Achieving Network Stability through Convergence
Case Study of an e-Government Project Using Actor Network Theory

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Abstract

This paper analyzes the evolution of a network in an e-Government project in the state of Hawaii with technical design as the communication platform for different actors. The study employs a case study approach drawing on actor network theory (ANT) to chart the building, disintegration, and rebuilding of the network. This evolution can be understood based on the convergence between different actors through coordination and alignment. The paper demonstrates the usefulness of ANT’s concepts in analyzing an e-Government project and how a technical design underwent transformation to reach network stability through interrelations of actors and convergence among them. The findings include the factors that contribute to the adaptability of the system design by all the actors.

1. Introduction

This paper uses Actor Network Theory (ANT) to examine the different phases in the development of an e-Government system project for providing substance abuse prevention services in Hawaii. The study intends to follow the path to the formation of a stable network and extract basic principles for successful diffusion of political, legal, organizational, and technological barriers for similar systems.

The project includes the provision of a web-based data management system that collects, processes, and provides outcome data from the state-funded services carried out by the providers statewide to meet the Center for Substance Prevention’s (CSAP) National Outcome Measure requirements (NOMs). The Center on the Family (COF) at the University of Hawaii acted as the system designer to partner with the state and the system developer and host as the contractor, to analyze the process, identify the proper data to be collected, and to design a web-based information system to measure and monitor substance abuse prevention services in Hawaii.

This paper integrates the system contexts using a logic model, designs from related systems in other states, and Actor Network Theory (ANT) in the analysis to deduce conclusions from the case study. Figure 1 describes the system’s stakeholders, or actors in terms of ANT. The state is the primary sponsor and initiator of the project with dual objectives of facilitating data collection from providers and reporting mandatory data to the federal government. COF is the principal designer who acts as a bridge between the state and contractor making them the most influential actor in this project. Providers are in charge of their sub-contractors and report to the state.

2. Actor Network Theory

Actor Network Theory (ANT) is an interdisciplinary approach to the social sciences and technology studies, which, in terms of complexity and locality, closely relates to activity theory, the sociology of knowledge and systems theory [16]. ANT has been used extensively to study health information systems [1], technology standardization [2,3], technology adaptation [4], e-commerce [5], e-governance [6], information and communication technologies for development in rural communities [7], and public sector health information systems [8,9]. ANT is especially useful in studying dynamics of the actions of actors at the organizational level [10] and across organizations [11]. Stabilizing tension between the network of actors and technical design is the key for the success of e-government projects. ANT provides the theoretical lens to perceive the struggle to obtain the balance between human intentionality and causal effects of the design.
choices especially in e-government initiatives, where both are constantly at interplay.

Actor Network theory (ANT) is criticized for having a dense vocabulary leading to pointless descriptions [30] as well as for missing the central constructs of networking organization, such as “trust”, “reciprocity” [31], and interests of end users [32]. However, ANT is more concerned with the dynamic and mutual influence of social and technical actors. As we cannot detach society from technology, neither can we isolate and design technology in abstract. This emphasis on the socio technical middle ground is helpful to understand design and its evolution trajectory for a socio informatics system like in this case study. ANT perceives the border between the social and the technical as a negotiation process [12] that assists researchers in circulating the tension between agency and structure [13]. The symmetry between human and non human actors in ANT theory is criticized because power structures are covered behind the human actors and objects designed by them [14]. ANT recognizes that both human and technical actors modify the state of affairs, however, the key difference being that humans are empowered with intentionality while objects interact in a material world of causal relations, and discourages assuming any asymmetry in their interactions [15].

ANT is a rich theory with several constructs and it provides a theoretical orientation for analysis in several studies as discussed above. In order to filter a large amount of data and to maintain the focus on the process of forming a stable network, a subset of those constructs, namely moments of translations, are used to analyze data. According to Callon [22], the creation of the actor network consists of four major stages of translation ─ problematisation, interassessment, enrollment, and mobilization. They are defined as the methods by which an actor enrolls others in the network and are explained in the following paragraphs. Even though the stable design was difficult to conceive in the beginning, tracing interactions between humans and non humans in translations enables us to understand the negotiation process. It is through the negotiation that the stable design and network are resolved. The application of ANT helped us to understand how the e-government information system project reached its stability.

Problematisation: During this stage, the actor initiating the process defines identities and interests of other actors that are consistent with the interests of initiating actors. The initiating actors define the problems and solutions as well as establish roles and identities of other actors, which position initiating actors as indispensable resources in the proposed solution. Initiating actors thus establish themselves as ‘obligatory passage point’ (a path from problem via single solution to goal).

Interassessment: In this stage, initiating actors convince other actors that interests defined by them are aligned with the interests of other actors. This process involves creating incentives for other actors, attempting to break any competing relations, validating problematisation and forming alliances.

Enrollment: During this stage, roles of actors in the actor network are defined distinctly. Initiating actors, through a physical actions and negotiations, convince other actors to embrace the network and to play an active part in the project.

Mobilization: In this stage, initiating actors ensure that other actors behave according to the agreement and do not betray their interests. Initiating actors seek continued support from the enrolled actors to the underlying network and roles. After this, network stability is achieved, indicating institutionalization of the underlying network and roles. The initiating actors are accepted as the main voice that speaks on behalf of all the actors in the network.

Translation stages happen in parallel and iterative stages. Recent research using ANT depicts a much more fluid and interrelated translation process. The order of the translation process is created and maintained through actors’ strategic efforts to negotiate and navigate one another into the network of aligned allies [23]. In spite of this, the four translation stages provide a framework for describing and tracking the path of reaching network stability.

3. Case Study

The research methodology for this study focuses on the evolution of the stable design acceptable by all actors in the network for this project. Case studies are well suited for both interpretive and positivism positions [17,18] and are commonly used in information technology with ANT [19].

Figure 2 displays the logic model of current workflow for the state to distribute federal incentives to state providers for prevention services. The figure’s focus is to illustrate the complexity of the data flow and the communication process while details are not of major interest. The state agency awards a contract to a provider based on the RFP (Request for Proposal) submitted. The provider identifies evidence based programs and services they would conduct to meet the desired outcomes and to address identified problems in the community. Evidence based programs consist of different services. The state then reviews program plans,
services, implementation, monthly reports, invoices and outcome evaluation. Figure 3 is the optimal logic model at the end of the project, particularly addressing functional features in the study.

The system is still in the development phase. This paper focuses on the process of arriving at a stable design for the system. The unit of analysis is the design artifact that was used as a platform for communication between all actors. The design team was the most influential initiating actor in the evolution of the system. The state conveyed their and provider’s requirements to the design team. The contractor developed and hosted the system as proposed by the design team.

The case study employs multiple sources for data collection in its natural setting. One resource is the authors of this paper worked as consultant for the design team and were involved in the meetings with different actors, such as project managers of each stakeholder and members of the design team, the program and fiscal managers from the state, and providers being the end users. The authors were “participant observers,” [29] which is identified as one of the sources for gathering evidence in case studies. Notes taken by the authors were used for analysis in addition to the meeting minutes. This was supplemented by the analysis of documentary evidence. In all, three types of documentation were analyzed: documents provided by the state for existing process, documents generated by the project team at various stages, and meeting minutes recorded between different actors during their interactions spanning for four years. At the end, an open ended interview was conducted with the project manager from the design team to validate the conclusions of authors for each phase. Additionally, the manager was asked to rate independently the alignment at different stages between different actors.

The technology does not need to be implemented for it to exist. Technology, once conceived, is a force to reckon with and it is an actor [20]. In this study, the case gathered momentum with increased involvement of multiple actors, after an initial scope and design of the system was proposed to all the actors. The ideas are inscribed in the technology and as these technologies diffuse in contexts where actors are assigned relevance, they help achieve socio technical stability [21].

4. ANT in Action

In this case study, the design team plays the role as the initiating actor who interacts with the state agency, contractor and the providers. The design team has the responsibility for gathering user requirements, streamlining the workflow, selecting the vendor to develop and host the system, and providing trainings and post-implementation supports. Providers bid for the contracts, execute them and report to the state agency. The state agency reports to the federal government for the funding utilization and effectiveness. As described below, the project evolution is divided into five main phases.

**Phase A: Requirements Gathering**

The state agency oversees and manages several evidence based programs for substance abuse prevention for alcohol, tobacco and other drugs in the state of Hawaii. In 2005, there were an estimated 70,000 individuals with alcohol abuse or dependence problem and an estimated 27,000 individuals with drug abuse, dependence or addiction problem [28]. The contract implementation process was complex and mostly paper based replete with heavy documentation load from the proposal to evaluation for both the providers and the state. The paperwork
made it cumbersome for the state to monitor efficiency of providers and generate federally mandated reports. Different funding sources had different process paths and different documentation requirements thus creating multiple workflows to manage. For providers, a significant amount of workload consisted of keeping up with the required documentation, thus diverting their attention from the objective of implementing preventive substance abuse services.

Unique geographic barriers in the state of Hawaii compounded the complexity of the process management for the state as well. Different counties are separated by an ocean between them, and Honolulu has a heavily urban population while other islands have rural settings. Based on the above identification of the problem scope, a web based system was thought to be a solution and COF was engaged to design such a system.

The lack of clarity about the required features and final scope required the design team to begin from defining the problem itself. The problematisation stage involved the team to identifying different layers of roles and responsibilities played by each user in each organization at each stage in the process. A detailed state diagram for the corresponding actions performed by them was generated. Next the design team embarked on a vetting process for the vendor selection to host and develop the system. The selected contractor hosted similar systems for the other states and an alliance was formed where they would customize their system to suit the unique needs of Hawaii. The design team then recommended the vendor and the initial proposed scope to the state as well as to the major providers, enrolling other actors. Each actor agreed to the requirements and scope at the conceptual level.

**Phase B: Design with Request for Proposal (RFP)**

The phase B design was a comprehensive solution accounting for all the steps in the logic model including assessment, capacity and resource gap analysis. The design included the RFP module to announce the RFP for the state and application facility for providers. The RFP is an extensive document describing organization profile, community assessment, quality assurance, budget, staffing resources, partnerships and coalitions, action plan and so forth. Many of the components are repetitive for each RFP and the system design intended to allow reusing of those parts with modifications to cut down the application process for providers. The main challenge and contribution of the design team was to organize the different steps for different funding sources into the streamlined workflow paths. The design was presented in the form of a working prototype complete with the data definitions.

However, the contractor disagreed with the design as they felt there was a significant escalation of the project scope, even after several rounds of negotiations. Furthermore, the design was not compatible with the contractor’s existing objects and database framework. As a result, the contractor would not undertake the development to include the entire RFP process unless the contract is redrawn or separate charges are paid for the extended work. Given the time and resource constraints, the RFP module was postponed for future work, though the team had designed a detailed technical solution to include RFP. The state chose to be a passive observer in the process as it deemed the negotiations to be technical.

**Phase C: Stage I Implementation and Replacing the Legacy System**

The removal of the RFP module became a major turning point in the project. The rest of the system used and relied on the many components from the RFP module, warranting reengineering the rest of the system. Due to the pressure to meet the timeline constraint for the fiscal year, the actors agreed to replace the legacy system before the new fiscal year. The system collected minimum information on the services performed and was not accessible via Internet. The contractor used their existing framework which they had used in other states to replace the legacy system and incorporate design from the team. Based on the renegotiation and redesign, the stage I was implemented online successfully. The stage I system collected the most essential data set while dataflow optimization and customization were left as the next stage implementation. As a precautionary measure, however, the state continued to use the legacy system in parallel with the stage I of new system until it grew confident about the new system. This required providers to do double entry of the same data in both systems.

**Phase D: Stage II design**

After the release of stage I system, considerable time was spent with resolving bugs and issues with the system. The recession in the economy resulted in downsizing in the staff for the development team, design team and the state workers. The staff turnover resulted in issues such as loss of implicit knowledge, history of previous negotiations and agreements and communication experience. These issues plus bug tracking slowed down the design process for the next stage. The stage II design retained the focus on the
workflow automation and optimization and managing the complexity of layers of roles and responsibilities for various system users. This design built on top of the phase B excluding the disagreed features.

One such example is the retention of commenting and feedback feature originally designed for the RFP module. This feature was designed to bring transparency as well as provide tracking in the documentation and communication for each and every data entry in the RFP application. The design was complex due to various statuses at each stage and the version control of the comments and data. Another technical module was designed to manage different levels of contracts i.e. a provider subcontracting parts of its services to another subcontractor.

The design team engaged in another round of negotiation with the contractor as they believed many of the features were escalating the scope of the project beyond the contractual agreement. The design specification provided a platform for mutual discussions where every actor could voice the concerns and points of disagreements and constructive steps that could be taken to address them.

**Phase E: Arriving to Stable Design**

The final assessment focused on evaluating the usefulness of the collected data instead of features to collect them. The technical focus of the design was changed to critical application of social considerations. Frequent feedback was sought from the state and the providers during evaluation of each feature. An interactive prototype was provided to them, as if the system was online. This step enabled actors to enter into the enrollment state of the project trajectory. This resulted in the elimination of many technically solid features due to their low usability.

One example was the decision that providers shall be made responsible for entering the data for their subcontractors in the system, instead of managing contractors and subcontractor chain through the system. The commenting feature was simplified to assigning status and maintaining comments log, and encouraging out-of-system channels to communicate details. In addition to local actor’s feedback, a routine weekly conversation with the contractor provided enhanced agreements regarding the project scope and features. Having clear guidelines and feedback from all actors helped the design team to firmly stand by the required features, and to know where an alternate design or solution is acceptable. The stable design was finally achieved and succeeded in mobilizing all the actors.

**Phase F: Future Design**

Even though the consensus was reached for final design, certain modules, such as RFP, were left as future work. This is due to the resource and time constraints and the contractor’s need to focus on optimizing on the basic modules. Nevertheless, they acknowledged that features suggested by the design team are quite useful in enhancing their systems for other states and future versions as well. The design team benefited from the experience that the contractor has with the end users from the other states on improving usability of several features. The state participated, providing valuable insights from the dynamics of interaction that exists between them and the providers. Providers as end users and the heaviest users of the system were satisfied because they had an opportunity to provide input and had a better idea of what to expect instead of having to adapt to a new system they are unfamiliar with. The design passed everyone’s approval, though technically several features were simplified.

**5. Discussion and Findings**

The trajectory of development of the project is somewhat iterative consisting of ambitious automation limited by practical considerations resulting in gradual evolution from a techocentric system to a sociocentric network. We used ANT theory and moments of translation to analyze the formation process of the network until it reached the stability point. As described, problematisation was not always followed by successful interassessment and enrollment. The issue that we were particularly interested in was whether the system design fulfilled requirements of other actors resulting in a stable network as the initiating actor conceived it. The ANT view of translation is neutral to what is formed and rather concerned with how and why translation processes evolve in certain way [23]. By charting the process of network building, disintegration, and rebuilding one can see the trajectory of a project shaped by the network and interrelations of actors.

Callon [24] defines convergence as the degree of agreement among the actants. Alignment is a dimension of convergence which refers to the extent to which all actants agree to the translation. Coordination is the other dimension of convergence which is the interpretive flexibility restricted by rules or conventions. Though the different agendas of different actors make the network robust, a minimum degree of agreement is needed [25]. The figure 4 charts the evolution trajectory of the network along these dimensions. The numbers in the boxes, from left to right, represent the frequency of meetings the
design team had with providers, state and contractor respectively, which measure coordination between actors. The last number indicates the degree of alignment rated by the project manager at the end of different phases on a scale of 1 to 7; 7 being the highest degree of alignment.

The design team carefully studied hundreds of documents for existing processes given by the state to create the initial logic model (point A). This logic model was shared with the contractor as requirements of the project with little involvement in its creation. The coordination can be constrained by the nature of tasks, e.g., coordination with contractor is not possible before defining requirements. The ambiguity at the beginning of a project is unavoidable; however, increased coordination can help to reduce disagreements. The motives for each actor for agreement can be different and acknowledging and recognizing them can prevent misalignments along the future trajectory. The alignment between all the actors was high, but the coordination between the contractor and state and between the contractor and design team was low due to the nature of the tasks (Point A).

This logic model was used to create a system complete with prototype, database, and validation rules as the initial phase of development (point B). The interassessment at this point was unsuccessful as the solution was perceived to be out of scope and too specific in design by the contractor and very data entry intensive by the state, resulting in negative alignment among all the actors. The coordination was sought in the end stages of the phase as each actor had a different understanding of the project trajectory. The design team had focus on automation and enhancement of the existing systems of the contractor, while the contractor was expecting customizations to the same. It is therefore critical to work out the details and spoken and unspoken agreements and assumptions about each other between actors. The different agendas and assumptions of different actors resulted in negative alignment and negative coordination respectively at this phase (Point B).

Given the availability of limited resources and time, task prioritization enabled actors to identify essential functions that meet their primary requirements to align with each other. Maintaining flexibility of the process, within legal limits specifically for the e-Government projects, contributes significantly to the simplicity. All of these characteristics are demonstrated in the phase C resulting in successful implementation of stage I with positive alignment and coordination (Point C). The level of trust was low in the system and resistance to change was high as parallel running of the legacy system at this stage showed. These are the important considerations that must be addressed for successful adaption of e-Government systems by users.

![Figure 4 Project Trajectory](image)

As most of the e-Government projects are longitudinal in nature, staff turnover and organizational changes are inevitable parts of the process. When this happens, it affects interrelations and communication between actors. In such scenarios, actors revert back to the original mindset that is internalized from the initial phases, losing vital developments in increased alignment over the time and may decrease coordination. The design of stage II exemplified these characteristics. Due to staff turnover, there was effort from the design team to reuse many of the work done for phase B sans the excluded modules. The focus was still on the automation and technology centric design. The coordination was not effective due to incomplete specifications. There was a certain degree of coordination; however, the alignment between each other of the state, contractor and design team was very low, resulting in low convergence (Point D).

The design specification at the point D provided a transparent communication platform as everyone could see clearly what the final system may look like and can be capable of doing. The design team highly raised coordination at this point with the state and providers first, and then with the contractor. Many vital insights into the dynamics of interaction between the state agency and the providers allowed simplification of technical solutions. The weekly meetings with the contractor lasted for more than four months until agreement on final design was reached (point E). Both the design team and contractor benefited greatly from each other’s experience and point of view in the process. A few decisions were made to modify or postpone certain features. However, when the final design was undertaken for development by the contractor,
convergence for the network was very high. Solutions required to reach the network stability may not be the most elegant technical solutions, but maximizing advantage of actors’ interrelations result in most viable solutions. The social interaction dynamics of actors is a vital component that needs to be included in the technical design. Table 1 on page 8 summarizes the project trajectory using ANT constructs, key observations and implications.

There are other attributes that influence interrelations between different actors that were observed during the analysis. First, technical expertise of the users is an important consideration for the design simplicity. Related to the decision made regarding commenting feature, the system provides the archival platform for tracking such communication logs, instead of acting as a communication platform. This decision simplified the design greatly. Second, system features need to be designed with flexibility and guided by the optimization of the workflow, and not driven by the technology. One example is the simplification of assigning the responsibility with primary providers to manage the subcontractors. This design reduced supervision by the state and gave more autonomy for providers to operate, which optimized the workflow. Finally, it is also seen that alignment is correlated with coordination directly, and increased coordination results in increased alignment, making the network more convergent. The practical limitations may limit amount of coordination, but taking advantage of maximum possible coordination shall result in a more convergent and stable network.

6. Conclusion

The uncertainties about e-Government projects exist due to failure of large number of these projects [6]. The nature of an actor network forms the basis for project trajectory and its stability into eventual success. The ANT theory proposes that a successful translation would lead to a stable network. However, analysis of this case illustrates that these translations may not happen like a waterfall, but in a more iterative manner. As illustrated in this case, ANT depicts a much more fluid and interrelated translation process where order of things is created and maintained through actors’ strategic efforts to negotiate and navigate one another into network of aligned allies [23].

From ANT’s perspective, the technical design was not compatible with the social network, resulting in iterative phases of evolution of the project. The path to increase convergence between different actors therefore depends on increased coordination. We found that alignment is directly dependent on the coordination between different actors. The ambiguity was existing in the early phases about the outcome of the project, and increased coordination enabled actors to reach agreement on common goals despite lingering ambiguities on the details. E-Government projects should maximize coordination to increase alignment and maximize the advantage of dynamics of interrelations between different actors.

The motivations for different actors were different in this case during each phase; however, exploiting minimum common interest between actors resulted in successful mobilization of all the actors and a robust network. This is important in e-Government projects, since the common goal for each actor may be same; the nuance of individual motivations is worth paying attention to in these projects because of the broader networks within which public sector projects are placed as compared to private sectors [27].

The organizational changes happened in this project due to its longitudinal nature. We found that these changes affected coordination resulting in actors reverting back to the internalized mindset and undoing certain progress towards alignment in the network. This is probably due to the loss of implicit knowledge, consensus, political endeavor, or resources during the transitions. Continuous coordination, specifically at these change points is useful in preventing this. Through increased convergence in the last phases, many technical solutions were replaced by socio-technical solutions making the links inside the network stronger instead of making the system design stronger. Technology, though advanced many times more than social networks, may not always work when put in this context, validating that technological determinism is ill suited for e-Government projects.

We also found the limitations in using moments of translation that it explains the project trajectory, but not the changes that happen itself in the actors and their interrelations. Success for e-government projects lie in proper transitions such as, balancing system capacity (technological issues and resources, etc.) and user capacities (political, legal, and organizational issues etc), and managing political, legal, organizational, and technological barriers for diffusion. The technical design in the case study became a communication platform to mobilize all the actors, an ‘obligatory passage point’, instead of only conceiving technical specifications between two actors. Simplicity of the design, flexibility of system features, and optimization of workflow not dictated by technology are important considerations to be used as guidelines when devising a technical solution.
<table>
<thead>
<tr>
<th>Trajectory</th>
<th>ANT Constructs</th>
<th>Key Observations from This Study</th>
<th>Possible Implications for e-Government Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase A: Requirements Gathering</td>
<td>Coordination - High degree of coordination between design team and state agency - Contractor joined at final stages Alignment - High degree of alignment at conceptual design model</td>
<td>• Open ended scope definition from project sponsors allows higher coordination • Synchronous nature of tasks makes coordination challenging e.g. the point of the entry for contractor • The actors are high on alignment but their reasons are different</td>
<td>While ambiguity for the final outcome is possible to exist in the initial phases, the idea of increased coordination enables to increase agreement among stakeholders. The motivation for alignment for each actor may be different and careful examination of them shall help to maintain that high degree of alignment.</td>
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<td>Phase B: Design with RFP</td>
<td>Coordination - Misread interassessment between design team and contractor results in low degree of coordination Alignment - Low alignment between design team and contractor</td>
<td>• The scope and format of design specifications are different than contractor’s expectations • There is misalignment between incentives for contractor assumed by design team and contractor himself</td>
<td>‘Devil lies in the details’ hence continuous coordination between different actors is critical to keep their interests aligned. Looking at the spoken and unspoken agreement between different actors is very useful to gauge actual degree of alignment.</td>
</tr>
<tr>
<td>Phase C: Stage I</td>
<td>Coordination - Experience of previous phase resulted in higher degree of coordination Alignment - State, contractor and design team maintain minimum level of agreement to meet redefined goals</td>
<td>• Mid project redefinition of scope engage actors in increased coordination • Though the interests of actors differ, the actors are still committed to common goal • Increased coordination result in success of meeting expectations for this phase</td>
<td>The interest of individual actors is an important consideration. The purpose of coordination should be to exploit minimum common interests of actors. The level of trust is low and resistance to change is high in these projects.</td>
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<tr>
<td>Phase D: Stage II design</td>
<td>Coordination - Organizational constraints cause low coordination Alignment - Relying on initial design for next phase result in low alignment between design team and contractor</td>
<td>• Organizational changes affect the progress and communication between actors • It is difficult to change the initial mindset of the actors</td>
<td>For longitudinal projects, organizational changes are going to affect project progress. The actors may revert back to initial mindset in such cases that is internalized increasing differences in alignment.</td>
</tr>
<tr>
<td>Phase E: Stable Design</td>
<td>Coordination - Regular meetings between all the actors Alignment - Agreement on final design</td>
<td>• Routine meetings between contractor and design team, meetings with providers and state result in forming stable network</td>
<td>Technical solutions may not be the best solutions always. Maximizing advantage of the dynamics of actor interrelations shall result in stable network, if not in most elegant solution.</td>
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Resistance to workflow change due to new technology could be high in e-Government projects possibly due to conservative mindsets. Nevertheless, the likelihood of the adaption seems to increase if optimization and flexibility of the workflow are managed well. The result brought simplicity into design as the case study has shown.

The project’s initiative was to streamline the workflow through an electronic system and achieve technological goals, such as maximizing data utilization, reducing operational redundancy, and providing automation, etc. However, attributes for achieving these goals may complicate a system and make the network unstable if not balanced properly against usability. Technology for e-Government systems has plenty of possibilities. However, user capabilities and user involvement in the design play an important role on the final outcome of the system features and acceptability by all.

The analysis of this case study is limited to the specific context of an e-Government health prevention system in a small state like Hawaii. The purpose of a case study is to generalize to theoretical propositions and not to populations as in statistical research. The process of reaching stable network as outlined in this paper is important for e-Government projects. The implication of mismanaging coordination during this process on alignment is observed in this case study. Given similar scenarios and challenges, the principles inferred from the case analysis may potentially be extrapolated to relevant e-Government projects to varying degrees.

Future work focuses on the enhancement of system features through user surveys, which actively involves the end users in the network as well as provides the state and contractor timely feedback. It is expected that the continuous user participant will ensure the network’s stability and provide the system’s sustainability. The RFP module will be reassessed, considering simplicity, adaptability, flexibility and usability as primary design factors. We look forward to the future implementation and findings.

7. References


2601


