# Dynamic Changes in Organizational Motivations to Crowdsourcing for GLAMs

*Completed Research Paper*

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## Abstract

*Crowdsourcing has gained popularity as a form of outsourcing. Outsourcing researchers have extensively studied the motivations to outsource IT, but very few have studied the motivations of organizations to crowdsourcing, in particular for GLAMs (galleries, libraries, archives, museums). GLAM institutions are increasingly adopting crowdsourcing technologies due to budgetary constraints and to stay relevant. In this study, findings from an examination of the organizational motivations for crowdsourcing by the National Library of Australia (NLA) are examined for its part in the Australian Newspapers Digitization Program (ANDP). The study found that the NLA was motivated by a set of goals that dynamically changed throughout implementation of the crowdsourcing project ranging from cost reduction to access to external expertise through to social engagement. Identification and recognition of the dynamic nature of organizational motivation demonstrates the long-term value for GLAMs and have implications for other forms of non-profit collaboration aimed at the common good.*

Keywords: Crowdsourcing, outsourcing, organizational motivation, temporality, GLAM

## Introduction

Outsourcing has long been a growing phenomenon in developed economies since the early 1960s (Lacity, Khan and Willcocks 2009). The Eastman Kodak decision to outsource is regarded as a turning point in outsourcing's history (Loh and Venkatraman 1992). IT outsourcing (ITO) researchers have extensively studied the motivations to outsource IT (Dibbern, Goles, Hirscheim, Jayatilaka 2004; Lacity, Khan, Yan and Willcocks 2010). The motivations behind ITO can be broadly categorized as cost reduction, the need to focus on core strategic activities and technical considerations (Costa 2001). ITO researchers have found strong empirical support that what drove most outsourcing decisions was the desire to reduce costs on what is viewed as non-core IT activity better provided by suppliers with superior skills, expertise, and technical capabilities (Lacity et al. 2010).

Crowdsourcing has gained popularity in recent times as a type of outsourcing (Brabham 2010). Crowdsourcing involves taking tasks that were traditionally performed by employees and then outsourcing them in the form of an open call to a large yet undefined group of people (Howe 2006; Adams and Ramos 2010). Thus it has its foundations within the open sourcing practices (Adams and Ramos 2010). But unlike the extensive research on motivations to outsourcing, limited research has looked at organizational motivations to crowdsourcing. Outsourcing is often seen as a parent concept of crowdsourcing (Schenk and Guittard 2011). Crowdsourcing shares many characteristics with project based or once-off business process outsourcing (Rouse 2010); however there are significant differences (see Marjanovic, Fry and Chataway 2012; Zhao and Zhu 2012a; and Schenk and Guittard 2011 for a

detailed discussion). Crowdsourcing is directed towards an undefined crowd through an open call rather than towards an outside firm and there is no formal contractual agreement (Rouse 2010). Outsourcing is largely dependent on business relationships and financial incentives, while crowdsourcing may have a much more diverse participant motivation and incentives (Zhao and Zhu 2012b). The research findings from outsourcing thus cannot be directly translated to crowdsourcing (Zhao and Zhu 2012b; Marjanovic et al. 2012).

The GLAM (galleries, libraries, archives, museums) institutions are increasingly adopting crowdsourcing technologies to engage volunteers online due to budgetary constraints and to stay relevant in this changing networked society (Holley 2010). Understanding the unique motivations of GLAMs can help future organizers and designers establish the technical and organizational infrastructures needed to engage in effective crowdsourcing. The GLAM sector does have a history of involving online volunteers (e.g. reviewing books) (Owens 2012). Extending that tradition, some GLAM institutions are engaging in crowdsourcing projects to enhance and enrich their collections (Oomen and Aroyo 2011). In order to facilitate broader, sustainable, and more inclusive collaboration between GLAMs and volunteers we must design environments that speak to the needs of both groups. To be able to do that, we need to understand what motivates each group and how to structure activities that leverage these unique motivations. The unique motivations of the crowd for GLAM context was reported in Alam and Campbell (2012). The aim in this paper was to gain an in-depth understanding of the various motivations that led a GLAM organization to engage in collaborative crowdsourcing. The research question guiding this study thus was: *What motivates a GLAM institute to engage in crowdsourcing projects?*

We situate our exploration in the Australian Newspaper Digitization Program (ANDP) crowdsourcing project by the National Library of Australia (NLA) (NLA 2013). Based on ITO literature on motivations to outsource and motivational frameworks used in crowdsourcing literature, the paper presents a set of goals that motivated a GLAM institute based on the motivational dynamics observed in the ANDP case. The novelty and potential of crowdsourcing as a form of outsourcing along with the lack of research in this area motivates this study. This study contributes to research and practice by identifying and recognizing the dynamic nature of organizational motivation the study demonstrates the long-term value for GLAMs to participate in crowdsourcing activities and sustainability of crowdsourcing over time. Addressing these dynamic motivations through design and organizational mechanisms will facilitate improved collaboration between GLAMs and volunteers. This paper also aims to fill the gap in research on organizational motivation to crowdsourcing that may have implications for other forms of non-profit collaboration that are aimed at common good and of national significance.

In the context of these preliminary research findings, the next section develops a conceptual background and sensitizing concepts for this study based on a comprehensive literature review of crowdsourcing in GLAM sector, organizational motivations to crowdsourcing and outsourcing and motivational frameworks. The method section is presented next. Then research findings and a model of dynamic changes in organizational motivations to crowdsourcing for GLAM context is presented. Finally an outlook on future research and potential implications of the study is summarized.

## Conceptual Framework

### *Organizational Motivations to Crowdsourcing*

There are quite a number of motivations as to why businesses embrace crowdsourcing to accomplish tasks, devise solutions or just generate business specific information. A key benefit is cost savings (Howe 2006). The major cost savings are achieved through the completion of large amounts of work free or with nominal pay (Schenk and Guittard 2011). Thus "the benefits of crowdsourcing described in the trade literature are similar to those attributed to outsourcing: cost savings, contracts and payments that are outcomes based (rather than paid "per hour"); and access to capabilities not held on-house" (Rouse 2011, p. 3). A motivation of crowdsourcing is the capacity to harness volunteers who might not otherwise be able to contribute; so expanding the involvement of customers/users in the design and improvement of products, and in scientific and community projects (Rouse 2011). Other benefits refer to the improvement in product quality, customer intimacy, to the acceleration of development activities or large routine tasks. Other reasons include the need to offload peak demand, access affordable labor, and engage talent from

outside the organization or solve problems which could be difficult to solve internal resources (Sloane 2011). Crowdsourcing is still considered to be in the experimentation phase and mostly used for design and development purposes (Warner 2011). Schenk and Guittard (2011) identify various motivations for a firm to adopt crowdsourcing, i.e., cost, quality of output, network externalities, risk reduction, problem solving, and organizational core competencies. Often adoption of crowdsourcing is driven by factors such as human resources, timeliness, financial situations, functionalities and environment (Zhao and Zhu 2012a). Crowdsourcing is also used for disaster management (Eustace and Alam 2012).

Pederson et al. (2013) identified different reasons for government use of crowdsourcing in their literature review of crowdsourcing literature. For example, a government agency looking for community input on improving services may use crowdsourcing as an extension of the traditional approach (c.f. Brabham (2009)'s research on urban planning and infrastructure improvement process). Government agencies can use crowdsourcing to expose new ideas and provide improved transparency and accountability or to gather ideas for improving functions and services (Pederson et al. 2013).

## *Organizational Motivations to Outsourcing*

Outsourcing is often seen as a parent concept of crowdsourcing (Schenk and Guittard 2011) and hence IT Outsourcing (ITO) research on the motivations to outsource IT (Lacity et al. 2010) is relevant for this study. Based on Simon's (1960) decision-making model, Dibbern et al. (2004) devised five stages of ITO and carried out literature review on the ITO decision phase (1. why, 2. what, 3. which) and the ITO implementation phase (4. how, 5. outcome). One of their many findings was that 55% of the articles focused on why firms make outsourcing decisions. Lacity et al. (2010, p. 404 - 409) studied 164 empirical research articles from 1992 to 2010 and found cost reduction, focus on core capabilities, access to skills/expertise, business process improvements, technical reasons, political reasons as major motivations to outsourcing. . Williamson's (1975) transaction cost economics (TCE), the most used theory in ITO research, assumes that companies make outsourcing decisions based on an economic rationale, considering both production and transaction co-ordination costs (Costa 2001). Loh and Venkatraman (1992) also found that the "key compelling force driving companies to outsource is cost savings" (p.19). The second important driver views outsourcing as a strategic decision and argues that non-core activities should be outsourced to gain greater focus on their core functions (Dibbern et al. 2004, Lacity et al.. 2010). It is assumed that "organizations should focus on their core competencies and activities, while contracting out peripheral activities that the market can perform more cost-effectively and/or which distract an organization from its core activities" (Costa 2001, p.218). Pinnington and Willcocks (1995) also found outsourcing areas as not being "core competencies of the business nor sources of competitive advantage" (p.357). Technical considerations such as access to skills/expertise, lack of resources or time is the third most frequently studied ITO decision driver (Lacity et al. 2010) and are captured by resource-based theories and resource dependence theories (Dibbern et al. 2004). The resources include financial, physical, human and organizational (Barney 1991, 1995 cited in Costa 2001). The next two most frequently examined relationship show that client firms outsource IT when they desire or need to improve client's business or processes or they seek to gain access to leading edge technology available through the suppliers and which may not be available in-house (Lacity et al. 2010). The use of outsourcing as a strategy to fill gaps occurs when the firm is unable economically to generate necessary resources or capabilities internally (Costa 2001). Often IT outsourcing differs depending on the function being outsourced (e.g. help desk services) due to an increase in workload (Radding 1995 cited in Costa 2001). Political reasons included the desire to eliminate a burdensome function, to enhance a career path, or to maximize personal financial benefits (Lacity et al. 2010).

## *GLAM Motivations to Crowdsourcing*

Crowdsourcing has recently emerged in the cultural heritage domain as a means to support a set of labor-intensive and error-free tasks, which include correction, transcription, classification, contextualization and co-curation of digital material (Holley 2010, Oomen and Aroyo 2011). Crowdsourcing "can continue a long standing tradition of volunteerism and involvement of citizens in the creation and continued development of public goods" (Owens 2012). Because of the need to improve discovery of the massive amounts of digitized cultural heritage material, crowdsourcing has been seen as a way to create "a more open, connected, and smart cultural heritage" by involving both the users and consumers of cultural data

(Oomen and Aroyo 2011, p.147). Far from a break with the past, this is a clear continuation of a longstanding tradition of inviting members of the public to help refine, enhance, and support resources their collection (Smith-Yoshimura and Shein 2011). Cultural heritage institutions care less about profit or revenue than they do about making the best use of their limited resources to act as stewards and custodians of culture (Owens 2012). Owen (2012) further suggested that the cultural heritage community can re-frame crowdsourcing as engaging with an audience of committed volunteers. Therefore, it is important to understand crowdsourcing phenomena for the GLAM sector and in particular what are the organizational motivations for participating in crowdsourcing.

## *Motivational Frameworks*

Several studies have investigated crowdsourcing motivations for different contexts such as for innovation contests (Zheng, Li and Hou 2011), idea competitions (Leimeister et al. 2009), citizen science (Rotman Preece, Hammock, Procita, Hansen, Parr, Lewis and Jacobs 2012), financial incentives (Kaufmann et al. 2011) and for-profit organizations (Brabham 2012; 2010). Previous studies identified a wide range of motivations for user participation, ranging from fun to the enhancement of skills (Lakhani and Wolf 2005; Nov, Naaman and Ye 2010; Tausczik and Pennebaker 2012). Researchers have found a wide variety of reasons, at both the individual and group level, that explain why people participate in online collaborative activities (Rotman et al. 2012). However there exist gaps in crowdsourcing research in GLAM context on organizational motivations for participation (Marjanovic et al. 2012). Several studies have used general motivational theories to formulate motivational frameworks for explaining participation in open source software development, online communities, and crowdsourcing applications (See for example Rotman et al. 2012, Kaufmann and Schulze 2011 Leimeister et al. 2009, Lakhani and Wolf 2005, and Batson et al. 2002). Most of these frameworks are devised for crowd participation, rather than organizational motivations to engage in crowdsourcing. Rotman et al. (2012) in a their study on citizen science projects utilized Batson et al.'s (2000) generic motivational model to explain scientists' motivations to participate in crowdsourcing. Though Batson's model do not address GLAM specific tasks, this theory had been selected as a general motivational framework against which findings will be compared as it emphasized the role of motivation in building and sustaining community involvement such as needed for collaborative projects. This study thus extends Rotman et al.'s (2012) work to GLAM crowdsourcing projects from organizational perspective.

Batson et al. (2002) offered a general model of motives for participation that stimulate community involvement. They differentiated four types of motivations for community involvement: egoism, altruism, collectivism and principalism. *Egoism* occurs when the ultimate goal is to increase one's own welfare. *Altruism* has the goal of increasing the welfare of another individual or group of individuals. *Collectivism* has the goal of increasing the welfare of a specific group that one belongs to. *Principalism* has the goal of upholding one or more principles dear to one's heart (e.g. justice or equality). As sources of community involvement, each of these four forms of motivation has its strengths and weaknesses. Batson et al. (2000) further envisaged that more effective efforts to stimulate community involvement may come from strategies that orchestrate motives so that the strengths of one motive can overcome weaknesses of another. Among various possibilities, they suggest that strategies that combine either altruism or collectivism with principle to stimulate community involvement. This is an important consideration for this study as GLAM is perceived as dedicated towards public good benefits.

Crowdsourcing projects are inherently complex activities, spread over long periods of time and spanning multiple tasks. In these projects motivations not only change over time, but are salient at particular intersections of activity and decision making (Rotman et al. 2012). Rotman et al. (2012) studied the dynamic changes in motivation in collaborative science projects. The temporal nature of motivation affected three decision points over time: 1) participants initial decision to participate in a project, 2) active participation and 3) the ensuing decision to continue once the initial task is completed. For example, based on Batson et al. (2000) they found that both scientists and volunteers presented egoism as the primary motivations for engagement. However after that point recognition, altruism and collectivism played important roles in their decision to continued participation. Dynamism in motivations thus has design and engagement strategy implications. This study will explore dynamic changes in organizational motivation through an interpretive case study.

# Research Method

The study adopted an interpretive and exploratory qualitative single case study approach (Walsham 1995). This approach is suitable due to absence of clear theoretical direction for understanding organizational motivation in crowdsourcing environments (Eisenhardt 1989).

## *Research Context*

This study examines the organizational motivations in the Australian Newspapers Digitization Program (see www.nla.gov.au/ndp/) – a GLAM crowdsourcing initiative. The ANDP is an ongoing large scale project developed by the National Library of Australia (NLA) in collaboration with Australian Newspaper Plan (ANPlan) partner libraries to facilitate access by the general public to digitized newspapers. ANPlan is an advisory group with partner institutions (i.e. State and Territory Libraries).The aim of the ANDP was to provide an online full-text searchable digitized newspaper delivery system of out of copyright Australian newspapers from 1803 to 1954 (NLA 2013). However, numerous errors were recorded during the optical character recognition (OCR) process which greatly limited the searchability of the collection. Unfortunately the NLA did not have the resources to rectify the errors thus crowdsourcing was seen as a potentially viable solution. NLA designed the text correction system during 2006-2007 and launched the system in 2008 in beta mode without any publicity or marketing. The Australian Newspapers site now had been operationalized into the library's 'Trove' search portal which included eight zones including the Australian newspapers since 2010. As at November 2012 more than 80 million lines of text enhanced or corrected, almost 2 million tags added, 47,450 comments added by 6,739 active registered users from a larger pool of 77,042 registered users (NLA 2013). The primary task of text correctors within ANDP is to correct the errors captured during optical character recognition (OCR). To accommodate this, the ANDP application provides a split screen view of the scanned image of the newspaper and the OCR transcription. Through this application users may comment on, tag and correct the OCR text. Text corrections are saved to a database and are subsequently added to the search results. However, corrected text does not overwrite the original text contained in the article. Both the corrected text and the original text are indexed and searchable.

## *Data Collection and Analysis Method*

The data for this study was collected from a variety of sources to achieve data triangulation (Eisenhardt 1989) and to establish rigor and address bias. Primary data was obtained from interviews conducted with a cross section of project stakeholders. Stakeholders of this project were NLA, the ANDP project team, ANPlan partner institutions (e.g. State and Territory libraries), text correctors and general Trove users (i.e. who use Trove collections, but do not carry out text correction). Data and background material were collected from other extant sources: NLA project documents and reports, user surveys undertaken by NLA, media articles, the ANPlan website, the Trove forum and extant literature on the case study (e.g. publications by Holley 2009, 2010). The first author also registered as a text corrector on the Australian newspapers site in order to gain hands-on experience of text correction and to obtain access to the Trove forum. Eighteen (18) semi-structured interviews were conducted with the four groups of stakeholders during 2011-2012, with each interview lasting between 1 to 2 hours. Participants were selected using purposeful sampling and snowball approach. Most of the NLA staff interviews were face-to-face, the rest were undertaken by telephone or Skype as participants were physically located in different states around Australia (e.g. Victoria, NSW and Queensland). All interviews were transcribed and NVivo was used for textual content analysis using coding methods proposed by Saldana (2009). This was followed by a *thematic data analysis technique* on the basis of data gathered iteratively and explored for themes using motivations to outsource as sensitizing concepts (see Figure 1). Further coded data was also analyzed iteratively, alternating data coding with investigation of theories that fit the emerging interpretation (Saldana 2009). The goal-oriented motivational framework devised by Batson et al.'s (2000) was found to provide a more coherent fit between theoretical explanation and data (see Table 1). The overall findings were validated by sending them back to the interviewees for review.

## Findings: GLAM Organizational Motivation to Crowdsourcing

First a summary of the data analysis results are discussed below followed by an in-depth analysis of the qualitative findings emerging from the interviews. Finally dynamic changes in organizational motivation and implications are discussed.

The organizational motivations for implementing and participating in crowdsourcing exhibited a limited yet dynamic motivational range. Echoing findings from previous studies on ITO and organizational use of crowdsourcing (Schenk and Guittard 2010), NLA initially used this opportunity to engage a large number of the public to enhance data. Holley (2009) reflected in a publication related ANDP crowdsourcing:

> *The best way to improve accuracy may not rely on a technical solution but on a manual method of humans correcting the mistakes of a machine. This was ruled out before as being too labour intensive, but that was before the advent of web 2.0 technologies, social networking and user involvement. If we can harness the energy and time of our users and their desire (as strong as ours) for the OCR to be improved, who knows how accurate we can get it?*

The main purpose thus in the ANDP project was to correct poor OCR to improve the indexing and search facility. To enhance data further tagging and commenting was also enabled. As the NLA became involved, they realized outcomes were larger than mere increased usage or ability to tap into external expertise of the public; it also resulted in high level of social engagement, active collaborations with and between stakeholders and development of social capital. Hence driven by initial motivations such as resource constraints and innovative culture, NLA adopted crowdsourcing to improve the poor OCR. However over time further motivations (e.g. social engagement) unfolded as they engaged and assessed outcomes (e.g. increased use).

The organizational motivational influences were first categorized in three broad themes: 1) Resource constraints, 2) Organizational culture and 3) Engagement (see Table 1). Then the motivations to outsource concepts are used as sensitizing concepts and were mapped with these broad categories (see Column – motivations to outsource in Table 1). Then Batson et al.'s (2002) motivational model for social participation for common good provided further explanatory lens to describe the organizational motivations to crowdsourcing (identified in Table 1 in the column - Type of motivation).

| Table 1: Categorization of organizational motivations based on Batson et al.'s (2000) motivational goals and ITO research on motivations to outsource (Lacity et al. 2010) | | | | |
|---|---|---|---|---|
| Broad category (derived from coding) | Description | Constructs (derived from coding) | Type of motivation (Batson et al. 2000) | Motivations to outsource (Lacity et al. 2010, see Figure 1) |
| Resource constraints | These are motivational influences that related to resource constraints and cost savings. | Cost reduction Focus on core capabilities | Egoism | Cost reduction Increased workload/ Lack of human resources Focus on core capabilities |
| Organizational Culture | NLA's culture of supportive social and political environment, innovation and leadership | Social/political environment Innovation and leadership | Egoism Principalism Altruism | Political reasons Innovation |

| Engagement | Engaging in a new way to enrich collection using external expertise and the social side of engagement resulting in social outcomes such as community engagement, collaboration and social capital | New way of engaging<br><br>Enriched collection and increased use<br><br>Utilization of external expertise<br><br><br>Social engagement<br><br>Collaboration<br><br>Social capital | Egoism<br>Altruism<br>Collectivism | Access to skills/expertise<br><br>Innovation |
|---|---|---|---|---|

In the following sections, each of the organizational motivational categories and their constructs are explained with vignettes and insights derived from the interview and extant data analysis.

## *Resource Constraints*

The primary motivation for NLA to engage in crowdsourcing was *egoism based motivation* and based on economic rationale to find an alternate cost effective method of poor OCR data correction due to human and budget resource constraints. Hence the key compelling force driving NLA to crowdsource non-core activities was cost savings so that greater focus on their core functions can be achieved (Dibbern et al. 2004, Lacity et al. 2010).

### Cost Reduction

Crowdsourcing can provide organizations with richer content and better solutions in a creative and cost-effective way from crowd than what may be possible using internal resources (Zhao and Zhu 2012a). Crowdsourcing may reduce the cost of performing some activities as most of the time remuneration is low or even nil (Schenk and Guittard 2010, Howe 2006). In terms of NLA, crowdsourcing provided a way for achieving valuable outcomes the library would never have had the time, financial or staff resource to achieve on its own or to outsource (Holley 2009). Crowdsourcing was very attractive to the NLA due to budgetary and human resource constraints. As noted in literature, "*It is simply not economically possible to do these types of projects by existing conventional methods*" (Adams and Ramos, 2011). Crowdsourcing provided NLA with an opportunity to improve data quality in a cost effective way.  The project support officer, confirmed by saying:

> *So yes the idea of text correction was a way to improve the OCR data by getting people with an interest in it involved and avoiding the other situation which - because the only way to get perfect OCR data is through human intervention with these old newspapers it meant that we weren't then having to pay a vendor to go and that may not have been perfect anyway because some of the characters are quite difficult to read.*

Other State library partners also agreed with this claim as NSW library help desk staff commented:

> *To actually have a group of or asking a group of dedicated volunteers who were motivated, to go in and correct text which otherwise no institution would have had the resources to correct. I think it's a wonderful way of enhancing the database and getting a small community of volunteers to get involved in a project.*

### Focus on Core Capabilities

Crowdsourcing galvanizes people to work fast towards a goal so results happen quickly (Holley 2009). Text correction is a time consuming process, Victoria library representative pondered: "*I mean from a purely pragmatic point of view we were never going to have the time to do it ourselves*".  OCR data correction was viewed as a non-core activity, as digitization and quality assurance was more core functionality for NLA. Libraries can achieve goals in a much faster timeframe than the library may be able

to achieve if it worked on its own (Holley 2009). Hence they resorted to crowdsourcing for OCR text correction to offload workload related to this enormous amount of text correction needed to be done. Due the human resource and time constraints, they decided to crowdsource non-core activity (i.e. text correction) and focus on core capabilities of building digitization capabilities and workflow management.

## Organizational Culture

The organizational culture related motivational influences can be largely described by NLA's supportive social and political environment and culture of innovation and leadership (see Table 1). Leadership and innovation represented *egoism-based motivation*s of the Library as they aspired to be innovative by digitizing newspapers at such a large scale. Use of crowdsourcing in GLAM sector is in its infancy (Holley 2010). Thus the adoption of crowdsourcing to enhance poor OCR again demonstrated NLA's leading role in the GLAM sector. Innovation also demonstrated *altruistic* aspirations of the library as online full-text searchable digitized newspapers are very useful for the common good of society to preserve Australian history. Altruism can play a substantial role when the work is positioned to contribute to the greater good (Ros, Assogba, DiMicco, IBM research).

### Social/Political Environment

NLA is seen as a trusted organization by Australian public. It reinforces a positive culture with supportive bureaucracies. Generally the political and social environment within NLA is supportive of new ideas and relaxed. The partner institutions had been supportive of this initiative as well. Even though they had some initial concerns about quality of data, vandalism and moderation requirements, but soon they were eradicated as there was no vandalism evident in practice. Data quality was much of a lesser issue, as the corrections were saved in layers and the original image of the newspaper was always available to verify content. The new Strategic Plan (Strategic direction 2012-2014, http://www.nla.gov.au/corporate-documents/directions) for the Innovation and Resource Sharing Division now takes into account significant changes in user expectations, technology, and the wider environment, including "...the expectation of some users that they will not be passive receivers of information, but rather contributors and participants in information services, and thus will be able to share ideas and information". The Lead IT architect summed up NLA's culture and organizational norms:

> *The management here is interesting, it's hard to get their support to do anything, they're not proactive but on the other hand, they're not reactionary as well.  If you try something, they don't try and kill it or nip in the bud.  When they see an idea that they might not necessarily agree with, they'll just let it run rather than kill it.  So that's good.*

However librarians have their own way of curating and indexing which is an example of *principalism* – "upholding one or more principles dear to one's heart" (Batson et al. 2000). NLA achieved this by deliberately asking the public to carry out labor-intensive yet error-free task (e.g. correcting OCR text), hence retaining control over the original collection. For example, the text corrections were stored in separate data layers in the database which enabled to keep the original OCR and digitized images separate. They requested public to do simple secondary enhancements of collections through tagging and commenting, which can be deemed as low level of work that can be carried out by non-experts. Hence Political reasons to crowdsourcing included the desire to eliminate a burdensome repetitive task of OCR error correction to external crowd. This is also supported in outsourcing literature (Lacity et al. 2010).

### Innovation and Leadership

NLA is a public sector not-for-profit organization and is regarded as a leading library across the world. It is the third largest library after the British Library and the Library of Congress. It has established itself as an innovative organization that embraces change brought by new technologies. The project manager is an expert in librarianship, she pointed out:

> *There is this proven track record of demonstrating internationally to the library community that we can figure things out and do projects in an innovative way. We're exceptionally unusual*

> *- no other national library in the world says that they serve the general public; this is highly unusual. The National Library is without a doubt the best library in Australia and everybody would agree to that.*

Australian newspapers digitization Program (ANDP) (aka Trove) is a significant innovation to preserve Australian history and heritage. NLA was the first library in the world to digitize newspapers at this scale. NLA released a prototype to other partner institutions for comment, followed by a *beta* version for public text correction by adopting crowdsourcing principles and technologies to correct the poor quality OCR and hence improve indexing and search capabilities. The crowdsourcing aspect of the ANDP is innovative, pioneering within the world context and used web 2.0 principles successfully to achieve greater outcomes. As the project manager articulated:

> *How can crowdsourcing activity actually change what libraries are doing, and how should it change that to bring benefits at a time when there's even less money than there normally is. So it was taking everything we know about crowdsourcing but directly applying it to libraries and archives, in particular archives, because we're the only library that's really done it to any extent. To the best of our knowledge, no other library or newspaper service worldwide had implemented user correction of text, or even considered doing so as an option.*

Hence NLA's decision to outsource was one of innovation rather than strategic (Rouse 2010). Though there is very limited evidence in outsourcing literature that innovation drives outsourcing decisions, in this crowdsourcing case study innovation played an important role.

## *Engagement*

The engagement related organizational motivations can be seen from two broad perspectives (see Table 1):

a. Engaging in a new way to enrich a collection using external expertise and
b. The social side of engagement resulting in social outcomes such as community engagement, collaboration and social capital.

Engagement showed elements of both egoism and collectivism. By tapping into external expertise to enrich existing collections, the library has essentially improved their collection. Evidence of collectivism is demonstrated through the formation of informal or formal groups to work towards a common goal for the collective good. For example, genealogists informally helped other geologists but the Rockhampton Trovers met every Tuesday to correct newspaper in a café or the Light Railway Researchers (LRRSA) tagged newspaper articles to support railway research.

### New Way of Engaging

As discussed earlier, libraries are in transition (Holley 2010, Yoshimura-Smith and Shein 2012). The most radical change to date was the arrival of the internet (Oomen and Aroyo, 2011). Now again the web 2.0 based interactions and engagement is opening up new ways for libraries to engage with its clientele. It also requires and results in changes of mindset of the participants – the mindset is moving towards one of empowerment, of contribution and engagement (Adams and Ramos 2010). The Australian Newspapers beta service has found that users want to engage and be involved with full text newspaper data in new and exciting ways (similar to Wikipedia, Flickr, Amazon etc.). Trove (i.e. ANDP) provided a mechanism to extend volunteering to online means. Holley (2011) thus commented on the need for new engagement strategies based on her involvement with ANDP project:

> *The role of libraries, and the need for us to go further afield, out into the community, with as much of our publicly funded resource as we can. The need to involve people in our organisations, to benefit from their intellectual capital; I think that those are really critically important things today, that perhaps people didn't recognise about libraries some years in the past.*

This reinforces that the motivation to crowdsourcing was driven by innovation and acted as a change catalyst to innovate new ways of engaging with library users, as can be found in outsourcing literature.

## Enriched Collection and Increased Use

The major benefit to NLA was that quality of data through text correction was improved for all users resulting in more accurate keyword searching. The community became involved and engaged in enhancing and enriching the resource by adding value to data (e.g. by addition of comments, tags, ratings, reviews). Metadata was added to the collection which provided new insights, missing pieces etc. Hence the service added value in two areas, as Queensland library representative went on:

> *It adds value in two main areas. One in getting corrections made to the text because it's coming from newsprint and microfilm which is notoriously blurred. It obviously means you've got much greater accuracy in your searching and you've got much greater accuracy actually in the text. But I think the value that you get in terms of engagement with the audiences and having that notion of people who've got no other investment other than they want to see things done correctly, working with libraries to make that content more searchable and more accessible and more able to be discoverable is the value, the greatest value that comes from it.*

Also the Australian newspapers site has seen a continuous growth in its usage over time. This resulted in increased usage of library's digital content resulting in positive network externalities (Schenk and Guittard 2011). The project manager proudly said:

> *From day one, with no publicity and release the text correction activity has never ever stopped. I did a graph at some point to try and find the busiest times of the day and at that point I didn't know it never stopped, so I expected to see it dip at night or something and that didn't happen. It's exponentially increased.*

## Utilization of External Expertise

Most organizations venture into outsourcing and crowdsourcing to tap into external expertise outside their premises (Rouse 2010, Lacity et al. 2010, Adams and Ramos 2010). The Australian Newspapers site provided a way to utilize the knowledge, expertise and interest of the community to improve the indexing and search facility through OCR text correction. The tagging and commenting facility were used to enhance collection, even often identify errors in the news. The text correctors require editing skills to be able to carry out text correction. They successfully utilized genealogists, authors, researchers and retired skilled labor force to act as experts in text correction. In addition, the expert super users collaborated and wrote the text correction and tagging guidelines for the Library. Queensland Library representative shared her views on crowdsourcing for tapping into external expertise:

> *You're actually tapping into all of the knowledge of all of those individuals who are out there, and I think it's great, because there will be always someone who may know something more than library staff. If they can contribute to enhancing our description of an item, I think that's wonderful.*

## Social Engagement

The primary motivator for embarking upon collaborative text correction was to improve data quality and this had been a success. However the social impact the service was and still having in the community and to individuals was equally as important to users as the improvement to the data. A secondary but very significant outcome thus was that the Library harnessed a high level of social engagement from its users (Holley 2010). "Social engagement is about giving the public the ability to communicate with us and each other; to add value to existing library data by tagging, commenting, rating, reviewing, text correcting and to create and upload content to add to our collections" (Holley 2009). Giving control to users and entrusting the community to have such a crucial role in the development of a service helps build a dedicated, responsible, engaged and committed user base (Hammon and Hippner 2012). It was evidenced that the crowdsourcing activity with Australian newspapers service:

- Actively involved and engaged the community with the library and its other users and collections demonstrating the value and relevance of the library in the community by the high level of public involvement.
- Strengthened and built trust and loyalty of the users to the library. Users do not feel taken advantage of because libraries are non-profit making.
- Encouraged a sense of public ownership and responsibility towards cultural heritage collections, through user's contributions and collaborations.

The following comment echoed the above claims:

> *A lot of the value is its bringing active participation by our community in the work of the library which of course raises awareness of what the library is in the community and what our collection holds and the value of our collection and library to the community (Representative of Victoria library)*

## Collaboration

The type of collaboration that can be seen within the Australian Newspapers site is of 'convergent production' (Elliot 2007) where text correctors follow a specified process to collaboratively build a product. Most text correctors reported that they were collaborating with the library on this project even though they were doing this for their own interests. As John commented *"Even though it's my interest, I know it's helping them".* NLA also believed that text correctors were collaborating rather than contributing. Adding new content is contribution but working on existing library collection for data enhancement and text correction can be perceived as collaboration. The project manager clarified*: "they are collaborating with us, rather than contributing, because they're working on something we've already given them."*

Generally the nature of task did not require any collaboration between text correctors. But the top text correctors collaborated on initiating the need for text correction guidelines for more accurate representation of actual text. The top correctors formed a group to produce a text correction guideline. There was also a guideline for tagging prepared by correctors. Senior Trove officer welcomed this initiative and said:

> *I think there are all kinds of communities. They haven't developed social bonds with each other. But it's more that they come together very passionately around the questions, like how to represent an em-dash. That's why I called them a community. They're capable of collaborating. I think the guidelines are really interesting because that's a piece of work that they have collectively built. It will be owned by the text correctors who put time into it and the ones who are most passionate and involved.*

There were other forms of collaboration found. There were small formal and informal collaborative groups formed. The text correctors collaborated with each other for their own purpose using the Trove service or forum group facility. In this paper, this phenomenon is described as 'pockets of collaboration'. For example, genealogists informally helped other geologists but the Rockhampton Trovers met every Tuesday to correct newspaper in a café or the Light Railway Researchers (LRRSA) tagged newspaper articles to support railway research.

## Social Capital

The concept of social capital is complex, spans multiple disciplines, and there is a rather broad definition for social capital in literature (Alder and Kwon 2002 cited in Lee et al. 2010). Social capital refers to the resources accumulated through the relationships among people (Nashapiet and Ghoshal 1998). Putnam (2000) distinguishes between two forms of social capital creation – bonding and bridging. Bonding takes place between individuals of a similar type through establishing strong ties. Whereas bridging occurs among socially heterogeneous groups when members of one network connect with members of other networks to seek access to, gain support, and acquire information. Weak ties to the member's network facilitate opportunities for establishing contact across multiple networks, and provide access to external

resources and brokerage opportunities (Lee et al. 2010). In the context of text correction, it is evident that bridging social capital was created through weak ties among text correctors and the organization. The organizational enabling conditions also supported creation of social capital. For example, the crowdsourcing platform particularly was useful in enabling NLA to establish new relationships with clients outside their immediate network (e.g. all states and even overseas text correctors from all walks of life). The crowdsourcing application provided a platform for participation that encouraged users to add value or exchange information through social tagging, commenting and the forum posts. There were many instances in Trove forum where a Trove user/text corrector sought assistance with their research and other Trove user/text corrector responded with valuable information. Text corrector's and Trove forum user's social interactions generated social capital for themselves and their networks. The power users formed an informal association to create the text correction guideline for the site. This guideline was initiated and then generated by the top correctors with assistance from NLA. But this association was based on weak ties where it linked people across time and distance through less frequent and emotional communication and did not require shared confidences or reciprocity. Hence bridging social capital was created. Hence the crowdsourcing platform including the forum can increase weak ties because technology enables such ties cheaply and enables them to be easily maintained (Boyd and Ellison 2007). This had resulted in social capital for individuals and the organization as stated below (Holley 2009):

> *There's an idea in Sociology of social capital: referring to the organisations out there that do positive work in the community and make it what it is. Help poor people, lonely people, sick people etc. but also develop the sense of community and do a great deal for the psychological and sociological health of people. Australian Newspapers Beta is one such constructive entity. Helping people come to terms with their past, helping them define themselves. It's a really big thing and is a contribution to the health of the community.*

There is potential to create social capital building through the Australian newspaper service. The examples cited above of development of social capital are among the power users (that is typically the top 100 users). But libraries have such a massive user base and both broad and specific subject areas that have wide appeal. They could get hundreds of thousands of volunteers if they publicized and appealed for help. Instead of each library appealing for their own volunteers there could be a centralized global pool of volunteers and projects for the entire GLAM sector.

## Discussion

In this study we sought to gain insights into the organizational motivations for participating in a GLAM crowdsourcing initiative (i.e. ANDP) so that we can design environments and deploy organizational mechanisms that result in sustainable collaboration between stakeholders. Based on both ITO literature on motivations to outsource and motivational frameworks used in crowdsourcing literature, the study found that NLA was motivated by a set of attributes that dynamically changed throughout its staged implementation of the crowdsourcing project ranging from resource constraints (i.e. cost reduction and offload non-core business activity) to utilizing external expertise through to social engagement. This dynamic organizational motivational framework was strongly affected by NLA's egoism–based goals as well as external goals such as altruism, collectivism and principalism. Much larger outcomes were achieved rather than simple increased usage or ability to tap into the external expertise of public; it resulted in high level of social engagement, active collaborations with and between stakeholders, and development of 'bridging' social capital that in turn instigated further motivations for the organization.

### *Temporality: Dynamic Changes in GLAM Organizational Motivations*

Dynamism in organizational motivation was clearly evident in this study, as was seen in collaborative science projects (Rotman et al. 2012). The value of the collection was enhanced through a process of value co-creation with NLA providing the necessary support systems (i.e. the crowdsourcing platform) and access to the collection, and the text correctors freely providing their own time and computing infrastructure to correct OCR errors. Alam and Campbell (2012) in their earlier work on the same ANDP project found that the participants were motivated by a complex framework of personal, collective and external factors such as personal research interest, fun, challenge, addiction, altruism, collectivism, reciprocity and social factors. Participants were highly intrinsically motivated, but community and

external factors such as non-monetary rewards (e.g. recognition, attribution and feedback) played a vital role in their continued involvement.

NLA employed a set of relational integration strategies both proactive (through structures) and reactive (through processes) which were emergent and contingent upon the stakeholders (e.g. motive alignment) (c.f. Alam and Campbell 2013).The NLA adopted participatory design principles during development by allowing public scrutiny of the Australian Newspapers site. The NLA utilized multiple channels of communication that were clear, honest and transparent. NLA treated *'users as partners'* and had an open mind towards feedback from the broad stakeholder cohort. Multiple formal and informal communication channels were deployed such as a "contact us" form, email, telephone, feedback survey, Trove forum, ANPlan advisory boards with external partner institutions, and external blogs/forums Actively seeking feedback from the public and developing a prototype and beta version resulted in suggestions from users that were innovative, fresh, and viable and helped shape development of the service to better meet user need (Holley 2009). The ANDP team prepared a wish list of features and they matched it with the various user feedbacks they were receiving from different sources (cf. Holley 2009). The features were prioritized and were incorporated in order of preferences derived from user/stakeholder feedback that facilitated motive alignment. Hence suitable incentive mechanisms were deployed in subsequent releases (e.g. hall of fame, user profile listings). This inclusive stakeholder participation helped to align the needs and motivations of the text correctors with that of the ANDP (c.f. Alam and Campbell for a detailed discussion on structures, processes and relational mechanisms employed). Being transparent about processes and development path increased the public's trust in NLA and their sense of knowing what's going on (Holley 2009). The ANDP team's experience showed that the greater level of freedom and trust they gave to text correctors the more they were rewarded with hard work, loyalty and accuracy (Holley 2010).  Further ANDP utilized text correctors and general Trove users to moderate others and to answer questions posted in the Trove forum. The Trove team kept an eye on the forum activity to spot anything which might have become an issue and sought to resolve as much as possible through FAQ, policy, and guidelines (Alam and Campbell 2013).  Hence over time the crowdsourcing platform enabled weak ties resulting in creation of bridging social capital for both text correctors, Trove users and the NLA.

As can be seen in findings and in discussions above, it started as a cost reduction exercise, but emerged into a community engagement initiative. Initially due to human and resource constraints, NLA adopted crowdsourcing as an alternative cost reduction method. This adoption was nurtured by their social and political environment and provided an opportunity to situate the NLA as a leader and innovator within GLAM sector (c.f. Alam and Campbell 2013). As they actively engaged in crowdsourcing, benefits like enriched collection through improved searchability and tags; increased usage through new way of engaging with their clients and access to external expertise became important motivational influences. Finally as a consequence of their engagement in crowdsourcing larger outcomes became prominent during the outcome stage such as social engagement, active collaborations and development of bridging social capital which in turn became the motivators for operationalization. Holley (2009) summed it up as follows:

> *The community are adding huge value to our collections and services and in turn we are encouraging a sense of public ownership and responsibility towards cultural heritage items, many of which hold significance for our nation. We build trust and loyalty of our community and through the activity we can demonstrate the relevance and value of libraries in our society today.*

Three stages can thus be identified as important where different motivational factors influenced crowdsourcing decisions over time for sustainability over time: 1) Design and development stage, 2) Beta launch stage and 3) Operationalization stage (see Table 2). These stages can also be mapped onto the five ITO stages as devised by Dibbern et al. (2004) (see Table 2).

This paper also extends Rotman et al.'s (2012) work on dynamic motivation to organizational motivation, in particular to GLAM contexts. Similar to their findings, egoism-based motivations led to the decision to adopt crowdsourcing, but during the implementation and outcome stage altruism, collectivism also played an important role due to the nature of the crowdsourcing initiative aimed at common good and of national significance.

| Table 2: A staged model of dynamic changes in GLAM organizational motivation to crowdsourcing | | | |
|---|---|---|---|
| ANDP Project Phases | Design and development stage (2006-2007) | Beta launch stage (2008-2010) | Operationalization stage (2010-current) |
| Outsourcing stages (Dibbern et al. 2004) | 'Why', 'what', 'which' stage | 'How' stage | 'Outcome' stage |
| Organizational motivations to crowdsourcing | Resource constraints<br><br>Innovation and Leadership<br><br>Social/political climate | New way of engaging<br><br>Enriched collection and increased use<br><br>Utilization of external expertise | Social engagement<br><br>Collaboration<br><br>Social capital |

### *ITO Motivations and Organizational Crowdsourcing motivations*

Organizational motivations to crowdsourcing found in this research confirmed earlier findings such as cost savings, affordable labor, customer intimacy and expertise from outside the organization (Schenk and Guittard 2011, Rouse 2011). However the temporal aspects of organizational motivation are an interesting finding in this research. Temporality was demonstrated through arriving at newer motivations such as social engagement, collaboration and social capital based on larger outcomes than environed when the crowdsourcing was initiated. These motivators resulted in on-going relational engagement strategies that were employed for its sustainability over time.

Organizational motivations to crowdsourcing were found to be similar to certain motivations to outsourcing. For example, NLA decided to crowdsource correction of poor OCR as a *cost reduction* method by offloading *workload* for a *non-core* business activity so that they could focus on core activities such as digitization and quality assurance of digitized newspapers. Unfortunately the NLA did not have the resources to rectify the errors thus crowdsourcing was seen as a potentially viable cost-effective solution. Political reasons to crowdsource included the desire to eliminate a burdensome repetitive task of OCR error correction to external crowd and access their skills and expertise as human eye was assumed to be the best method for text correction at the time (i.e. 2006-7). Contrary to ITO, NLA's decision to outsource was one of innovation rather than strategic (Adams and Ramos 2010; Rouse 2010). Their innovative culture and leading role among GLAMs motivated them to adopt newer methods such as crowdsourcing. However the outcome based motivations of social engagement, collaborations and social capital are different from outsourcing motivation and assumed to be relevant for contexts such as GLAMs. Hence the dynamism or temporality of organizational motivation to crowdsourcing is an important consideration for crowdsourcing projects.

## Research Implications

Identification and recognition of the dynamic nature of organizational motivation demonstrates the long-term value for GLAMs to participate in crowdsourcing activities. Addressing these dynamic motivations through design and organizational mechanisms will facilitate improved collaboration between GLAMs and volunteers. Our findings have important implications for designing crowdsourcing tools and deployment of related organizational mechanisms to sustain organizational participation in long term GLAM crowdsourcing initiatives. This paper also contributes to an understudied area of research on organizational motivation to crowdsourcing that may have implications for other forms of non-profit collaborative endeavors that are aimed at common good and of national significance. It also has implications for long-term projects that are aimed at public and citizen engagement, as for example, citizen-centric government crowdsourcing initiatives such as on-going policy discussions or providing ideas for improvement of services aimed at public common goods (e.g. environment, health). Organizations who engage in collaborative activity that involves an undefined crowd (e.g. public engagement) may very well find that their initial motivations change over time and may achieve better outcomes by seeking to establish long-term sustainable relationships. In fact the temporal aspects of

organizational motivations highlight the importance of emergent outcomes in collaborative activities that involve undefined crowds and the organization can leverage these emergent motivations to achieve more significant outcomes. Further these types of crowdsourcing initiatives should be designed so that they support on-going collaboration.

According to Adams and Ramos (2010) crowdsourcing is an example of social innovation. A social innovation  provides some new thinking and changes in working or social practices that enable something new that was not possible before (Adams and Ramos 2010). Crowdsourcing offers a new way of outsourcing that draws upon a vast knowledge community typically embedded in social networking infrastructure and user practices (Howe 2006).  It also results in changes of mindset of the stakeholders and requires a re-think of how we view outsourcing work to a crowd and related aspects such as motivations, decisions, agreements and outcomes. This paper has contributed in building knowledge about organizational motivations for non-profit crowdsourcing for further theoretical development and refinement.

### *Limitations and Future Research*

The study has limitations that warrant comment. The research was conducted as a qualitative interpretive single case study. Case studies are generalizable to theoretical propositions and "can take the form of concepts, theories, specific implications or rich insights" (Walsham 1995). Thus the findings are not readily generalizable across different types of crowdsourcing contexts. Future research should expand beyond the library context and explore other types of crowdsourcing tasks (e.g. complex, idea contests) and study the organizational motivations for specific environments. Empirical studies from a greater variety of cultural settings may serve to further explore, validate, highlight or identify new issues. Another significant stream of potential research is the conduct of longitudinal studies to investigate the dynamic changes in organizational motivations to understand better the antecedents of motivations to crowdsourcing and subsequent dynamic influences on consistent crowdsourcing outcomes. Future research should also compare and contrast motivations to outsourcing with motivations to crowdsourcing based on multiple case studies and quantitative methods.

## Acknowledgements

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