ABSTRACT

This paper identifies and analyzes the quality management practices that are being used to manage stakeholder quality in open government information technology projects. It examines contact forms, feedback forms, and meetings that currently occur in the open government domain. The paper also ties in quality management literature to determine if stakeholder quality management is being engaged in an efficient and consistent manner. The paper determines that stakeholders of the open government IT projects have been successfully solicited the majority of the time, but it argues that there are improvements that can be made to the current processes.

KEYWORDS: stakeholder quality, open government, information technology projects, quality management

INTRODUCTION

The world has seen a dramatic increase of large complex IT projects that involve vast amounts of time, money, and resources. In open government domain particularly, numerous projects have been initiated and executed in pursuit of the Freedom of Information Act, Entrepreneurship in government transparency, Open Government Data, open source software and open scholarly data advocates, just to name a few of the quests. It is essential that these projects are organized and directed by professionals skilled in the field of managing to ensure project success. The current state of the economy has put an extra focus on how we manage the resources that we put into our project. How can we simply expect business-oriented professionals to be the best project managers for a large-scale open government IT project? That government and government controlled agencies are different from other businesses is a fact. The special blend of public politics, divergent stakeholder groups, and technical challenges makes open government IT projects unique.
Successful stakeholder quality management within such entities can be elusive – but far from unachievable. In fact, this study is going to investigate how quality project management can be achieved within open government agencies. There is currently scant literature that examines the U.S. government’s quality management practices in open government IT projects. Each stakeholder may have a different quality expectation based on their role in the open government project. "The concept of Open Government Data refers specifically to government data defined as data and information produced or commissioned by government or government controlled entities that are opened up for use and re-use by public and private agents alike" (Jetzek, Avital & Bjorn-Andersen, 2014, p. 102). A few of the factors that go into managing stakeholder quality expectation are system and information quality, user satisfaction, and usability. Some stakeholders may be more heavily invested in making sure the information is available (e.g., CIOs) while others may be more interested in ease of data entry and collection (e.g., federal agencies that input the data) or finding, viewing, and assessing the data (e.g., the general public).

This paper will seek to identify what quality management practices the government is utilizing to identify quality expectations and how the government is eliciting feedback from various stakeholders. This research should be interesting to information technology project managers and business analysts who want to effectively manage stakeholder quality expectations or more actively engage with stakeholders. All key stakeholders must be engaged at the different staging of the project plan in order to ensure that project quality objectives are fulfilled. This paper will also raise awareness of current quality management practices and help standardize and improve quality management practices particularly in the open government domain.

LITERATURE REVIEW

Open Government Quality Management

Paraschivescu & Caprioara (2014) describe strategic quality approach as general guidelines that are translated into objectives and action plans that are used to improve a project (p. 20). For open government projects the guidelines, objectives, and action plans are stated in the related policy documents such as the Transparency and Open Government Directive. Zuiderwijk, Janssen, & Davis mention four key elements that should be captured to form an open data perspective. Zuiderwijk, Janssen, & Davis (2014) mention publishing data to the internet as the first element followed by searching, viewing and evaluating the data. The next two elements they list are cleansing, analyzing, enriching, combining, linking and visualizing the data and lastly, interpreting and discussing the data and providing feedback to the data provider and stakeholders (p. 17).

In regards to the latest set of open government IT projects, the general guidelines and action plans were set in motion when President Obama signed the Memorandum on Transparency and Open Government. In signing the Memorandum on Transparency and Open Government, President Obama inherently signed on to manage quality expectations among numerous groups of stakeholders. Kristic (2014) defines stakeholders as "individuals, groups or organizations that affect and/or could be affected by an organization’s activities, products or services and associated performance, with regard to all the issues to be addressed by their engagement" (p.166). The PMBOK guide (2013) suggests a stakeholder analysis be performed in order to help identify project stakeholders. PMBOK defines stakeholder analysis as "a technique of systematically gathering and analyzing quantitative and qualitative information to determine whose interest should be taken into account through the project (p. 395)."
(2013) state that the typology of stakeholders for e-government projects consist of four groups: data controllers, data subjects, data providers, and secondary stakeholders (p. 258). In order to manage stakeholder quality expectations, all of the aforementioned stakeholders should be accounted for during the quality management process.

Quality Management applies to each stakeholder as well as each process area involving quality management. Quality management includes: plan quality management, implement quality assurance, and control the quality. “The quality process is a continuous loop that begins, ends, and begins again with the customer” (Tang & Tummala, 1994, p. 4). Applying quality management throughout the lifecycle helps maintain a transparent quality expectation across stakeholders.

It can be argued that the administration did not take into account all of the stakeholders who would be impacted by the open government IT projects when they issued the Open Government Directive. “The timing of the Directive and the discretion afforded to executive agencies in complying with its provisions may have inadvertently limited the creation of new ways to make the government more transparent, collaborative, and participatory” (Evans & Campos, 2013, p. 173). Many of the agencies did not have the expertise in the realm of open government and had limited time to decide how to address open government project (Evans & Campos, 2013, p.173). The Open Government project kickoff failed to involve all of the key stakeholders, which could have led to challenge or failed projects. The Summary of Factor Rankings for Challenged and Failed/Impaired Projects lists lack of user involvement as the second most common reason for failed projects, lack of IT management as the ninth rank, and lack of technology illiteracy as the tenth reason for failed projects (Marchewka, 2012, p. 9). The summary lists lack of user input and technology competence as the first and five reasons respectively (Marchewka, 2012, p. 9).

To avoid potential challenges and to reduce the risk of failure, stakeholders who need to actively participate in the delivery of a project should be consulted on the timeline of the delivery date of the project and resources with appropriate skill sets should be identified to assist in the delivery of the projects.

Engaging the high level stakeholders may have helped reduce the challenges that the open government projects faced at launch and allowed quality expectations to be managed in a more ideal way for the agency project managers that were tasked with bringing the open government projects to the public domain. Engaging the agency heads tasked with bringing the websites to the public domain is just one aspect of total stakeholder involvement. The public is another major stakeholder in the open government projects, and should also be taken into account at the various phases of the project lifecycle. Stakeholder quality management is more than taking into account one group of stakeholders, it is about taking into account all of the project stakeholders and continually monitoring and controlling to ensure that their expectations for the project are met. “All senior managers must create clear and visible quality values and high expectations and build them into the way the organization operates” (Tang & Tummala, 1994, p. 5). The senior managers in the case of the open government information technology projects are the president and the CIOs, most of which can be found on the IT Dashboard. It is important that senior managers engage all of the stakeholders, even though it can be a challenge because open government information technology projects have numerous stakeholders. In the summary of Chaos Study Factor Rankings of successful projects, User involvement was ranked first or second each year (Marchewka, 2012, p. 6). Users working closely with project team can
help the stakeholders “better understand the business opportunities and limitations of the technology (Marchewka, 2012, p. 6).

All the stakeholders involved in the project need to be identified, both internally and externally, in order to manage and control quality among them. Stakeholders often have very different or conflicting objectives (PMBOK, 2013, p. 32). The stakeholders in the IT Dashboard project may have different priorities when it comes to managing the quality of the IT Dashboard. It can also be assumed that Federal Agencies that need to put data into the system will be more concerned about the data collection tools and mechanisms because they will spend the bulk of their interaction with the system inputting data. The industry and public quality focus may be on the data accessibility, accuracy, and ease of interpretation because they will spend the bulk of their time analyzing the data and trying to draw insights into how the federal government is operating. The figure below displays the multidimensional levels of stakeholders.

Figure 1: Elements of an open government data ecosystem derived from the literature


The differing objectives may revolve around “system quality and information quality, system use, user satisfaction, and net benefits” (Petter, DeLone & McLean, 2013, p.11). Figure 2 provides a definition as well as an example of measurement for each of the aforementioned variables.

Figure 1: IS Success Variables
METHOD OVERVIEW

Identifying the stakeholders and determining their objectives will increase the level of communication that is needed to ensure that the information technology project is truly fulfilling its role as being "open". Many of the Open Government IT projects explicitly identify their stakeholders. The IT Dashboard lists its primary stakeholders as federal agencies, industry, and the general public. In addition to identifying the stakeholders, IT projects need to communicate the quality and accuracy of the data available on the website.

Data Quality & User Expectations

An article on big data, open government and e-government stated that there is a need to ensure data quality as well as to develop a verification system that validates reported findings (Bertot, Gorham, Jaeger, Saring, Choi, 2014, p. 13). They go on to reference the disclaimer on data.gov that places the burden on agencies releasing the data and those downloading the data and note that this resolution is inadequate because of the impact this data can have “on social, policy, and science programs (Bertot, Gorham, Jaeger, Saring, Choi, 2014, p. 13).

USAspending, which launched December 27th, has been in the news in 2014 because the Government Accountability Office found that more than $619 billion in federal awards that should have been on the site were not present (Scola, 2014). The aforementioned examples are pitfalls in a few of the open government projects quality. Some of the tools and techniques open government projects are currently using to determine data quality deficiencies and user expectations are feedback forms, surveys, and meetings.

Feedback Forms

“With open government or e-government, large amounts of information can be made available 24/7, potentially accessible to anyone with an internet connection” (Ganapati, S., & Reddick, 2014, p.365). Based on the 24/7 availability of information it is plausible to allow users to provide feedback to the open government technology websites 24/7, since quality management is an ongoing process.

There are a number of mediums that were previously used, and that are currently being used to engage the stakeholders of open government information technology projects that are currently underway. In 2009, “the administration conducted a series of online public input forums seeking feedback ideas from federal employees, the public, and industry representatives on ways to make the federal government more transparent, collaborative, and participatory” (Ginsberg, 2011, p. 10). One of the current mediums being used for stakeholder feedback is feedback forms on the open government websites. USAspending.gov and Performance.gov both have feedback forms on their websites that allow users to input feedback about the site. Recovery.gov has a ‘contact us’ email address and phone number that can be contacted for feedback. The IT Dashboard did not have any type of feedback solicitation, at least from a public facing perspective. The feedback form that is the most engaging can be found on both Performance.gov and ForeignAssistance.gov. They ask questions as to who the stakeholder is: e.g., Citizen, Federal Government, and Member of the Press, Employee, or Elected official. Through identifying who the stakeholder is that is submitting feedback, the application on
Performance.gov and ForeignAssistance.gov should be able to prioritize the feedback that is received based on the weight of the stakeholder’s quality expectations. Other information technology websites should seek to identify where the feedback is being received from so the proper weight and attention can be placed on the feedback.

<table>
<thead>
<tr>
<th>Website</th>
<th>Stakeholders Listed on Contact US/Feedback Form</th>
<th>Feedback Elicted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data.gov</td>
<td>None</td>
<td>Ask A Question</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Problem with the website</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Media inquiry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-General Question</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Make A Request</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Suggest new Data.gov Features</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Request new data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Report a Problem</td>
</tr>
<tr>
<td>Foreignassistance.gov</td>
<td>A concerned citizen</td>
<td>Send Feedback</td>
</tr>
<tr>
<td></td>
<td>Representative of a federal agency</td>
<td>Report a Bug</td>
</tr>
<tr>
<td></td>
<td>Representative of a foreign assistance advocacy organization</td>
<td>Ask a Question</td>
</tr>
<tr>
<td></td>
<td>Representative of a host-country government</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Member of the Press Other</td>
<td></td>
</tr>
<tr>
<td>IT Dashboard</td>
<td>No contact form found</td>
<td>None</td>
</tr>
<tr>
<td>Recovery.gov</td>
<td>None</td>
<td>Suggestion to improve the website</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Questions about information on the site</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technical problems</td>
</tr>
<tr>
<td>USASpending.gov</td>
<td>None</td>
<td>Send Feedback</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Report a Bug</td>
</tr>
</tbody>
</table>

**Surveys**

Another medium for feedback on Open government IT projects is surveys. The surveys appear to seek out if a user was satisfied with their experience on the website. The questions collected from performance.gov are below:

**Performance.gov Survey Questions**

1. How would you rate your overall experience on the website today? Scale of 0-10 *
2. Which of the following best describes the primary purpose of your visit? *
3. Where you able to complete the purpose of your visit today? *
4. What do you value most about the Performance.gov website?
5. Please tell us why you were not able to complete the purpose of your visit today.
6. How likely are you to return to this website, even if you could get this information or service from another source? *
7. Based on your experience today, how likely are you to recommend this website to someone else? *

Figure 2: Performance.gov Survey Prompt

The websites could take the numerical data and create control charts in order to help manage quality. Control charts are “tools for monitoring process variation” (Foster, 2013, p. 427). In the case of open government websites, control charts could collect the average score each quarter and track it. They could add in questions that have stakeholders identify themselves, similar to the way the performance.gov and Foreignassistance.gov feedback forms elicit which stakeholder is the source of the information.

Meetings

Holding meetings allows for performance standards to be identified and revised as applicable. Agencies have monthly meetings to discuss open government practices. “These meetings are now open to the public on a quarterly basis to listen in on agency open government efforts and participate in discussions about featured topics” (Open Government Initiative). The administration has taken the approach to open these meetings up to the public, which is good practice because members of the public are a large stakeholder in the open government projects. “Researchers and IS professionals agree that systems development efforts are unlikely to be successful without active user participation in the development process” (Ravichandran & Rai, 1999, p. 130). However, including all the end users of open data government projects is unfeasible, give the sheer scope of users. There are over 318 million citizens in the United States (United States Census Bureau, 2014). Engleberg & Wynn state the importance of keeping groups to a manageable size. “Limit meetings to fewer than 12 participants; a group of five to seven members is ideal for problem solving sessions” (Engleberg & Wynn, 2013, p. 248). It may be useful for the agencies to break up into groups and appoint a representative to lobby for their ideas and needs at the sessions that are held. This may help preserve the quality of the meeting and its context. The general public may also look into appointing representatives to
lobby for their ideas and feedback at the meeting. The next step of the gathering feedback process would be to analyze the results and determine action items.

LIMITATIONS & FUTURE RESEARCH

Limitations to this research are as follows: The research did not have access to the actual results of the feedback forms or surveys that were on the open government website. The feedback elicitation and survey sections focused on how the open government projects appear to be managing quality from the perspective of system end users, not from the perspective of a user who is on the management team. The paper only examined a subset of the open government information technology projects and feedback elicitation methods. Future research could delve into the results of the feedback elicitation methods that open government websites are using, such as feedback forms, surveys, and monthly meetings. The results could be analyzed to determine if quality management processes are in place to address the feedback that is solicited on the open government websites and if this information is leading to higher stakeholder satisfaction over the lifespan on the project.

Implications for Management

Various factors that impede the generation of value from data have been pointed out (Jetzek, Avital, & Bjorn-Andersen, 2014, p. 103). A number of the common barriers are listed below:

- Closed or inaccessible datasets
- Lack of compressive data policies
- Lack of validity, completeness and exhaustiveness of data sets
- Insufficient metadata
- Lack of modification within the public sector
- Lack of technical and semantic interoperability
- Lack of technical ability within the public and private sectors
- Disparate open data community (Jetzek, Avital, & Bjorn-Andersen, 2014, p. 103).

The key takeaways for managers to avoid these pitfalls are to engage in a 360 review process or total quality management and total stakeholder involvement. Engaging with the stakeholders through meetings, feedback, and surveys will help manage the expectations of the project throughout the lifecycle and increase the chances of project success. Engaging stakeholders should not be overlooked when running a project, but it is also critical that proper actions be taken to follow-up on the feedback that is received by the system users.

DISCUSSION AND CONCLUSIONS

This paper revealed that there are a number of quality attributes that should be monitored during open government information technology projects: information quality, system user, and user satisfaction. More specifically, this paper has investigated the widely utilized tools and techniques open government projects are currently using to determine data quality deficiencies and user expectations including feedback forms, surveys, and meetings. The features, pros and cons, and suggested use of each of these techniques were carefully examined. Such findings have practical values to information technology project managers and business analysts who want to effectively manage stakeholder quality expectations or more actively engage with stakeholders. In order to manage quality, key stakeholders should be consulted throughout the project to ensure that the project meets its objectives and preserves its quality integrity.
Implications elicited by this paper also raise awareness of current quality management practices and help standardize and improve quality management practices particularly in the open government domain. Quality management techniques have shown that they can help manage stakeholder expectations and must be pursued during the life of the project.

REFERENCES


