible implications mentioned in Table 1, the authors recognize the need to adopt an e-Transformation perspective due to the limitations of a purely technology-centric view. For one, the initial findings show that eParticipation is not only composed of an application (e.g. information system), but must be treated as an organizational-social phenomenon that is composed of many factors, mechanisms, agents, and dimensions. Adopting an organizational-social phenomenon view brings forward the idea of treating eParticipation in the Philippine Senate as an "ecosystem" of factors that can be enumerated as the following:

- a) **need to formulate structures and policies**- the researchers believe structural adjustments and policy foundation provides a solid base for eParticipation in the Philippine Senate. Without these organizational factors, eParticipation applications and systems will only remain as pilot projects;
- b) **need for e-Leadership**- sponsorship remains a crucial factor in ensuring sustainability of eParticipation in the Senate. The ICT and good governance agenda (or plan) should be viewed as mutually inclusive. This calls for treating knowledge-information as important resources for good governance and ICT as an enabler. At this point, the team views project sustainability as a peripheral concern. Although ensuring sustainability is part of the project, the team will include initial project sustainability efforts by the 3<sup>rd</sup> phase of the project. The need to develop institutional champions and sponsors are also vital steps in pushing eParticipation in the legislature. With this said, the project should now evolve from merely systems development



effort, to that of an advocacy drive for a more open government: one that subscribes to the tenets of transparency and participation.

- c) **inclusion strategy for vital stakeholders-** participation of civil society groups and even the private sector are important for credibility and relevance of eParticipation. We also noted the need to have a strategic communication plan that will encourage stakeholders to use the eParticipation application/system. With the inputs generated from the FGDs and project demonstrations, the project team sees the need for continuous engagements with the various stakeholders of the project. Aside from the usual NGO and government partners, the team has already established initial links with the Presidential Commission on Women to enable the eParticipation system to incorporate gender-related design issues.

Another aspect of the continuous development effort is to convert the experiences and lessons of the eParticipation project into relevant research. The team is hopeful that the results of these continuous engagements would serve as additional design inputs to enable the development of a more robust and viable eParticipation system

- d) **capacity building and other concerns-** training of stakeholders and users is a must for eParticipation in the Senate. Other issues such as privacy and identity concerns that must also be addressed.

In using rapid applications design, the authors recognized the need for model contextualization for eParticipation in the Philippine Senate. Basing from eParticipation models proposed by [11] and [6], the study identified possible sub-questions and realized the need for contextualization to the Philippine experience (see Table 3).

*Table 3: Summary of Possible Implications for eParticipation in the Philippine Senate*

EParticipation System Functions	Features	e-Transformation Issues	Information System Issues
<b>eKaso</b>	Provides the ability to file complaints on-line	<ul style="list-style-type: none"> <li>* Possible changes in or creation of policy regarding document (complaint) verification, legal and priority issues</li> <li>* Privacy issues</li> </ul>	<ul style="list-style-type: none"> <li>* Security and Document Authenticity: use of image files bearing stamped documents versus use of digital signatures?</li> <li>* Electronic availability of linguistic resources to address multilingualism for language</li> </ul>
<b>myDMS</b>	This functionality provides the ability to search and download	<ul style="list-style-type: none"> <li>* Who gets access to legal/case documents?</li> <li>* What are security requirements and priority issues?</li> </ul>	<ul style="list-style-type: none"> <li>* Levels of access rights and privileges for document retrieval and control</li> <li>* Storage requirements</li> </ul>

	case documents		* Deployment Models: virtual machines or virtual application versus use of installer packages
<b>Talking points</b>	On-line forum for interested citizens;	* Privacy issues * Who manages the venue?	* Electronic availability of linguistic resources to address multilingualism
<b>e-Komunidad</b>	On-line community for civil society organizations (CSOs)	* Are the CSOs willing to engage? * What is the value-added appeal of such a venue? * Assurance of action: What can CSOs expect from an e-community? * Privacy issues? * Who manages the venue?	* What medium to use that encourages and maximizes participation: cellular networks and mobile/cellphone devices versus internet and web technology?

These realizations raised the following sub-questions:

- Should top-down consultation (wherein the government initiates participation) or the bottom-up approach (where the citizens influence policy-making) be followed?
- Should technology be the motivating factor in participation or should it be the users who would dictate which technology is appropriate for participation?
- How would multi-lingualism in a country with 171 local languages being used [8] and adopted or assimilated languages such as English and Spanish be considered?

On the information and technology aspect, there appears to be a need to go beyond current 2.0 models of eParticipation. Thus, the authors are also exploring the applicability of the Web 3.0 model coupled with the possible use of mobile technologies. New, innovative, and appropriate tools have to be explored to address the needs of eParticipation towards a consolidation of an inclusive Information Society [9]. The project recommends the extension for application to mobile devices, since at the grassroots, there is limited access to the Internet, but extensive mobile access [10].

As an on-going project, the authors view this project a continuous engagement for the institution. The involvement in this project puts forth the question on the changing role of academic institutions in e-Development in general and eParticipation in particular: Is the academe merely a research partner? Is it both a research partner and an incubator? Can the academe be part of the overall e-Transformation equation?

With these concerns and questions, the proponents recognize that these are part of the continuing ICT revolution and hopeful that these challenges can open new horizons in research and development.

## **VII. Summary**

In summary, this project reports the issues relating to the development of an eParticipation framework contextualized to the Philippines. The study reiterates the inadequacy of adopting a techno-centric perspective, and adheres to the idea that eParticipation must be viewed as a social-organizational phenomenon. This view is consistent with the idea of e-Transformation: look at the transformational effect of ICT in the various aspects of the organization and the individual. The issues on both e-Transformation and Rapid Applications Development (RAD) approach (as outlined in Table 1) provide insights to the gaps that need to be addressed. The study puts forward possible implications of adopting eParticipation beyond the application. The study also acknowledges the need for contextualization of eParticipation models to be able to address the local requirements of the stakeholders.

**Acknowledgements.** The eParticipation Portal was greatly facilitated by the Blue Ribbon Oversight Office Management (BROOM) of the Philippine Senate headed by Atty. Rodolfo Quimbo, Director General who served as the “champion” in government for this endeavor. Successful business process modeling of the said office due to solid support and constant interaction led to a very functional and seamless integration of office automation and portal for pushing information to general public. Moreover, constant interaction and support for quality evaluation led to a robust and accurate information extraction performance. Dr. Shirley Lua, linguist and faculty member of the Literature Department of De La Salle University, did the daunting task of evaluating the opinion organization’s performance.

The whole project is under the PanEGov project managed by IdeaCorp headed by the executive director, Dr. Emmanuel C. Lallana and funded by IDRC, Canada.

We also thank Dr. Zelinna Pablo dela Cruz, for joining the eParticipation team towards the end of the project. We also thank the research assistants and our students for contributing in one way or the other to this endeavor.

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## Appendix A

### **EPARTICIPATION PROJECT FOR THE PHILIPPINE SENATE-BROOM**

#### **3<sup>rd</sup> Focus Group Discussion**

October 15, 2010

Asia Room, CSB-Angelo King Hotel, Manila

- I. **Registration**
- II. **Opening Prayer**
  - Welcome-Opening Remarks..... Dr Rachel Roxas  
Dean- CCS
- III. **Presentations:**
  - a) Senate-BROOM functions..... Atty. Rodolfo Quimbo  
Director-BROOM
  - b) EParticipation Model and assumptions..... Prof Sherwin Ona  
Director-CITe4D
  - c) EParticipation Prototype Demo..... Prof Allan Borra  
Research Fellow-CeLT
- IV. **Open Forum**
- V. **FGD Summary**..... Prof Charibeth Cheng  
Director-ADRIC
- VI. **Closing Remarks**..... Dr Emmanuel Lallana  
Executive Director- Ideacorp

## Appendix B. Quo Vadis Pilipinas Program

### *Quo Vadis Pilipinas Series*

#### **CROSSROADS & TIPPING POINTS:**

UNCOVERING THE TRANSFORMATIONAL ROLE OF PARTICIPATION AND ICT IN GOOD GOVERNANCE AND DISASTER MANAGEMENT

---

Beset by numerous challenges brought about by the quest for genuine societal development, the Philippines is once more at a dramatic moment in her history as a nation. The aftermath of numerous natural disasters coupled with the new found drive towards good governance have created a new sense of urgency for the Filipino nation. With this new found sense of urgency comes the question on how to convert this awareness from thought to concrete action; one that is merely a mental-emotional concept to a set of actions that will eventually lead to a deeper societal transformation.

Hope springs eternal, but action speak louder than thoughts and words combined: With an estimated 50% of the population being on-line and almost an 80% mobile telephony penetration rate (2009), information and communications technologies (ICTs) especially the Internet are seen as enabling tools in creating an electronic ecosystem. This *e*-ecosystem will eventually transform how citizens view government and vice versa; a possible catalyst for change that will result to a more permeable form of governance characterized by a redefinition of roles and expectations among societal stakeholders. Will this movement towards an *e*-enabled development somehow have its effects on the current socio-political and economic landscape of the Philippines? Is this an emerging picture of a knowledge-enabled Philippines? Is this a reflection of a looming ICT-enabled social epidemic?

**Crossroads and Tipping Points** intends to explore the various *crossroads*: issues and concerns that can identify critical events (or *tipping points*) that can show a reflection of a knowledge-enabled Philippines. Focusing on participation in good governance and disaster management, a special emphasis is placed on the transformational and enabling role of ICT. The event will also explore the negative and positive aspects of ICT and at the same time identify possible courses of action that can be set in motion to address these various concerns. **Crossroads and TippingPoints** intendto bring together experts-advocates-stalwarts from government, NGOs, development institutions, the private sector, and the academe to put forwards issues and concerns on the abovementioned discussion areas.

The *Quo VadisPilipinas* series is a continuing event that aims to incite a “*revolution of the mind and heart*”: an intellectual revolution powered by ideas that will form part of a critical mass of advocates that intends to push for societal transformation enabled by ICT. *Quo VadisPilipinas* intends to serve as a venue that would spark new ideas, promote collaboration, and create synergies among various stakeholders in the areas of ICT and societal development.

Consistent with the desire a continuous engagement with various societal stakeholders, *Quo VadisPilipinas* is part of the research and development initiatives of the College of Computer Studies, De La Salle University through the Center for ICT for Development (CITe4D).

Time &Date : 830-5:00 pm, February 11, 2011

Venue : SMX Convention Center, SM Mall of Asia, Paranaque City, Metro Manila

Organizers : College of Computer Studies-De La Salle University  
Partners : La Salle Institute of Governance, La Salle Justice and Peace Commission and Idea Corp

*Quo Vadis Pilipinas Series*

**CROSSROADS & TIPPING POINT: UNCOVERING THE TRANSFORMATIONAL ROLE OF PARTICIPATION AND ICT IN GOOD GOVERNANCE AND DISASTER MANAGEMENT**

**Event Programme**

8:30-9:00am: Registration  
National Anthem & Opening Prayer

Welcome Remarks: **Br Ricky Laguda FSC**  
University Chancellor  
De La Salle University

Keynote Speaker: **Sen. Teofisto Guingona III**  
Chairman, Blue Ribbon Committee  
Senate of the Philippines

9:45-1230pm: Discussion Session 1:

**FREEDOM TO KNOW, FREEDOM TO INTERACT: PARTICIPATION POWERED BY ICT**

For the last 8 years, the journey towards a genuine freedom of information (FOI) act has been an uphill climb. Seen as a continuing quest for good governance in Philippines, this journey has been characterized by a multitude of hindrances and challenges leading to questions regarding the true nature of Philippine democracy. This session intends to explore the issues regarding FOI and identify the possible tipping points that can be enabled by eParticipation.

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**Session Programme**

Session Keynote: **Dr. Rachel Roxas**  
Dean, College of Computer Studies-DLSU

Session Speakers:  
**Advocating for Freedom of Information** **Former Rep Risa Hontiveros-Baraquel**  
AKBAYAN Party-List

**FOI and the role of ICT** **Mr. Vince Lazatin**  
Director- Transparency & Accountability  
Network (TAN)

**eParticipation Project for BROOM** **Prof. Allan Borra**  
Center for Language Technologies, CCS-DLSU



**Discussion Panel:**

**Mr. Allan Alegre**

Executive Director- Foundations for Media Alternatives (FMA)

**Atty. Rodolfo Quimbo**

Head- BROOM, Philippine Senate

**Prof. Nelson Celis**

President-Philippine Computer Society Foundation

1:30-4:00pm

Discussion Session 2:

**PARTICIPATION-LOCALIZATION-INFORMATIZATION: A RECIPE FOR DISASTER?**

The onslaught of numerous natural disasters has left the Philippines with a host of challenges. With a refocusing of policy directions regarding disaster management, potential tipping points abound ranging from the organizational to the individual. This new development in the disaster management perspective brings forth innovative possibilities in the area of citizen participation, public-private sector partnerships and the enabling role of ICT.

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**Session Programme**

Session Keynote:

**Dr. Emmanuel Lallana**

Chief Executive- IdeaCorp

Session Speakers:

**Learning from experiences: Possible  
tipping points for eParticipation**

**Hon. Gilbert Teodoro**

Former Secretary, Department of National  
Defense (DND)

**Utilizing ICT for Disasters: The View from the Top**

**Gen. Benito Ramos (Ret)**

Executive Director- NRRMC

**Viewpoint for LGUs: Mitigating Disasters  
using ICT**

**Hon. Marides Fernando**

Former Mayor- City of Marikina

**Community Informatics: Role of ICT in DM**

**Prof Ma. Victoria Pineda**

Senior Researcher-CITE4D

**Discussion Panel:**

**Dr. Francisco Magno**

Executive Director, La Salle Institute of Governance (LSIG)

**Mr. Dexter Basunillo**

Head- Lasalle Justice & Peace Commission (LJPC)

**Mr. Fernando Teodoro**

Head-Innovations & Development Division, Globe Telecoms

**Appendix C.**

**[URCO] Symposium**

**University Research Coordination Office**

(632) 524-4611 Ext. 164

[mari\\_sunglao@dlsu.edu.ph](mailto:mari_sunglao@dlsu.edu.ph)

**The University Research Coordination Office**

cordially invites you to a symposium entitled

**Lecture on the Interdisciplinary Research Project entitled *“Developing Natural Language Processing Application for eParticipation”***

delivered

by

**Dr. Rachel Edita O. Roxas**

**Allan Borra**

**Charibeth Cheng**

**Sherwin Ona**

on August 19, 2011 (Friday)

2:40 – 4:10 p.m.

Yuchengco Lecture Hall Room 408

R.S.V.P.

[mari\\_sunglao@dlsu.edu.ph](mailto:mari_sunglao@dlsu.edu.ph)/ [louisette\\_montemayor@dlsu.edu.ph](mailto:louisette_montemayor@dlsu.edu.ph); 524-4611 local 164/257

**ANNOTATION:**

## **ABSTRACT**

This presentation is about the issues toward the development of an eParticipation framework contextualized to the Philippine setting for legislation and the development of an ICT system. The project aims to enhance citizen participation and community empowerment in two key roles of the legislature – law making and executive oversight. The project used the concepts of eTransformation and Rapid Application Development Approach (RAD) to identify issues that will affect the future deployment of eParticipation Systems.

## **Program**

- I. Registration
- II. Philippine National Anthem
- III. Opening Prayer
- IV. Introduction of the Speaker
- V. Lecture

Lecture on the Interdisciplinary Research Project entitled *“Developing Natural Language Processing Application for eParticipation”*  
by **DR. RACHEL EDITA O. ROXAS**

- VII. Open Forum

### *Discussants*

#### **Dr. Emmanuel Lallana**

Former Commissioner of the Commission on ICT  
Faculty of the College of Computer Science  
De La Salle University

#### **Dr. Merlin Suarez**

Faculty of the Software Technology  
De La Salle University  
*Master of Ceremonies*