
Exploring the situated context of knowledge management in e-government development

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Abstract: In the past decade, knowledge management has played a critical and active role in business settings at the organisation level. Recently, the importance of knowledge management is becoming increasingly recognised in e-government. A key challenge of studying knowledge management in e-government is to extrapolate our current understanding in business settings to the public domain and the societal level of analysis. Drawing upon a case study of San Joaquin Valley in central California, this paper proposes that we need to take a situated approach to explore a specific societal context in order to identify and analyse the relevant influencing societal factors.

Keywords: knowledge management; situated culture; e-government; knowledge economy.

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1 Introduction

Tracing phases of economic development, the information society is the third wave of economic transformation. In this economy, key commodities include information products and services (Toffler, 1989). In addition, information and communication technologies (ICT) are essential to the viability of businesses (Schiller, 1999). Therefore, the information economy is the engine for the information society, comprising the information technology (IT) sector of information workers and work that processes information and information tools (Trauth, 2000).

In the modern economic development, the role of knowledge has been fundamentally changed. According to Drucker (1994), the basic economic resource is no longer capital, but knowledge in the new economy – the knowledge-based economy. The difference between information economy and knowledge-based economy is not very clear since they are two interconnected concepts. Although there is no commonly agreed measure to indicate what type of economy is knowledge-based, it is usually described as an economy in which the generation, diffusion, and exploitation of knowledge plays a predominant part in employment, wealth creation, and economic growth (Andrews, 2003; Housel and Bell, 2001; Humphreys, 2001). Drawing on the literature, a knowledge-based economy has five key attributes: it is situated in a competitive global context; it is characterised by the depth and width of the knowledge diffusion; it is closely related to the development of ICT; it emphasises on education, learning, and knowledge works; it focuses on knowledge creation and innovation (Drucker, 1994; Housel and Bell, 2001; Godin, 2003). It is also pointed out that the influence and impact of such knowledge-based economy extends beyond the limited domain of IT sectors or traditionally conceived ‘knowledge intensive’ organisations (Drucker, 1994; Nicolini et al., 2003).

Public sectors and governmental work, which traditionally have been perceived as non-competitive and less knowledge intensive, are now facing the increasing demands on organisational structural changes and managerial process innovations in order to better serve the needs of developing the knowledge-based economy. The concept of e-government is emerging under such circumstances. By definition, e-government refers to the use of information and communication technologies by government agencies at different levels to redesign and transform relations between governments and businesses (G2B), governments and citizens (G2C), and different government agencies (G2G). Such transformations in turn would serve a variety of different ends – reducing cost, improving efficiency and effectiveness, better delivery of government services to citizens, improving interactions with business and industry, and citizen empowerment through access to information (Bonham et al., 2003).

Like private sectors and business organisations, managing knowledge has always been part of general management activities in public administrations. For example, the interactions between government agencies and citizens involve significant amount of information gathering and dissemination. Business strategy development and policy making are also knowledge driven activities that depend on the 'know how' capabilities of government agencies. Yet the development of e-government and the incorporation of ICT imply significant changes in the knowledge distribution and access processes and challenge the administrative knowledge management. The challenges include: how to innovate and transform existed physical administrative processes interactions onto the virtual environment; what information to present and how to present information so that service users and publics are likely to access and participate; how to increase information communication and sharing between government agencies to improve the efficiency and effectiveness; how to increase the accessibility of citizens yet provide privacy and security; how to integrate multiple information and knowledge resources to facilitate administrative decision making (Fraser et al., 2003). Therefore, knowledge management (KM) has become increasingly important and tightly associated with different perspectives of e-government development.

Although contemporary knowledge management research can be traced back to late 1980's (Manville, 2003), most of these studies and practices focus on the business organisations at the organisational level of analysis. Therefore, one of the challenges of studying knowledge management in e-government is how to extrapolate our current understanding in business settings and at the organisational level to the public domains and the societal level. In this paper, we propose a situated approach to explore a specific societal context in order to identify and analyse the relevant influencing societal factors of knowledge management in e-government development. First, we will discuss the theoretical orientation and approaches of our research. Then, a case study of San Joaquin Valley in central California is presented to explore the societal issues that may influence the practice of knowledge management in regional e-government development. The paper is concluded with implications and future researches.

2 Research frameworks

2.1 Level of analysis

Walsham (2000) pointed out that there is a need for a diverse IT research agenda to address challenges from multiple levels – individual, group, organisation, inter-organisation, society, and further towards global level. Among these levels, organisational level is the traditionally dominant level of analysis in knowledge management research. Although public sectors can be viewed from an organisational perspective, they are situated in the larger contexts at the societal level, which are beyond traditional organisational scope. We need to acknowledge such specific contexts of e-government development and approach the research domain from the corresponding level of analysis.

2.2 *Situated perspective*

Nicolini et al. (2003) pointed that some of the KM research and practices are carried out in a simplified and superficial way as a consequence of not considering the situated social contexts. In turn, they advocated a practice-based approach to address the issue of knowing and learning in such a way that the richness and depth of the phenomenon is given full consideration. Heeks (2002, 2004) emphasised the importance of understanding context and inscription within e-government systems to support accommodation between such systems and their contexts. Therefore, there is a need to bring the social contexts from the background to the forefront and explore the interactions between the different contextual factors and KM systems and practices. To explore the situated context requires the researcher take the relational and constructive ontology and epistemology to study and understand the authentic local phenomena from interpretative perspective. Therefore, there is a need to bring the social contexts from the background to the forefront and explore the interactions between the contextual factors and e-government development from the situated perspective.

2.3 *Influence-impact framework*

This research applies Trauth's theoretical framework that was developed to study the influence of the societal context on the evolution of Ireland's information economy (Trauth, 2000). According to this framework, four factors comprise the societal context: infrastructure, public policy, economy, and culture. This framework takes the socio-technical view of information technology and related phenomena (Kling and Lamb, 1999), which highlights interactivity between information, technology, and the human context. In this paper, we use this framework as a lens and focus on investigating the cultural influences on KM in e-government development.

3 Research objective and question

Drawing upon the level of analysis, the situated perspective, and the influence-impact framework with culture factor as our main research interest, our objective in this research is to understand how culture factors at the societal level may act as enabling mechanisms or constraints to KM in e-government development. Based on the preceding discussion, our research question is as follows:

RQ: How does contextual culture influence knowledge management in e-government development?

4 Research background and methodology

4.1 *San Joaquin Valley, CA*

San Joaquin Valley settled by the Spanish in 1808, is located in central California. The agriculture industry in San Joaquin Valley began in 1847 when the first grapes were grown in Lodi; agriculture remains its main activity today. Presently, San Joaquin Valley

encompasses nine counties – Fresno, Merced, Kern, San Joaquin, Kings, Stanislaus, Madera, Tulare, and Mariposa.

Despite California's economy being the sixth largest in the world (Stockdate and Standing, 2003), the San Joaquin Valley is a rural region in California. However, its percentage growth in taxable sales from 1990 to 1999 is 54%, which is higher compared to the State average at 45% (US Economic Developments, 2001).

San Joaquin Valley is an area targeted by California's economic development plans (Trauth, 2002). In view of its economic potential, San Joaquin Valley represents an important area in the study of new economy development. This research is aimed at investigating the societal capacity for e-business and e-government development in San Joaquin Valley.

4.2 Case study: data collection and analysis

Guided by Trauth's influence-impact framework (2000), empirical data were collected in San Joaquin Valley in the summer of 2003, through semi-structured in-depth interviews, along with a review of documents related to policy and the regional economic well being. The face-to-face interviews were conducted with members of the local population and local business development organisations. These included students, workers, and directors and managers of business development organisations, such as the valley small business development center (VSMDC). The interview questions were related to economic development policy and initiatives, their effectiveness, public awareness, and attitudes towards life and education (Yeo and Trauth, 2004). This framework was used to guide data collection and analysis categories. Their responses were coded according to the framework. As stated earlier, we focus our discussion on policy and culture for purposes of this paper.

5 Findings

Overall, the data suggest that the Valley is becoming economically poorer. At the same time, there is evidence of political apathy and lack of awareness of economic opportunities among the Hispanic farm working population, which constitutes almost half of the total population. In addition, there is evidence that some local citizens exhibit certain degree of passive attitudes towards social and economic change, as well as towards education.

San Joaquin Valley lags behind the rest of California in terms of economic development. There were no clear policies that guide current business practices pertaining to the economy or employment conditions in the Valley. In the public mind, there are two dominant camps: one advocating no changes in current practices, and the other advocating change to facilitate the development of an information economy and overall economic development. The political dichotomy on the issue of economic development implies that economic development initiatives will require time to overcome resistance on the part of some people.

The data suggest that not much money in San Joaquin Valley is devoted to community development. A majority of the population remains poor, yet little has been done about it. Fresno County's unemployment rate has remained high between 1996 and 2000, and has repeatedly failed to fall below 12% level. Importantly, there is a considerable income disparity between the rich and the poor in the Valley. The local education programs have not achieved much in training the local population to develop a skilled labour force for e-business industries. This can be explained by two reasons. First, dropout rates are typically high in the educational institutions. The local farmers harvest different crops at different places at different times of the year. As such, children of migrant workers are forced to move with them and are unable to continue their education at the same place throughout their candidature. Second, those individuals who manage to complete their education tend to leave San Joaquin Valley for better opportunities at the coastal regions like Los Angeles and San Francisco. Consequently, there is a lack of skilled labour or an educated workforce in the Valley for e-business companies.

The data suggest that the local Hispanic farm working population's perspective on social change is largely inward oriented rather than outward. Findings from the interviews suggest that the local population, who depend on agriculture for their living, typically do not place a high importance on their children's education. They do not plan for their children's education and would very much prefer them to help out in their farms and carry on the family tradition. This lack of encouragement from the families facilitates the negative attitudes towards education among the younger generation.

For most of the local farm workers, the aim of agriculture is not expansion, but rather subsistence. Given the evidence of resistance to new technologies and education, it is difficult to imagine these farmers managing huge farming corporations. According to the interviewees, the local farm workers who are typically Hispanics do not place high importance on upward social mobility. Many are aware of the positive benefits of IT but are either uncertain about how to use them, or even worse, do not think it is necessary for themselves.

On the whole, their attitudes towards education, coupled with the current condition of the education programs, portray a bleak future for the Valley in the creation of a new parallel information economy. As with the development of the information economy in Ireland, raising education levels and providing educational opportunities that were compatible with IT-related industries are crucial factors (Trauth, 2000). Such an economy is contingent upon positive attitudes towards education and training, as well as availability of trained and skilled individuals. These preliminary findings suggest that San Joaquin Valley is severely lacking in both of these areas.

6 Discussions and implications

6.1 Culture barriers to e-government development

To study the cultural barrier to e-government development and information access and sharing, Margetts and Dunleavy (2002) classified the cultural barriers into supplier side barriers – barriers within policy makers and government agencies, and demand side barriers – barriers from society and citizens. Our findings indicate that both cultural barriers existed in San Joaquin Valley case.

The value and goal conflicts among policy makers may be one of the major constraints to knowledge management in e-government development. The nine Counties in San Joaquin Valley launched ACCESS – an initiative that is aimed at development and implementing IT initiatives in San Joaquin Valley, following the Broadband Internet Access Act of 2001, S 88, which was designed to facilitate the spread of high-speed internet technology to low-income and rural communities. A San Joaquin Valley task force was set up to develop the projects, provide consultation services as well as distribute the relevant documents. However, other than these initiatives in building technological infrastructure, San Joaquin Valley lacked a policy framework to facilitate the development of e-business markets and the corresponding human infrastructure. Little effort has been dedicated domesticating the technological and intellectual resource for the majority of the Hispanic population. Therefore, the goal conflicts among policy makers has led to knowledge strategy and policy ambiguity, which also resulted in insufficient resource and effort commitment from various government agencies to the development of e-business and e-government.

Our research findings suggest that because of the lacking of effort to promote IT awareness and deliver IT resource and process innovation to reach non- Caucasian and poor-educated population, there exists social exclusion in San Joaquin Valley. The social exclusion may also result from the historical self-subsistence culture of the local farm workers. Such self-subsistence culture and the lack of trust between the authorities and under-represented citizens in turn affect the relationship between the government agencies and citizens. The Hispanic workers have low expectations from the authorities and perceive little benefit from the new economy development. Their attitude towards education and social changes is passive. Therefore, these cultural factors from the demand side create further barriers to the knowledge management in e-government development in the Valley.

6.2 Extending the boundary of organisational knowledge management to knowledge management in public sectors

Empirical studies (Orlikowski and Baroudi, 1991; Orlikowski, 1996; Davenport and Prusak, 1998) indicated that within an organisational context, organisational culture is one of the major factors affecting the implementation of knowledge management practice and ICT adoption. Similarly at the societal level, culture also has important impacts on the development of knowledge-based economy at both local and national levels (Hood, 1998).

Theoretically, there are two major thoughts of schools (Schultz and Hatch, 1996) about organisational culture study: functionalism view and interpretivism view. Functionalism view argues that organisational culture is relatively stable and there is generality or defined framework to analyse organisational culture and focuses on clarifying the integrative patterns of the culture. Schein's (1984) three-level framework on conceptualisation of organisational culture is one of the examples. Functionalist cultural view also exists at societal level, for example, Hofstede's study on national cultural variables (1980). Functionalism view emphasises on depicting patterns and generality and may overlook the subtle essence of cultural constructs. It also makes it difficult to transfer the cultural understanding at one level to another level or from one context to another context.

The interpretivism view, on the other hand, argues that organisational culture may be ambiguous and unstable and should be studied within specific local context instead of using general frames. Smith and McKeen (2003a, 2003b) pointed out that culture is neither good nor bad but may foster certain values and behaviours either support or impede the objectives of KM practices. And the influences of culture to some extent are implicit. They commented that some current studies on cultural influences often end up with a simple conclusion but discount the dynamic, subtle, and situated nature of organisational culture.

Extending these to the public sector, cultural influences will become more complex at the societal level. Bresciani et al. (2003) argued that public administrations and situated context are characterised by the presence of very diverse kinds of actors – politicians and decision makers, business, and citizens. These actors usually have their own objectives and goals. Therefore knowledge management practices and e-government applications have to cope with the possible conflicts among different actors to understand the complex social environment require us take the situated perspective (Weisinger and Trauth, 2002). For example, by taking interpretative lens, Trauth (2000) explored the situated context of Irish information economy development. Her finding showed that one of the important cultural factors that support Irish information economy is their commitment to raising education levels and providing educational opportunities that were compatible with IT-related industries are crucial factors (Trauth et al., 1993).

In our study, by taking the situated research approach, we identify several cultural factors from both supplier side and the demand side, which act as constraints to KM in developing e-government in San Joaquin Valley, CA. Our study shows that by taking situated approach, we can extend our understanding of knowledge management in business sector and at the organisational level to the study of public administration knowledge management at the societal level.

6.3 Implications of findings

From the situated perspective, we studied how the local societal cultural factors might influence the knowledge management in e-government development in San Joaquin Valley. Our findings show that, on the supply side, the major cultural barriers are first, the lack of consensus towards economic development policies among the businesses and local government as well as economic development organisations, and second, the lack of sufficient commitment and effort. On the demand side, the major cultural barriers are passive attitudes towards education and social change and the lack of trust in the relationships between local citizens and the government agencies among the local population. In the literature on knowledge management in business organisations, there are several concepts and practices may be applicable to the social context of San Joaquin Valley: value alignment, knowledge strategy, and community of practice.

6.3.1 Value alignment

In San Joaquin Valley, the value conflicts among policy makers create policy ambiguity and lead to inconsistent action taken. On one hand, there existed new economic development initiatives and part of the technological infrastructure has been set up. On the other hand, there is no affirmative action follow these initiatives and no effort is made to domesticate the resource to the citizens. Therefore, it requires policy makers

align their goals and values towards developing the knowledge-based economy. They also need to take into account of values of different ethnic groups, communities, and business sectors. Tyler (2003) pointed out the value alignment does not underpin diversity or have everyone have the same values. But rather a feasible approach will be developing a small core group of shared values and a shared understanding of what values mean (both value and meaning system).

6.3.2 *Knowledge strategy*

In business organisational context, the purpose of strategic planning is trying to close the gap by aligning what an organisation can do considering its strength and weakness with what it must do in order to act on opportunities and threats (Maier, 2002). Similarly, strategic planning is also essential to public administrations to evaluate the situated socio-economic context and decide how to set up goals, allocate resource, and take on actions. The specific concept of 'knowledge strategy' is articulated and used by several scholars and practitioners (Maier, 2002; Zack, 1999, 2002; Saint-Onge, 2003). According to Zack (1999, 2002), a knowledge strategy should view knowledge as critical resource and address how to leverage knowledge resource to bridge the knowledge gap between internal position and external challenges.

In San Joaquin Valley, there is no knowledge strategy to guide and facilitate knowledge management in e-government development. Without a clear knowledge strategy, activities such as seminar courses and training programs fail to promote IT awareness and knowledge sharing among local citizens. Therefore, a knowledge strategy is very important and should build on a comprehensive and critical analysis of the local socio-cultural context and external environments. It may include the following key elements:

- *evaluation*: evaluation of current technological and human infrastructure and knowledge resources; evaluation of external market and economic opportunities; evaluation of future demands
- *analysis*: identification of the gaps between current situation and future demands
- *planning and action*: set up short-term and long-term goals of knowledge management in e-government development; building corresponding short-term and long-term action plan
- risk assessment
- taking into account of the dynamics, diversity, and sustainability.

6.3.3 *Community of practice*

Manville (2003) suggested that there are two different schools of thoughts about knowledge management. One is so called 'engineering' approach – from the top-down perspective to implement tools, systems, processes, and infrastructure that attempt to lead organisation to some predictable and measurable goals. The other is so called 'gardening' approach – from the bottom-up perspective to foster and create a learning context, environment, and nourishment for people to proactively engage in knowledge sharing and learning. Community of practice is one of the bottom-up knowledge management practices.

Community of practice can be viewed as an emerging structure for knowledge sharing, transference, and creation. According to Wenger et al. (2002), community of practice can be defined as groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis. Community of practice differs from ethnic community and community of interest in that it is multi-dimensional (Asoh et al., 2002). First, it is a new informal structure, which provides an alternative way to the traditional hierarchic social structure to help managing knowledge management from bottom-up. Second, community members share common concerns and problems, which create a trust environment for relation development. Third, it has a clear focus on knowledge activities and knowledge practices, which foster a socio-cognitive environment of learning and knowing. Forth, it provides direct benefit to the community members and incentives for changes.

In the case of San Joaquin Valley, it is important to overcome the cultural barrier of negative attitudes towards education, social and economic changes from the Hispanic farm working population. Corresponding communities of practices could be organised to address their concerns and problems at hand and gradually lead them towards learning new ways of problem solving facilitated by contemporary information and communication technologies. Such communities of practice can help overcome cultural barrier by demonstrating the benefits of learning and sharing to local citizens through the practice activities of communities.

7 Conclusion and future research

The histories of the development of Silicon Valley and Ireland's transformation into an information economy show that rural regions do have potential to develop vibrant information sectors, and therefore knowledge economies. Investigations of these locations showed that the development of information economies was the result of more than technological infrastructure (Trauth, 2000; Benner, 2002). These findings advocate the position that the impact of technology should be interpreted within its context, which includes societal cultural factors (Pacey, 1983).

In this paper, we study the how the cultural factors influence the knowledge management in e-government development in San Joaquin Valley, CA by using influence-impact framework and taking situated approach to interpret the local social context. One of the challenges of studying knowledge management in e-government is to extrapolate our current understanding at the organisational level to the public domain and the societal level of analysis. We propose that in order to transfer our understanding of knowledge management at the organisational level to other levels and domains, we need to take situated approach to explore a specific societal context in order to identify and analyse the relevant influencing societal factors.

The study is limited because to comprehensively address the socio-cultural factors, we should also include economic, infrastructural, and political dimensions of the influence-impact research framework. Further research could include an analysis of education as both a cultural and a human infrastructural issue. Also, the study only included California. Although California's high-ranking global economy, coupled with large rural regions, is an interesting study site, the research framework can be applied to other regions with different socio-political and economic conditions. These include

non-American regions like China and Southeast Asian Countries, which are actively developing their national information infrastructure.

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