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ARTICLES

Information culture in a government organization

Examining records management training and self-perceived competencies in compliance with a records management program

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Abstract

Purpose – The purpose of this paper is to use information culture assessment tools (from work by Curry and Moore) to examine the information culture within a regulated, government environment. In particular, it aims to study the relationship between records management training provided to staff, staff self-perceptions of records management competencies and compliance with a formal records management program.

Design/methodology/approach – The survey employs a questionnaire to gather the data from a provincial government ministry in Ontario, Canada. A questionnaire was used for data collection from a sample of 350 records management personnel from a population of 3,510 in five divisions of the ministry. A total of 207 participants responded and the copies of their questionnaire were found valid for analysis. The response rate realized was 66.7 percent.

Findings – The results from this study show that the there is a potential relationship between formal training delivered to staff, and the self-perceived level of records management competency, namely that the more training staff receive, the more staff perceive the need for further training, and the greater level of compliance with the records management program. However, as the records management training strategy is informal in nature, it is difficult to determine a holistic influence of the training program on the organization's information culture.

Research limitations/implications – The study is based on one ministry with an informal training records management strategy in place. The findings may not apply to organizations where there is a more formal training strategy. The findings should also be tested in private sector organizational settings.

Practical implications – Knowledge and understanding of the features of information culture will assist with identifying gaps in addressing the challenges of organizational record management training and its effect on compliance with organizational information and record management programs.

Originality/value – This research adds to the body of knowledge about information culture and user-information behavior, particularly in regards to connections between training and compliance in government organizations. This paper provides evidence from an original study.

Keywords Information culture, Organizational culture, Information governance, Government records management, Training

Paper type Research paper

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Introduction

Information culture includes values, beliefs, and codes of practice towards information management. The conceptual model tested in this case was employed to assess the National Health Service (UK) as a test case (Curry and Moore, 2003). Government organizations are regulated by legislation and public scrutiny to maintain transparent information management practices, while ensuring a high level of accountability for the use of public funds in managing the personal information of private citizens (Jen-Hwa *et al.*, 2010; Ketelaar, 1997). Like private sector organizations, the public sector continues to seek better ways to manage information. However, in order to improve information services, organizations must first gain a baseline understanding of the current information culture (Oliver, 2008). The evaluation facilitates an assessment of the information culture in order to gain a stronger understanding of how people within the organization behave towards and perceive information. Through a stronger understanding of information culture, limitations may be identified, and management is better informed to develop strategies to improve information management. What information behaviors and values underpin information practices in the firm? How do members perceive the outcomes of information use in their work contexts? What effect do information behaviors and values have on the use of information and its outcomes? Information professionals are frequently involved in providing, and delivering, workplace training in order to ensure that management and staff is aware of compliance requirements and information management best practices. However, there has been little study of how such training might influence overall compliance or competencies in information management. This study suggests that we may begin to better understand training needs in improving organizational competencies and improving compliance.

Review of the literature

Since the mid-1990s scholarly interest and research in records management has increased. The timing of this development has occurred as the lines between records management and information technology began to blur, as many industries began to realize the challenges in managing digital records and in considering enterprise records/document management systems (ERDMS) (Lappan, 2010; Cumming and Findlay, 2010). This literature review examines the discussions surrounding three primary areas in current records management: organizational culture, information culture, and records management practices.

Organizational culture

The literature on organizational culture borrows heavily from social anthropology, psychology and business management. Originally an anthropological term, culture refers to the underlying values, beliefs, and codes of practice that defines a community (Dalkir, 2010, p. 224). The idea of a common culture suggests possible problems about whether organizations have cultures (Hofstede, 2001; Oliver *et al.*, 2011; Schein, 1999). Organizations are embedded in the wider societal context but they are also communities of their own with distinct rules and values. Schein (1999), who is generally considered the father of organizational culture, provides the following definition:

> Organizational culture is a pattern of basic assumptions – invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration – that has well enough to be considered valid and, therefore, to be taught to new members, as the correct way to perceive, think and feel in relation to those problems (p. 385).

Culture has long been on the agenda of management theorists, particularly in regards to changing culture (Sanz-Valle *et al.*, 2011; Brown and Eisenhardt, 1997; Buchanan *et al.*, 1999). Culture change can mean changing the corporate ethos, the images, and values that inform action and this new way of understanding organizational life must be brought into the management process. Dalkir (2010) suggests that there is an evaluative element involving social expectations and standards, the values and beliefs that people hold central and that bind organizational groups. Culture is also a set of more material elements or artifacts. These are the signs that the organization is recognized by, and the events, behaviors, and people that embody culture. Communication, both internal and corporate, is key to the social fabric of organizational culture, and builds capacity to create community. Here a shared language is particularly important in expressing and signifying a distinctive organizational culture (Dalkir, 2010, p. 225).

Traditionally conceptualized as a continuum, individualism-collectivism is an important dimension of organizational culture (Hofstede, 2001). Individualism refers to the condition in which personal interests are accorded greater importance than are the needs of groups, while collectivism accords when the demands and interests of groups take precedence over the desires and needs of individuals (Wang *et al.*, 2011). Individualism emphasizes independence whereas collectivism emphasizes interdependence. Members in individualist organizations prefer to be treated as individuals and they believe that personal value is more important than organizational goals, while members in collectivist organizations insist cooperation to realize organizational value.

Uncertainty avoidance refers to the extent to which an organization feels threatened by and tries to avoid uncertainty and ambiguity (Hofstede, 2001). With regard to the impact of uncertainty avoidance on knowledge creation capability, it should be negative. Organizations that are low in uncertainty avoidance accept uncertainty, take risks, tolerate various opinions and behaviors, and dare to challenge existing routines through creating new knowledge. Conversely, organizations that are high in uncertainty avoidance require greater stability and uniformity and have a strong preference for codification, thus they are more willing to maintain a current knowledge base rather than pursue new knowledge (Hofstede *et al.*, 2010). Therefore, low uncertainty avoidance organizations have stronger motivation to create new knowledge and enhance their knowledge creation capabilities. In addition, the willingness of organizations to experiment with new ideas and to take risks has a significant impact on knowledge exchange and combination.

Elements of an organization's culture can also lead to dysfunctional outcomes, even when those organizations present outward images of wellness (Balthazard *et al.*, 2006). Through an assessment of organizational culture based on shared norms and behavioral expectations at the individual and organizational-unit levels, alternative patterns of norms and expectations may be discerned. These norms and behavioral expectations are associated with constructive, passive/aggressive, and

aggressive/defensive organizational culture styles, each associated with particularly healthy or dysfunctional organizational drivers of performance.

There are many unanswered questions regarding the meaning and content of organizational culture: the methods by which it should be measured (Cook and Rousseau, 1988; Schein, 1996; Hofstede, 2001) and, more fundamentally, the feasibility of managing culture and change (Burnes, 2000; Buchanan *et al.*, 1999), especially when attempting to operationalize and attain specific organizational goals. While debates around these issues continue, culture has been accepted as a "fact of organizational life" (Hofstede *et al.*, 2010, p. 212) by managers and has become an integral aspect of many organizational development programs. Much of the research on organizational cultures has focused on descriptors of culture and frequently resulted in dimensions or typologies of culture (Schein, 1996; Hofstede *et al.*, 1990; Oliver, 2008).

Information culture and information governance

The literature regarding information culture focuses the relationship between individuals and information in their work. Curry and Moore (2003) are most frequently cited in the information culture literature, and there is consensus is that values accorded to information, and attitudes towards it are indicators of information culture (McMillan *et al.*, 2012; Curry and Moore, 2003; Furness, 2010; Oliver, 2007; Davenport and Prusak, 1997; Widén-Wulff, 2000; Jarvenpaa and Staples, 2001). Information culture is a culture that is conducive to effective information management where:

> The value and utility of information in achieving operational and strategic goals is recognized, where information forms the basis of organizational decision making and information technology is readily exploited as an enabler for effective information systems (Curry and Moore, 2003, p. 94).

Information governance is beginning to gain traction within organizations, particularly where compliance is a concern, and Davenport and Prusak's (1997, pp. 67-82) models of governance are useful tools to inform the design of information governance. Most public sector organizations in Canada have informal information governance models (or policies). Davenport *et al.* (1994) developed four models of information governance, to inform a progression of control. They describe the levels of information governance using political terms: information federalism, information feudalism, information monarchy, and information anarchy (p. 56). Their observations allowed them to evaluate the effectiveness of their governance models in terms of information quality, efficiency, commonality, and access (p. 55).

Information culture affects support, enthusiasm and cooperation of staff and management of information assets (Curry and Moore, 2003, p. 92). If such an information culture is critical to the successful management of information assets, then it becomes vital to develop and nurture the commitment from both management and staff at all levels. Curry and Moore (2003) developed an exploratory model of information culture, which included components needed within an strong information culture: effective communication flows, cross-organizational partnerships, co-operative working practices and open access to relevant information, management of information systems in accordance with business strategy, and clear guidelines and documentation for information and data management (p. 95). Trust, a characteristic

that has more recently come to the forefront in literature (Widén and Hansen, 2012; Hwang, 2011) illustrates the importance of trust and mistrust in working collaborative to create and manage information.

Oliver's (2008) research on three case study organizations found several factors that characterized and differentiated the information cultures were associated with the organizational information management framework, as well as attitudes and values accorded to information (p. 379). Compliance requirements for the management of information have a significant place in shaping information culture.

Research suggests that poor compliance to formal information governance policies (Hoke, 2011) reinforces the fact that sound knowledge and records management practices are often neglected (Gupta and McDaniel, 2002; Levett and Guenov, 2000). There is a great deal of literature establishing that the concern for reliability and authenticity, as well as the ability to trust information, particularly in the digital environment (see, for example, Iacovino, 2006; Ketelaar, 1997; MacNeil, 2000, 2002; Marsh and Dibben, 2003). The social dynamics between supervisors and workers relies upon trust, or the lack of trust, which will also have an effect on information sharing (Fawcett *et al.*, 2007). The role of trust is extended to compliance with information strategies, particularly in regards to information sharing across an organization. Studies (Zhao *et al.*, 2012; Kolekofski and Heminger, 2003; Allen and Wilson, 2003) suggest that organizational characteristics (competence, coherency, openness, benevolence, reliability, integrity) must be present in order for trust to be established, which positively affects information sharing. Identifying attitude towards information has been examined as reflected in the views on sharing information, sometimes at odds with organizational policy. In addition, research in information science approaches towards information technology and its affect on systems architecture; trust in information and the systems managing it (Iacovino, 2006).

Records management

Records management provides systematic control over records to document business processes, decision-making and transactions. In highly regulated organizations, such as the public sector, records management is a legislated requirement. However, private sector organizations must also ensure that their information is effectively managed, in order to successfully protect themselves from litigation and public scrutiny. However, as records reflect the business practices of an organization; this literature review suggests that records management practices are inseparable from the organizational culture in which they are found (Oliver *et al.*, 2011; Schein, 1999; Schein, 1996). The culture is both effected by, and affects the efficacy of records management by end-users, management and records management specialists.

The concept of information as evidence (Bates, 2002) is well-established in research on records management. However, researchers have begun to examine the connections between the management of information, knowledge and technology more closely, specifically in relation to organizational culture (Dalkir, 2010; Bailey and Vidyarthi, 2010). The literature (Oliver, 2007) on the current state of records management theory suggests that while there remains investment in DIRKS, the information continuum and ISO 15489, there is also growing skepticism over whether these tools provide

adequate support to the challenges encountered with digital records (Cumming and Findlay, 2010).

Records are created, or received, in the conduct of business to support administration, to ensure accountability, and for cultural purposes, to meet the needs of society for collective memory and the preservation of individual and community identity and history (Shepherd, 2010, p. 179). However, public sector records, which are the most fundamental source of government information, are only just beginning to be managed as a strategic resource, and there are still widespread problems in retrieving and storing them (Katuu, 2000; Mnjama, 2004). Records management has neither been integrated nor considered as a strategic management function together with other information management functions of the enterprise (Katuu, 2000; Mnjama, 2004).

Theoretical framework

This study draws upon theories relating to organizational culture, specifically information culture. Geert Hofstede has been one of the leading contributors to existing knowledge concerning organizational culture, which he defines as "the way employees have been socialized by their work organization" (Hofstede *et al.*, 1990). He developed a model of cultural dimensions (commonly called the Onion Model) based initially on the results of an extensive research project that surveyed the employees of IBM in 50 countries (Hofstede, 2001). The dimensions identified include: power distance (PDI); uncertainty avoidance (UAI); individualism/collectivism (IDV); masculinity/femininity (MAS); long-term/short-term orientation (LTO); and indulgence/restraint (IVR) (Oliver, 2003, p. 29). However, this study will focus upon the seven categories used by Curry and Moore (2003, p. 99) in their survey in assessing the information and organizational culture. These categories include: strategy and objectives, information, environment, professional associations, information systems, relationships, and communications.

Research method

The primary method of data collection is a questionnaire survey that was applied to four divisions within the study organization. A survey enabled the study to reach a cross-section of the various groups of people (professionals, administrative and support staff, managers) whose work is information-intensive and to develop a baseline of training in records management, their perceptions of competence in records management, and levels of compliance with the records management program. The survey also included a number of open-ended qualitative questions that asked for more detailed commentary regarding the areas participants would like to see further training and support in gaining greater competencies in records management.

The participants

The questionnaire was used for data collection from a sample of 350 personnel from a population of 3,976 in five divisions of the Ministry of Transportation. These divisions include, in order of size (largest to smallest): highways management (A), road user safety (B), corporate services (C), policy and planning (D), and information and information technology (I&IT)(E) (Figures 1 and 2). This study will refer to each division by its alphabetic reference throughout the analysis. A total of 207

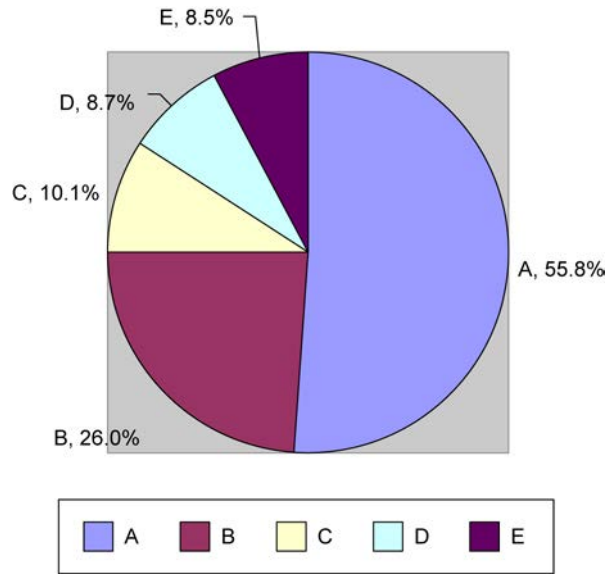

Figure 1.
2010 full-time employee distribution across Ministry of Transportation

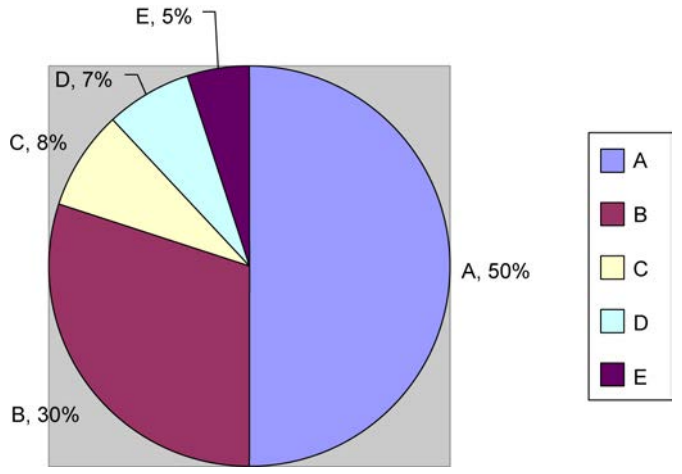

Figure 2.
Distribution of participants across Ministry of Transportation

participants responded and the questionnaire responses were found valid for analysis. In 2010, there were 3,976 total full-time staff across the study organization, representative of each of the divisions, of which a randomized sample of 350 participants were invited to participate in a questionnaire via internal e-mail. The questionnaire was to branch administrative staff, in order to include an internal intermediary in distributing the tool. Participants were fully informed of the nature of the study, and that anonymity would be maintained. The response rate realized was 66.7 percent.

The questionnaire tool

The questionnaire contains sections on information behaviors and values and information use outcomes. Most items are presented as statements that respondents indicate their agreement with on a scale of 1 (strongly disagree) to 5 (strongly agree) with a sixth category for do not know. The questionnaire included questions regarding records management practices. A questionnaire (see Appendix 1 for details) was designed to produce a baseline, and comprised 25 questions/statements each targeted at a particular component and grouped into seven logical sections to be intuitive to the respondents. The questionnaire statements were constructed in relation to the seven categories used by Curry and Moore (2003, p. 99) in their survey in assessing the information and organizational culture. These categories include: strategy and objectives, information, environment, professional associations, information systems, relationships, and communications.

This study differs in scope and method from the information culture study (Curry and Moore, 2003). The earlier study provided an exploratory conceptual model to assess the information culture within a healthcare context. Its respondents were part of a smaller sample group, and it is unclear how the sample group was determined (level of employment, decision-making ability). In this research, the focus is on the part of management and non-management staff to construct a picture of their information behaviors and values in relation to records management compliance with an enterprise IM Strategy and a Records Management Policy. This study is interested in how these perceptions can help to describe the information culture of an organization, and inform a records management training strategy. We surveyed many groups in the organization: managers, professional staff, as well as administrative and support staff.

Participant responses specify their level of agreement or disagreement on a symmetric agree-disagree (Likert) scale for a series of statements. The questionnaire was sent to five participants as a pilot test to ensure the effectiveness of design and evaluation. Each completed questionnaire formed a record in that database. The database was subsequently cleaned and imported into SPSS for statistical analysis.

Data analysis

The quantitative data was analyzed using statistical techniques such as analysis of variance and multiple regressions. Two rounds of quantitative analysis were employed: the first is a factor analysis of the questionnaire items to determine factors within the information management, information behavior, and compliance, followed by a correlation and regression analysis to assess the strength of the relationships between significant factors found within each of these three domains. The second round of analysis was a structural equation modeling analysis exploring the effects of an organization's information environment on both organizational and personal information behaviors.

Research findings

The findings represent the results of the questionnaires, and are considerably abbreviated and edited at the request of the study organization, which was undergoing a period of considerable change in personnel and strategic direction shortly after the data collection period of the research. The metric scoring for each

component provides an assessment of information culture could be gained. Twenty-five statements were grouped into categories and individually scored according to a Likert scale ranging from 1 = strongly agree to 5 = strongly disagree. The total score for individual questions was calculated and each question allocated to one of five groups. Question scores were then aggregated to obtain a category score. Not all categories had an equal number of questions, so categories had to be proportionally increased to reflect this.

Communications

The goal was to determine the effectiveness of records management training and communication flows regarding resources to support records management practices. These constitute a significant factor in abilities to comply with organizational strategies and policies on information and records management. Additionally, they are critical in shaping the organization's information culture. Although there was a considerable lack of training (83 percent reported as never having received training, and 17 percent reported having received training) reported, participants responses indicated a desire for training in this area (56 percent favored high-level, introductory sessions, while 44 percent favored workshop-based training, and 20 percent favored in-depth training). Only a small minority of participants (8 percent) indicated a preference for one-on-one training (Figure 3).

As to knowledge of the corporate IM strategy and the records management policy, there was a positive response, indicating that the majority of respondents were aware of the existence of these compliance documents. However, responses to Q3 indicated that there was a significant gap between knowledge of compliance documents, and how departmental operations fit into the overall strategy. As for horizontal communication between staff of different departments (Q20), responses indicated that participants across the organization were unsure of how their departments support or provide other departments with information. However, within one division (B), there was a significant increase in the degree of positive support across

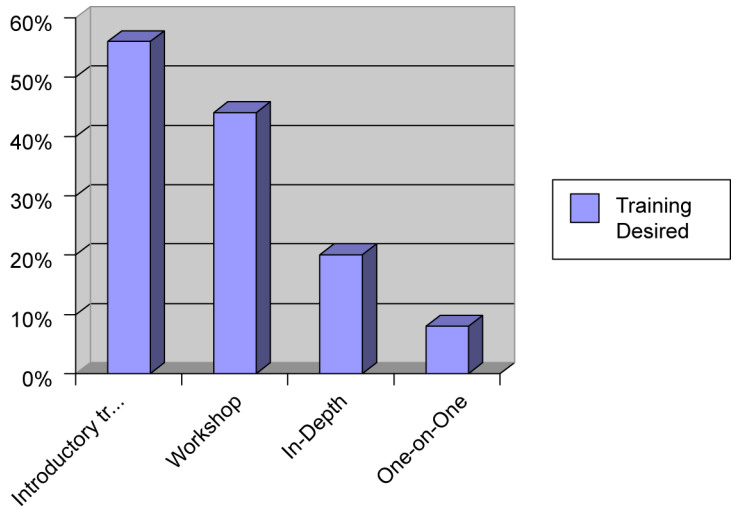

Figure 3.
Types of training desired by participants

departments. This finding suggests that there is a need for greater communication of compliance requirements, and how available training provides support to meet those requirements. Additionally, such communication may also build a stronger relationship between employees and the Records Management Office.

The score reflected the existence of effective vertical communication channels, and it is clear that the organizational structure enhances this communication orientation. If horizontal channels were utilized, this score would undoubtedly rise considerably. Additionally, there is a clear need and interest in training, resources and tools to support records management practices. In terms of Marchand *et al.* (2001) information behaviors and values, there is a clear indication in this study of high levels of vertical information sharing, but a lack of depth in horizontal information sharing. Additionally, the lack of records management training suggests a lack of initiative to equip staff to manage information effectively. Stronger communication regarding training and available resources would support greater staff initiative.

Cross-organizational partnerships

While internal communications has attempted to remove the silo-like tendencies within the study organization, the organizational structure consists of a functionally departmentalized structure with little enhancement of horizontal connections. However, responses from one division, mentioned above, suggest a willingness to be open and supportive of other departments in sharing information. This suggests that while the organizational structure is not ideal for collaborative cross-divisional work, staff attitudes may not be a barrier to successful implementation of Interdepartmental working relationships. Curry and Moore (2003, p. 101) suggest that this attitude is necessary for a successful information culture, where individuals from separate departments come together for a specific task or project. This suggests that neither a strict functional departmentalized structure nor a completely networked structure is conducive to a robust information culture, but a mixture of both. It is important to have horizontal work practices if a culture of information sharing and collaboration is to be supported with staff still ultimately feeling that they belong to a particular department.

Respondents in two of the divisions indicated a willingness to share information with other departments when appropriate to do so. Good interdepartmental relationships would appear to exist though not on a formal basis. If formal mechanisms to encourage collaboration were put in place a much higher score would likely ensure. Marchand *et al.*'s (2001) identification of formality is relevant in this category. The results indicate that people may feel more comfortable in formalizing or making information explicit when they have confidence that formal information sources are accurate and trustworthy.

Confidentiality

Curry and Moore (2003) suggests that confidentiality should be assessed to determine whether related issues create barriers to the transfer of information. Whilst certain information, collected by a government organization, carries some confidentiality, the sharing of information in the organization is often hampered by a perceived need for confidentiality, which may well not be a real need as defined by the related literature or legislation. Responses were evenly distributed across the two largest divisions and

suggested that, confidentiality is an issue, and does constitute a barrier to information sharing within the organization. Although the organization does have an information security and privacy policy, and is required to comply with privacy legislation (Freedom of Information and Protection of Privacy Act), it was suggested that training is needed to communicate the mean of confidential information to staff.

Professions

The study organization had a significant professional employee base in two of the five divisions. The participants, overall, reported that 25 percent of respondents held membership of a professional association (Q11). However, division A participants reported 80 percent membership in a professional association, and division E reported 60 percent membership. This suggests that professional culture and environment have an imbalanced influence on the organization as a whole. The business mandates for the two divisions (technology and engineering) where we find increased levels of membership are unique, where accreditation and advanced training would be deemed necessary to achieve organizational goals. However, there is little to indicate attitudes of the other three divisions towards this seeming necessity or of the two divisions where we find the increase. In order to create a common culture, organizations should be explicitly aware of the potential influence of professional sub-cultures within the organization and the external influences to which they are subject and from which they gain additional cultural influences.

The results suggested that for some participants, involvement with professional associations may have an affect on their work (Q13). There is a need for further study to better understand how professional sub-cultures interact and influence organizational culture, and information behavior. Allard *et al.* (2009) suggests that there has been a significant body of research on engineers' information use. Additional study would further this body of research, and illuminate the influence of profession-specific attitudes towards information management.

Information

The study results indicated that the organization's employees recognized and appreciated the importance of information and its contribution to effective decision-making with 92 percent of respondents (Q4) agreeing that information should be the basis for informed decision-making at all levels of an organization. Additionally, 96 percent of respondents agreed that good quality information is critical to achieving the organization's goals (Q5). These results indicate a strong positive attitude towards information, however only 64 percent of respondents (Q6) reported having access to all of the information necessary to work effectively. As the technology division is shared with another government body, it is difficult to determine whether this shared responsibility has an impact on data quality. As well, it is unclear whether there are regular reports on data quality produced by the organization. Access to all relevant required information is a commonly reported problem within organizations (Davenport and Prusak, 1997), and an effective internal communications plan, or integrating this reporting into an annual report could work to improve attitudes towards data quality. As the responses to Q6 regarding data (availability, quality, reliability) are based on the perceptions of individual staff, this is not necessarily a truthful reflection of internal data quality within the organization.

The appreciation of information value scored quite highly. Agreement with the principles (that quality information is vital to achieving organizational strategic aims, that all decisions should be informed ones and should be targeted at achieving strategic objectives) scored impressively highly. However, there is a clear concern for data quality, and data quality reporting may work to ease concern and identify challenges.

Information systems

The Ministry of Transportation has compliance requirements regarding information systems use and management. These are outlined in the Information and Information Technology Directive, which states that the organization is governed by the principle to enable public policy delivery through the use of information and information technology. Additionally, the Directive identifies the I&IT division as a strategic partner and service provider to business areas across the organization in supporting government priorities and delivering government information and services to the public. The I&IT Organization is accountable for evolving with technology to provide creative and innovative solutions in order to meet existing and emerging citizen and customer expectations. And finally, the I&IT division is accountable for enabling collaboration, sharing, distribution and efficient and timely access to data, information and services. Information users within the organization should be confident and competent in their use of Information Systems allowing them access to critical information. On balance respondents had confidence in the organizational Information Systems (Q15-19) and were reasonably confident in their use.

Within the study organization, the approach to IS management was fairly robust, the main area for attention being on the availability of information resources (Q16, Q17).

Internal environment

An appropriate and conducive internal environment (Q8-10) is crucial to the development of an information culture, which requires employees to pool information to achieve organizational objectives, supported by open and transparent working relationships and practices. An atmosphere of trust is indispensable to collaboration. This requires an environment in which employees feel secure in their value to both the organization and their colleagues. The study organization has conducted employee engagement studies every two years, since 2007, providing additional data on internal environmental climates. Figure 4 illustrates the internal climate during the time of the study. The organization was undergoing significant demographic change, where a large percentage of tenured staff left the organization (through retirement or job change).

The highest levels of engagement (24 percent) were found in the 45 to 54 age range; the lowest levels of engagement (6.3 percent and 7.5 percent) were close between the over 55 group, and the under 35 group. In terms of tenure, those participants who had worked in the organization for over 25 years had the highest engagement levels (25 percent), and those who had tenure of less than 5 years had lower engagement levels (5.8 percent). The discussion of knowledge transfer between more tenured, retiring, staff and new staff is out of scope for this study, these findings present relevant data to determine influences on internal environment. The engagement score was quite high in

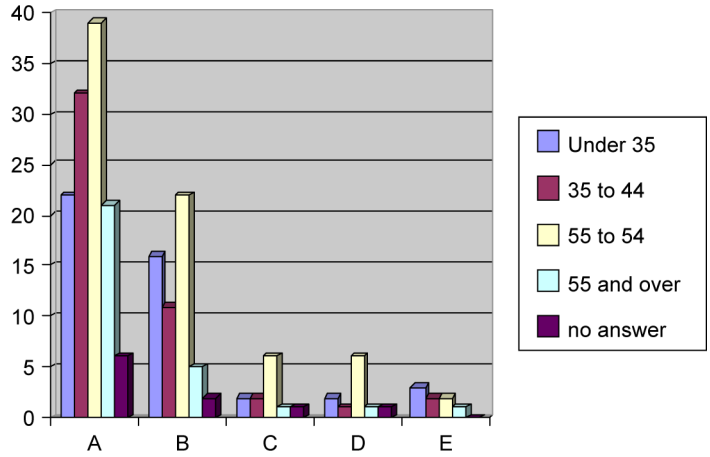

Figure 4.
Distribution of participants by age group

spite of current organizational changes with 16.4 percent personnel reporting positive atmospheres within their departments, while 68 percent of respondents indicated that they were highly motivated at work. Marchand *et al.* (2001) suggested that both integrity and formality affect information control, provide employees with trustworthy and formal information related to individual and organizational performance, thus affecting overall employee engagement. By linking individual performance to organizational performance, organizational leaders could directly motivate employees, creating proactive information behaviors for improved information use and management effectiveness.

Discussion

The adoption and implementation of I&IT in an organization and the ability to transfer and access information quickly and efficiently does not necessarily end in success. The organization must integrate participative information management practices into its information culture (Davenport and Prusak, 1997). In other words, the technological solutions may enable the reliable access to information, but without a robust information culture in place such initiatives will fail (Cragg *et al.*, 2011). Success also requires the recognition of both the cultural gaps which exist between the various stakeholders within an organization and the information politics at all levels.

In comparing the results of this study to that of Curry and Moore (2003), many similarities are found. This suggests that the results for this study may not be isolated to this specific institutions, but for institutions of similar size, mandate, or organization. In terms of communications, the results illustrated the continued need to develop greater support for tools to increase horizontal communication between departments. The need to support cross-organizational partnerships continues to require support. Curry and Moore suggest that while staff attitudes may not present a barrier to cross-organizational collaboration, enforcing such relationships does not necessarily see the creation of a completely "networked structure" (p. 101). However, more recent literature supports the need for horizontal work practices as a key

component of a culture of information sharing and cooperation (Oliver, 2008; Balthazard *et al.*, 2006).

This research focused on a government organization which regulates transportation. While there are differences between the information collected and used within the present study organization, organizations within the health industry (such as those studied by Curry and Moore) have similar requirements and concerns for confidentiality and information security. There are, however, differences in the results of these two studies: although the Ministry of Transportation does have regulatory requirements to protect personal information, there is a clear need to support compliance through greater training in this area; in the health industry, Curry and Moore found that while the need for confidentiality did not pose a threat to internal collaboration, it did hinder cooperative efforts with external partnerships. It is difficult to assess whether confidentiality requirements pose challenges to collaborative or cooperative efforts within the Ministry of Transportation, as it is unclear whether there is a clear understanding of the issue among the study respondents.

Like Curry and Moore's case organization, the Ministry of Transportation has a significant representation of professional employees. However, unlike the earlier study, the current findings could be more clearly described within divisions of the organization illustrating pockets of more intensive professionalization. Participants from the Highways Management Division, the largest division within the ministry, reported 80 percent membership in professional engineering associations. There is a need to be aware of professional sub-cultures which exist and understand their interaction and influence on the organizational culture as a whole. Additionally, there is a potential for professional associations to conflict with, or alternatively support, organizational goals, and thus affect the development of a robust information culture. While, this area of information culture research that has had little focus, recent studies in personal information management is investigating the information use and sharing behavior of professional groups (Allard *et al.*, 2009).

The scoring for information value is consistent with the high scoring observed for this criterion in the Curry and Moore study. The ministry participants strongly made connections between the quality information to achieving organizational strategic aims. However, the 2003 study did not examine the impact of concern for technology and its ability to reliably deliver information on concerns for information quality. Oliver (2008, p. 379) suggests that attitudes of the information culture may be reflected in approaches towards information technology and the resulting infrastructure, and trust in information and systems managing it. While this paper has touched on issues of trust, there are additional challenges to studying this area as it applies to "trusted" technological capabilities.

While Curry and Moore's study found that users had confidences in the organizational information systems, and in their use, they also found a need for further staff training in internal information systems and for greater transparency of resources in their use. The findings of this study showed that although staff at the ministry had a similar confidence in the organizational information systems, there was also strong scoring for competence and use of those systems. This is an interesting finding in an organization that has a dedicated division of technology professionals, and suggests

that the governing directive has had an impact on the relationship between the I&IT division and the business divisions.

In assessing the internal environment of the Ministry of Transportation, the regular organizational engagement surveys provided insight into current culture changes, in addition to engagement across each demographic group. While the score was quite high in spite of current organizational changes, it is clear that staff continuing to work within the ministry (and perhaps those leaving) would benefit from a formalized knowledge transfer process. As Curry and Moore also found their case organization experienced major change during the earlier study, I think that it is important to better define changes that organizations may undergo. Indeed, further study is necessary to understand the nature of change and adaptability in information culture.

There has to be the right balance between formality and informality where information management is concerned. A formal review process allows personnel to think about and prepare their responses in advance. It is a critical process which provides the mechanism for identifying areas in need of improvement and for ongoing monitoring and evaluation. Similarly, there are no formal data and information quality procedures within the organization. While the strategic documents (e.g. I&IT Directive) define information as an asset, it is clear that the organization treats information as a by-product of business processes. The use of readiness analysis prior to the implementation of technological solutions, such as the GARP Maturity Gap Analysis, would help ensure that the organization was in a state of readiness to successfully integrate the new information process. The purpose of readiness analyses is to establish baseline metrics, identify and address gaps and prioritize requirements to develop a transformative information culture.

A major issue affecting collaboration and information sharing is the hierarchical nature of the public sector. The creation of I&IT clusters, providing information and technology services has resulted in projects at varying stages of technological advancement and little guidance on a corporate approach for all to follow. The Information Privacy and Archives Division (Ministry of Government Services) provides the overall strategic direction in Ontario but the decision rests with individual ministries and I&IT clusters as to what goals are to be met, and the approach taken to meet those goals. It would be difficult to determine one implementation method as the best way forward for all ministries, as each ministry has different priorities and by implication a different culture. If the vision for a transformative information culture within the Ontario Public Service (OPS) is to be realized, the culture within the OPS must be unified to provide a common direction by means of a centralized body providing coordinated implementation, thereby minimizing the development of entirely independent implementations. The OPS needs to make explicit the need for a robust information culture, and nurture an environment in which an information culture can flourish. Both Marchand *et al.* (2001) and Curry and Moore call for participative management practices to be adopted, to consider the affects of different cultural perspectives and information politics, as well as developing a framework (built on vertical/horizontal communications and training) to support of staff to help achieve successful change.

The model proposed by Curry and Moore provided a tentative first step to assess an organization's information culture and thereafter monitor any improvement efforts.

While Curry and Moore used the framework to assess an NHS organization, its application to the public sector at-large is equally appropriate. Information governance, which has gained greater traction in recent years, particularly in professional publications, provides an additional opportunity to develop a structured framework linked to the corporate agenda with accountability and transparency. With the developing support for heightened, explicit information governance, there can be no doubt that a positive, effective information culture aligned to the culture of the organization continues to be an essential element of success in future improvement efforts in information and records management.

Conclusion

The public sector in Canada is held to a high standard of accountability and transparency, providing quality services to Canadians. Robust information practices are a critical success factor in order to meet this lofty standard, and several monitoring bodies (e.g. Information and Privacy Commission) have been established to support this effort. The importance of working collaborative across the organization is a clear internal goal, with a culture of openness and information sharing ensuring more informed decision-making. The model proposed by Curry and Moore (2003) aimed "to encapsulate the essential elements of an information culture along with assessment criteria to highlight those organizational areas that need improving" (p. 104). While Curry and Moore identified leadership as one of the largest determinant of an organization's culture, there is perhaps need to conduct additional research focusing on decision-makers within the organization. In this study, it is impossible to separate out organizational levels without identifying individuals more concisely. However, I agree with the necessity of participative leadership to influence the development of an integrated information culture (Cragg *et al.*, 2011). In addition, future study of informal influence, such as horizontal networks within organizations, may reveal further information regarding the influence of workplace training, or its lack, on information culture and on how organizations adapt to change.

For the most part, the study results indicate that the organization needs to implement significant measures in order to create a robust information culture, with several areas clearly in need of further study. This study provides indications of where the workplace training may focus for the study organization, however, it also provides a view into how Although significant technological infrastructure exists, there is concern that implementations have been technology-driven with little resources to support continued training in records management and information system use (Cragg *et al.*, 2011).

Effective vertical communication flows appears to be in place; however both intra- and interdepartmental communications required further development to optimize cross-organizational collaboration. There is a hierarchical-departmentalized structure which is not conducive to horizontal communications and collaboration. The analysis did, however, reveal a willingness to be open and supportive of other departments and to share information. This suggests that employees would be receptive to the introduction of formal interdepartmental working relationships. These actions would certainly produce a significant improvement to the development of a transformative information culture.

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Appendix 1. Records management training and compliance questionnaire

On a five-point scale "strongly agree", "agree", "unsure", "disagree", "strongly disagree", respond to the following statements:

Strategy and objectives

1. I understand the medium/long-term objectives of the organization.
2. I am aware of the organization's IM Strategy and Records Management Policy.
3. The responsibilities of my department are clear in the IM Strategy and Records Management Policy

Information

4. Information should be the basis for informed decision-making at all levels of an organization.
5. Good quality information (accurate, current, appropriate, accessible, timely) is critical to achieving the organization's aims and objectives.
6. I have access to all the information I require to work effectively.

On a scale of "always", "more often than not", "occasionally", "rarely", "never":

7. I approach the Information Management Office for the information I require to work effectively.

On the original scale of "strongly agree" to "strongly disagree":
Environment

8. I feel confident in how I manage information in my work
9. There is a positive atmosphere towards information management within my department.

On a scale of None, Beginner, Intermediate, and Expert

10. I can estimate my competency in information and records management

Professional associations

11. Are you a member of a professional association? Yes/No

On the original scale of "strongly agree" to "strongly disagree":

12. I keep abreast of the current issues and developments in my profession through my association.
13. The organization is receptive to new ideas and developments that are occurring in my profession.

Information systems

14. I am aware that there is an Information and Information Technology Directive for the organization. Agree/Disagree

On the original scale of "strongly agree" to "strongly disagree":

15. I am confident using all the information systems to which I have access.
16. I am aware of the information resources which can be accessed through the library.
17. The resources available within the library adequately meet my needs.
18. The organization's key policies, processes and procedures for information systems are clearly documented.
19. I know where to access these policies, processes and procedures. Agree/Disagree

Relationships

20. As a department/team we are always happy to support/provide other departments with relevant information held by us.

On the scale of "always" to "never":

21. Data confidentiality prevents me from sharing information with other departments/teams.

On the original scale of "strongly agree" to "strongly disagree":
Communications

22. I am aware of records management training delivered within the organization
23. I have taken part in records management training within the organization
24. I am aware of new internal records management resources and tools quickly

Options: high-level, introductory training, workshop-based training, in-depth training, one-on-one training:

25. I would like to participate in information and records management training

(*continued*)

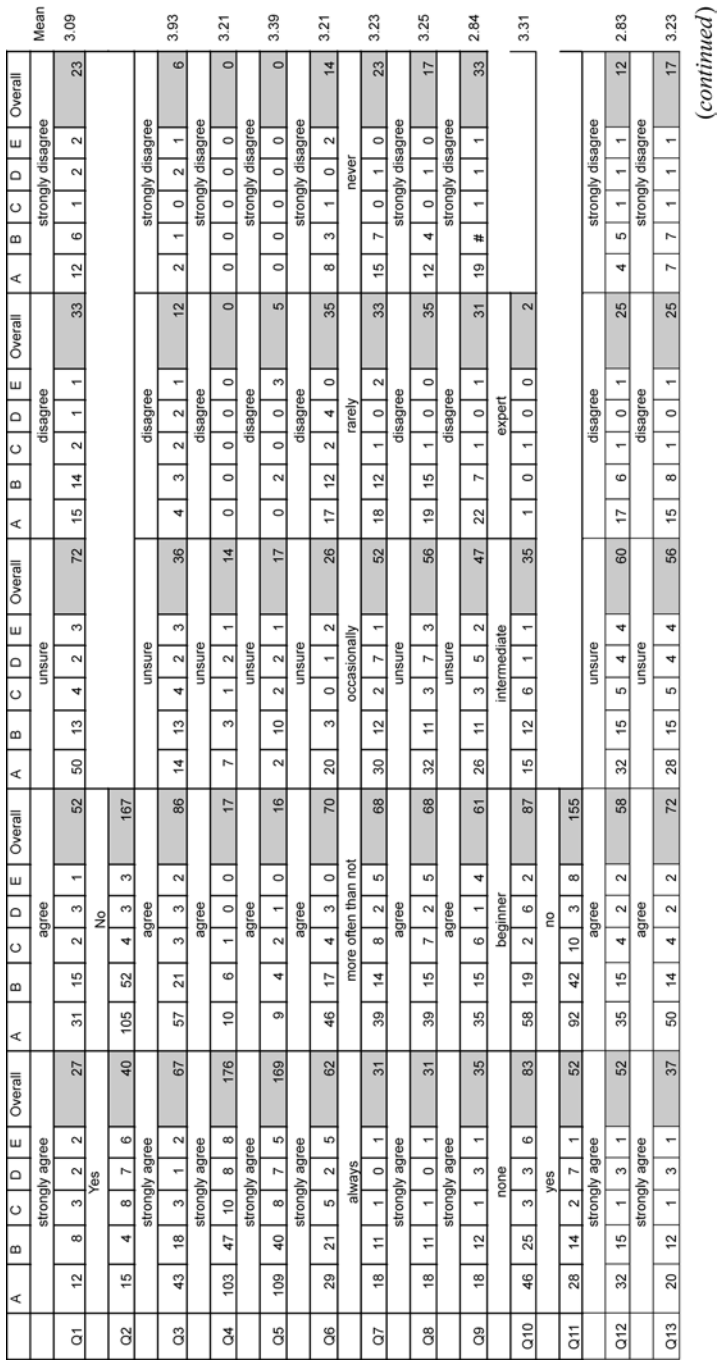
Figure A1.

Demographic Section: Workforce Profile

1. In which division of the ministry do you work?
2. How long have you worked for the ministry? (1-4 years; 5-9 years; 10-19 years; more than 20 years)
3. In which employment group do you work? (Senior Management; Bargaining Unit; MCP Manager; Other)
4. What is your classification? (Regular; Fixed Term; Seasonal; Student; Other)
5. What is your work location? (Central; East; West; North)
6. What is your highest level of education? (Elementary school; Secondary School; College; University: Graduate; Prefer not to answer)
7. Gender (Male; Female; Trans-gendered; Prefer not to answer)
8. Do you have a recognized disability? (Yes; No; Prefer not to answer)
9. Are you a Francophone speaker? (Yes; No; Prefer not to answer)
10. Are you an Aboriginal Person? (No; Yes, Métis; Yes, Native North American; Yes, Inuit; Prefer not to answer)

Figure A1.

Appendix 2. Questionnaire results



	A	B	C	D	E	Overall		A	B	C	D	E	Overall		A	B	C	D	E	Overall		A	B	C	D	E	Overall	Mean
	strongly agree						agree						unsure						disagree						strongly disagree				
Q1	12	8	3	2	2	27		31	15	2	3	1	52		50	13	4	2	3	72		15	14	2	1	1	33		12	6	1	2	2	23	3.09
	Yes						No																						
Q2	15	4	8	7	6	40		105	52	4	3	3	167																
	strongly agree						agree						unsure						disagree						strongly disagree				3.93
Q3	43	18	3	1	2	67		57	21	3	3	2	86		14	13	4	2	3	36		4	3	2	2	1	12		2	1	0	2	1	6	
	strongly agree						agree						unsure						disagree						strongly disagree				3.21
Q4	103	47	10	8	8	176		10	6	1	0	0	17		7	3	1	2	1	14		0	0	0	0	0	0		0	0	0	0	0	0	
	strongly agree						agree						unsure						disagree						strongly disagree				3.39
Q5	109	40	8	7	5	169		9	4	2	1	0	16		2	10	2	2	1	17		0	2	0	0	3	5		0	0	0	0	0	0	
	strongly agree						agree						unsure						disagree						strongly disagree				3.21
Q6	29	21	5	2	5	62		46	17	4	3	0	70		20	3	0	1	2	26		17	12	2	4	0	35		8	3	1	0	2	14	
	always						more often than not						occasionally						rarely						never				3.23
Q7	18	11	1	0	1	31		39	14	8	2	5	68		30	12	2	7	1	52		18	12	1	0	2	33		15	7	0	1	0	23	
	strongly agree						agree						unsure						disagree						strongly disagree				3.25
Q8	18	11	1	0	1	31		39	15	7	2	5	68		32	11	3	7	3	56		19	15	1	0	0	35		12	4	0	1	0	17	
	strongly agree						agree						unsure						disagree						strongly disagree				2.84
Q9	18	12	1	3	1	35		35	15	6	1	4	61		26	11	3	5	2	47		22	7	1	0	1	31		19	#	1	1	1	33	
	none						beginner						intermediate						expert										3.31
Q10	46	25	3	3	6	83		58	19	2	6	2	87		15	12	6	1	1	35		1	0	1	0	0	2								
	yes						no																						
Q11	28	14	2	7	1	52		92	42	10	3	8	155																
	strongly agree						agree						unsure						disagree						strongly disagree				
Q12	32	15	1	3	1	52		35	15	4	2	2	58		32	15	5	4	4	60		17	6	1	0	1	25		4	5	1	1	1	12	2.83
	strongly agree						agree						unsure						disagree						strongly disagree				
Q13	20	12	1	3	1	37		50	14	4	2	2	72		28	15	5	4	4	56		15	8	1	0	1	25		7	7	1	1	1	17	3.23

(*continued*)

Figure A2.

agree
disagree
unsure
disagree
strongly disagree
Q14 28 14 2 7 1 52 92 42 10 3 8 155 21 14 3 3 2 43 16 8 1 0 1 21 3 2 1 1 1 16 3.59
strongly agree
agree
unsure
disagree
strongly disagree
Q15 27 13 3 4 3 50 53 19 4 2 2 77 31 13 3 3 2 52 8 6 1 0 1 16 2 1 1 1 1 6 3.77
strongly agree
agree
unsure
disagree
strongly disagree
Q16 26 15 3 4 4 52 53 21 4 2 1 81 38 21 4 2 1 66 31 15 4 3 3 56 22 9 1 1 2 35 12 4 1 1 1 19 3.25
strongly agree
agree
unsure
disagree
strongly disagree
Q17 17 7 2 3 2 31 52 27 1 2 2 84 23 1 5 3 2 34 2 1 2 1 2 8 1 2 1 1 1 6 4.04
agree
disagree
Q18 42 25 3 3 2 75 5 10 1 3 1 20
strongly agree
agree
unsure
disagree
strongly disagree
Q19 115 46 11 7 8 187 37 30 2 1 2 72 42 7 4 4 2 59 16 8 2 1 2 29 7 4 1 1 1 14 3.39
always
more often than not
occasionally
rarely
never
Q20 18 7 3 3 2 33 46 17 4 3 0 70 20 3 0 1 2 26 17 12 2 4 0 35 8 3 1 0 2 14 3.21
strongly agree
agree
unsure
disagree
strongly disagree
Q21 29 21 5 2 5 62 24 16 4 3 5 52 24 1 1 4 1 31 18 1 1 0 2 33 15 7 0 1 0 23 3.23
strongly agree
agree
unsure
disagree
strongly disagree
Q22 39 20 6 2 1 68 115 47 6 3 1 172 30 12 2 7 1 52 18 12 1 0 2 33 15 7 0 1 0 23 3.23
Yes
No
Q23 5 9 6 7 8 35
strongly agree
agree
unsure
disagree
strongly disagree
Q24 18 11 1 0 1 31 39 14 8 2 5 68
introductory
workshop
in-depth
one-on-one
Q25 39 20 6 2 1 68 35 16 4 3 5 63 24 14 1 5 1 45 22 6 1 0 2 31

Figure A2.