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Abstract

eXtensible Business Reporting Language (XBRL) presents opportunities for integrating the flow of financial information within communities of diverse organizations which can significantly enhance the effectiveness and efficiency of underlying business information supply chains. Using the organizing vision framework to examine the emergence of XBRL in the United Kingdom, we explore how institutional arrangements are brought about and shape collective action when heterogeneous organizations engage in complex patterns of interaction in attempts to develop XBRL as an ICT innovation. We find that, initially, XBRL entrepreneurs in the UK may have undermined community understanding of XBRL by adopting a technical lexicon that created confusion in the community. Furthermore, lack of adequate tools prevented curious organizational actors from appreciating XBRL benefits in practice. Current and ongoing participation of regulators is increasingly legitimizing XBRL while their coercive influences are increasing urgency and enhancing organizational participation for refining the organizing vision of XBRL in the UK. This paper contributes to existing literature by highlighting the value of the organizing vision framework as a compelling tool to illuminate and explain the institutional impacts of heterogeneous networks of organizational actors on emerging ICT innovations such as XBRL.

Keywords: XBRL, ICT, innovation, organizing vision, UK.

1   Introduction

eXtensible Business Reporting Language (XBRL) is a data formatting standard that enables the electronic communication of financial reports and can address current financial reporting problems associated with efficiency, accuracy, and transparency (Bergeron, 2003). Whether on paper or digital formats (e.g. MS Excel, PDF, HTML), financial data can be read by humans, but cannot be readily used by software applications for subsequent efficient and accurate processing (Locke & Lowe, 2007). Additional processing may require extensive manual intervention involving time-consuming and labor-intensive re-purposing which can also be error-prone (Bergeron, 2003). Furthermore, in their current form, financial reports lack transparency, in that they provide limited help in facilitating auditing and corporate accountability legislation (Locke & Lowe, 2007). XBRL can be used for the preparation and exchange of financial data amongst disparate computer platforms and software applications. It can, thus, integrate business information supply chains within communities of diverse organizations which can generate enormous efficiencies while enhancing both accuracy and transparency (Abdolmohammadi, Harris & Smith, 2002). In this paper, we conceptualize XBRL as an emerging information and communication technology (ICT) innovation. There is a plethora of studies that have explored and explained factors that impact on the adoption of various ICT innovations (e.g. (Fichman, 2004). Using the organization as a unit of analysis, these studies culminate with rational-actor decision models which argue that organizational adopters make independent rational decisions that are driven by economic and technical efficiency objectives (Strang & Meyer, 2001). While these studies constitute the "dominant paradigm of IT innovation research" (Fichman, 2004), they have also

been criticized on the grounds that the models that they have generated represent "overrationalized" (Kaganer, Pawlowski & Wiley-Patton, 2010) accounts of ICT adoption. That is, they fall short of accounting for the institutional complexities of modern organizational environments within which ICT innovations are developed and adopted (Currie & Parikh, 2005). Institutional theorists are increasingly asserting that institutional arrangements are present since the beginning of the process of an innovation's adoption and diffusion (Currie, 2004). However, of itself, "institutional theory tells us relatively little about 'institutionalization' as an unfinished process (as opposed to an achieved state)" (DiMaggio, 1988, p. 12). In this vein, there is paucity of research concerning early periods of the development of innovations in particular (Garud & Karnøe, 2001). That is, what is not well understood currently is the period of ferment (Anderson & Tushman, 1990) or latency (Strang & Soule, 1998) which occurs just before different development paths converge into a dominant design of ICT innovations, after which innovations emerge (Wang & Swanson, 2007).

To address this shortcoming, this paper explores how institutional arrangements are brought about and shape the nature of the collective action when heterogeneous actors, including producers and consumers, industry consortia, software developers, and government, engage in complex patterns of interaction in attempts to develop XBRL as an emerging ICT innovation. To achieve this goal, we investigate the emergence of XBRL in the United Kingdom which is proving to be a complex undertaking. In pursuit of our goal, we hope to generate insights that enhance current understanding of why and how XBRL is emerging in its community in the UK and to contribute further to the institutional literature concerning emerging ICT innovations in fermenting periods. To guide our investigation, we employ the organizing vision framework for ICT innovations. Proposed by Swanson and Ramiller (1997), this framework represents a rich analytical foundation for researching the emergence of ICT innovations from an institutional perspective (Kaganer, Pawlowski & Wiley-Patton, 2010). It draws on three important streams of research, namely, institutional theory (DiMaggio, 1988), social constructivism (Bijker, 1995), and actor-network theory (Callon, 1991), thereby, offering solid explanatory power (Klecun-Dabrowska & Cornford, 2002). Our focus is on the broader community landscape over which the organizing vision of XBRL has spanned rather than on the practices of specific organizations. By focusing on XBRL as an emerging ICT innovation, this study adds to existing literature and it enhances current understanding concerning how (un)favorable institutional arrangements can be created for the adoption of ICT innovations. This study may generate useful insights into issues concerning pushing new ICT into a diffusion trajectory and organizational acceptance, and in particular, demonstrating how the use of institutional frameworks for ICT innovation analysis, like organizing vision, can help develop institutional theory further. To achieve our goal, we start by first explaining XBRL. We then discuss the organizing visions framework followed by data collection and analysis considerations. The manner in which organizing visions concerning XBRL adoption are unfolding in the UK is then analyzed before conclusions are made.

2   XBRL

XBRL is an XML derivative that takes advantage of the 'tagging' process which associates contextual information with data points in the financial reports (e.g. shareholder-based annual reports, regulatory submissions for stock exchange listing and taxation). Typically, these reports are routinely produced by most business entities and are a necessary part of their functions. As such, the domain of XBRL operation is both widespread and important to wide parts of society. When formatted with XBRL tags, financial reports are called XBRL instance documents. The tags themselves are based on accounting standards and regulatory reporting regimes set by national or even international standard setters as a key element of regulating national and global business activity and are defined in XBRL taxonomies. A taxonomy is a data dictionary that maps XBRL tags to corresponding financial accounting concepts while also defining their relationships and processing rules (Troshani & Doolin, 2007). As XBRL taxonomies are developed on a jurisdictional basis, the taxonomy of a jurisdiction reflects that accounting standards and the generally accepted accounting principles (GAAP) of that jurisdiction.

Due to XBRL's complexity, using it manually to convert financial reports into XBRL instance documents is practically impossible. Thus, the benefits of XBRL cannot be achieved without supporting software applications which require a set of technical rules concerning how XBRL works. These rules are implemented in the XBRL Specification which is central to the operation of XBRL (Willis, 2005; XII, 2008). Currently at version 2.1, the XBRL Specification is generally considered by software developers for a number of years to have achieved a stable state and be reliable for use in software applications (Willis, 2005; XII, 2008). XBRL was formally developed under the auspices of XBRL International Inc. (XII), a consortium that oversees the evolution of the XBRL Specification and coordinates the efforts of local consortia which cover local jurisdictions based on countries, regions or internationally recognized business reporting regimes (Doolin & Troshani, 2004; Locke, Lymer & Lowe, 2010). For instance, the consortium of the UK jurisdiction is XBRL UK which, like other consortia worldwide, has attempted to develop the local taxonomy and to promote the adoption and diffusion of XBRL to organizations within its jurisdiction. In this paper, we focus on the development and adoption XBRL taxonomies in the UK. The development and adoption of XBRL has been an elusive objective for its entrepreneurs in the UK. Nevertheless, entrepreneurial efforts have persisted and continue to persist for over a decade with evidence slowly amassing that XBRL will not necessarily "die a lonely death" (Bonner and Chiasson, 2005, p. 272), rather it may emerge to generate its espoused benefits and "revolutionize" and "transform" business reporting (Abdolmohammadi et al., 2002, p. 25). Having been in an emerging state for a long time, we argue that the UK is an appropriate setting for studying the emergence of XBRL.

XBRL is highly complex and its full adoption entails continuous and complicated webs of interactions amongst diverse organizations. For example, in addition to XBRL UK there are several different categories of users of XBRL, including individual organizations, accounting firms, auditors, investment analysts, and regulatory authorities (Troshani & Doolin, 2007). For XBRL to achieve its full potential, some users need to produce financial reports in XBRL while others consume them in the same form. Producers and consumers are typically connected through information flow requirements. For instance, in the UK, individual organizations or accounting firms, i.e. the producers, are required by law to submit various financial reports systematically to regulatory government authorities, such as, HM Revenue and Customs (HMRC) for tax filings, and Companies House for various statutory reports related to corporate regulations compliance. These government organizations can then consume these instance documents.

3   Organizing Visions for ICT Innovations

The organizing vision of ICT innovations targets inter-organizational change at the sectoral or societal level, rather than at specific organizational or individual level (Currie, 2004). It captures the manner in which organizational forms, structures and rules become institutionalized and taken for granted (Currie, 2004; Zucker, 1983) and how they evolve to become a socially accepted "state of affairs in which shared cognitions determine what actions are possible and what has meaning" (Zucker, 1983, p.2). As ICT innovations are becoming increasingly complex, which is, at least partially, attributed to the increasing extent of interrelatedness amongst organizational actors at sectoral or society levels, the organizing vision framework offers a solid conceptual basis for investigating the institutional dynamics that underpin their emergence (Kaganer, Pawlowski & Wiley-Patton, 2010). An organizing vision is a social construction of "a focal community idea for the application of information technology in organizations" (Swanson and Ramiller, 1997, p. 460). That is, organizing visions emerge as community discourse incrementally establishes, transforms, refines, and maintains shared understandings concerning the organizational applications of ICT innovations (Kaganer, Pawlowski & Wiley-Patton, 2010). By understanding the diverse mechanisms that underpin organizing vision discourse, community organizations may be better positioned to make sense of an emerging ICT innovation in which they have common interest (Firth, 2001). For instance, some organizations may engage in discourse in order to understand how an emerging ICT innovation might benefit them (e.g.

the innovation adopters) whereas others to understand how to better promote it (e.g. software developers or industry consortia) (Kaganer, Pawlowski & Wiley-Patton, 2010).

The organizing vision is initiated through discourse within a community consisting of heterogeneous organizations that share interest in the emerging ICT innovation. The community and organizing vision mutually shape each other. That is, organizational actors are engaged in discourse that shapes the emerging organizing vision while opportunities are exposed which can generate interest from new participants who join the community and enrich the ongoing discourse further. In attempts to shape the organizing vision, constituent organizational actors advance interpretations and arguments into the discourse that reflect their beliefs, interests, and experiences in relation to practical aspects of commerce, processes and outcomes concerning the adoption of the emerging ICT innovation, as well as the invention and adaptation of supporting core technology. Given the heterogeneity of the growing numbers of constituent actors, agreements, disagreements, or even conflict amongst them are possible which can make the discourse dynamic and rich, but which may also result in manifestations of low coherence and contradiction in the fabric of the emerging vision. Furthermore, the discourse is also affected by higher-level structures. For instance, the cultural and linguistic resources that characterize the subculture of information systems practitioners affect and are affected by the evolving interpretative framework of shared meaning that is encapsulated in the organizing vision. The reciprocity of this relationship can enhance the legitimacy of the organizing vision. Similarly, the discourse extracts interpretative meaning from existing business problematic which is central in legitimizing the relevance of the emerging organizing vision. As the organizing vision transpires, it is engaged in a reciprocal relationship with existing core technology. That is, the organizing vision can interpretatively ascribe significance and meaning to available core technology or, by creating expectations, even call for new technology to be developed. Similarly, as actors, such as software developers, mobilize the organizing vision can also take advantage of, or be constrained by, the capabilities of existing or new technology. Finally, the organizing vision affects, and is itself affected by adoption and diffusion processes of the ICT innovation. That is, with a sound organizing vision, prospective adopters will have a compelling business case for justifying the adoption of the innovation based on its merits and the manner in which these address business needs, while growing diffusion can provide the necessary evidence for validating the soundness of the organizing vision. This may mobilize organizational actors and result in bandwagon adoption impacts. The key themes of the institutional production of organizing visions are summarized in Figure 1.
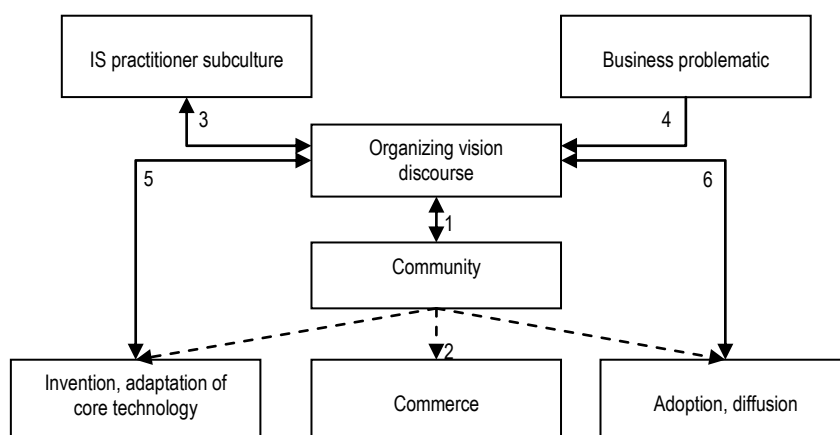

Figure 1. Institutional production of organizing visions (adapted from Swanson and Ramiller (1997))

The organizing visions framework is suitable for explaining the emergence of XBRL in the UK. Recognizing that no ICT innovations emerge in a vacuum, this framework can improve current understanding of the institutional environment that surrounds emerging ICT innovations such as XBRL while also capturing the dynamic, rich, and intelligible mutual shaping between the two (Carton, De Vaujany & Romeyer, 2007). It can also highlight political, economic, and sociological

impacts as part of an ongoing process that shapes XBRL adoption during its period of fermenting in the UK (Anderson & Tushman, 1990; DiMaggio, 1988).

4   Method

Actors' interpretations concerning XBRL developments were captured by qualitative empirical data which were collected by interviewing human actors and reviewing supporting documentation including relevant publications, white papers, and other materials located at relevant websites. Interviews were used because of their flexibility and provide rich insights for exploring, identifying, and understanding viewpoints, attitudes, and influences (Miles & Huberman, 1994). Moreover, they also allow greater control over the interview situation (e.g. sequencing of questions) while providing opportunities for making clarifications and collecting supplementary information (Walsham, 1995). Interview durations ranged from 43 to 73 minutes. In all, 926 minutes of interviews were recorded, transcribed, and analyzed. Interviews were with key informants who had participated in XBRL developments in the UK and have contributed significantly in the organizing vision of XBRL of this jurisdiction. A one page document summarizing the study objectives and the open-ended semi-structured questions was provided to all informants a week prior to the interviews to give them time to prepare (Miles & Huberman, 1994). The questions concerned issues such as organizational interests concerning XBRL, negotiation processes, role of consortia, industry associations, and government, XBRL development and adoption drivers and inhibitors. In each interview the investigator asked questions about topics raised in the previous interviews to find agreements or disagreements between them with explanations for disagreements. Following Wagner, Galliers & Scott (2004), information attributable to technical non-human actors (e.g. XBRL taxonomy) was obtained by both interviewing spokespersons and reviewing relevant technical documentation, including various versions of XBRL taxonomies and of development and collaboration documentation. Data collection and analysis proceeded hand-in-hand, that is, analysis commenced immediately and progressed as data became available for analysis while collection was still underway. Following Miles and Huberman (1994), data were read multiple times in attempts to capture higher-order generalizations hermeneutically by shifting frequently between the general and the specific. This entailed analyses of how specific elements might influence general patterns of XBRL developments in the UK and vice-versa (Wagner, Galliers & Scott, 2004). To maintain anonymity, only the categories of the organizations of the interviewees have been identified in Table 1. The interviewees were identified using theoretical sampling extended to a snowballing technique (Aaker & Day, 1990). At the end of each interview, interviewees were sufficiently familiar with research aims to be able to refer the investigator to other experts. Interviewees were asked for referrals to more than one other expert they had rarely or never met to reduce chances of snowballing research being locked into the mindset of one network.

No	Organization category	Number of organizations	Number of interviewees
1	Large accounting firms	4	4
2	Professional accounting bodies/industry associations	2	4
3	Regulatory agencies	1	2
4	Local XBRL consortium	1	2
5	Software developers/vendors	4	4
6	XBRL Research/Education	1	3
	Total	**13**	**19**

Table 1. Categories of organizations and number of interviewees

5   Analysis

In this section we offer diverse insights about how the organizing vision of XBRL is emerging in the UK. To achieve this we adopt the key themes proposed by Swanson and Ramiller (1997) for the

institutional production of organizing visions, namely, community discourse, community structure and commerce, the IS practitioner subculture, the business problematic, core technology, and innovation adoption and diffusion (Figure 1). By presenting these themes sequentially we attempt to remain faithful to the Swanson and Ramiller's (1997) model while also facilitating analysis presentation. However, we find that in practice the organizing vision themes operate in a fluid manner.

5.1   Community discourse

Although the embryonic stage of the XBRL discourse in the UK attempted to deal with framing and promoting XBRL as a solution to existing financial reporting problems, it was perceived to have focused on the technical aspects of XBRL. While XBRL was perceived to be a distinctive and plausible solution to a variety of financial reporting problems, the related lexicon of technical buzzwords used in the discourse, including terms such as XBRL specification, taxonomy, instance documents, XBRL tags, and even the name of the innovation itself, i.e. XBRL, were considered to be challenging to both existing and prospective participants' complete comprehension. Legitimizing technical buzzwords may have created a technical orientation and confounded discourse intelligibility. The interviewees consistently stated that this, at least partially, had an adverse impact in enabling competent and constructive participation in the emerging XBRL discourse. It also contributed to limiting awareness and understanding of XBRL which inhibited prospective participants to be able to form opinions about it, and subsequently, join and influence the emerging discourse. In attempts to counter limited awareness and understanding of XBRL, its entrepreneurs, including professional accounting associations, mobilized by providing publications explaining XBRL and organizing public forums "explaining examples, doing some showcases or even building XBRL into the curricula of the accounting certifications" (Professional accounting bodies/industry associations Interviewee). Public forums included conferences, training events, workshops, and trade literature that attempted to showcase XBRL and its benefits were also considered beneficial in bringing interested actors together for intensive interaction in order to enhance community discourse and refine the meaning of XBRL. Nevertheless, one of the interviewees of professional accounting associations indicated that technical orientation persistently dominated these forums. Additionally, many outreach conferences adopted business models that discouraged participation. For example, some XBRL conferences were perceived to be "very expensive" making prospective participants consider "is it really worth [it]" (Professional accounting bodies/industry associations Interviewee). Thus, the embryonic stage of the XBRL discourse in the UK was characterized by confusion and skepticism:

> I suppose the whole XBRL project has been bedevilled by a certain amount of confusion about what people mean by XBRL. What is XBRL? (Professional accounting bodies/industry associations Interviewee)

5.2   Community structure and commerce

Establishment of XBRL UK In attempts to negotiate a common view concerning XBRL and accelerate community convergence in XBRL discourse, the local UK consortium, XBRL UK, was established in 2001. It aimed at streamlining XBRL development and to promote its future adoption in the UK (Locke, Lymer & Lowe, 2010). To achieve its aims, XBRL UK organized development work concerning the UK taxonomy concerning UK accounting standards and GAAP. To avoid possible political instability and achieve economic voice, the Institute of Chartered Accountants of in England and Wales (ICAEW), an accounting professional association that represents the interests of its members in the UK financial reporting community, became the facilitator of XBRL UK, and at least initially provider of its, albeit limited, resource base. This was an important act of endorsement of XBRL UK, helping to establish early legitimacy of XBRL as a solution to financial reporting problems, and as a means of encouraging the enrolment of new participants in the XBRL discourse. In its facilitating role, ICAEW carried out many tasks, including collecting subscriptions from members of XBRL UK, accounting for and spending subscriptions for events organized by XBRL UK, and issuing press releases on behalf of XBRL UK. The members of the consortium were, at various times,

a mixture of accounting firms and providers of financial information, software development businesses, government agencies, including HMRC and Companies House, professional accounting associations, and a number of academics (ICAEW, 2004). Although the community discourse concerning XBRL in the ambit of XBRL UK was characterized by limited participation, its members were heterogeneous which provided "interpretative flexibility" (Bijker, 1995) in the XBRL discourse, in that, while they were united in their commitment for refining the interpretation of XBRL in the UK, they were different in terms of their interests which motivated them to partake in the discourse and act in different ways while simultaneously being affected differently by XBRL's emerging scope:

> And people are coming at this from different perspectives and for some people semantics are only important at the taxonomy definition level. (Software developer/vendor Interviewee)

At least partially, limited participation in XBRL UK was attributed to a weak business case for joining the consortium. Consortium members are entitled to influence the discourse shaping the organizing vision of XBRL, access to educational materials and mailing lists, and discounts on XBRL conference registration fees, and even a possible first-mover advantage in accessing XBRL intelligence that is not widely available, in return for paying annual membership fees. Interviewees unanimously agreed that the "business case for participating in XBRL UK is questionable. Firms pay large fees for limited benefits" (Professional accounting bodies/industry associations Interviewee). Thus, the model adopted by XBRL UK may have been inadequate for encouraging organizations to become members in the consortium, and hence contribute in shaping the organizing vision of XBRL in the UK as evidenced by limited discourse amongst XBRL UK members:

> We are concerned that there's been insufficient review of the taxonomy because we're sort of not a lot of people actively wanting to do anything with it. In fact, we get very little in feedback from outside the sort of the limited circle of people that are really interested enough to pay the money to belong to XBRL UK. (Regulatory agency Interviewee)

Regulatory agencies become key drivers of XBRL discourse In 2005-06, a review of HMRC's online services available to businesses, taxpayers, and government was undertaken by Lord Carter of Coles which culminated with a set of recommendations concerning existing government reporting problems and recommendations about how these could be rectified. Reporting efficiency and accuracy were identified as major areas requiring improvement (Carter, 2006). Amongst the many recommendations, the Carter review proposed that organizations file their company tax returns in XBRL (Carter, 2006). Using government reporting as the essence of the case for XBRL constitutes the culmination of the "interpretative dominance" (Meindl, Stubbart & Porac, 1994) of the XBRL discourse in the UK, thereby making government regulators the key "drivers" (Professional accounting bodies/industry associations Interviewee) of the XBRL discourse in this jurisdiction. Collected evidence indicates that XBRL had not had any significant champion adopter or sponsor until the HMRC and the Companies House decided to jointly sponsor XBRL in the UK. As government is perceived to be an authoritative body, a credible sponsor and catalyst, interest in XBRL was both stimulated and renewed when HMRC and the Companies House announced their support for and sponsorship of XBRL. Together, HMRC and Companies House contracted XBRL UK to further develop the XBRL taxonomy for the UK. The involvement of these government agencies was widely considered to be a positive development for XBRL as it contributed significantly to raising the legitimacy and credibility of XBRL as an ICT innovation in the financial reporting community that could be said to have become disillusioned with the slow pace of developments concerning the organizing vision of XBRL, particularly in terms of practical uses of the technology (Dunne et al., 2009). Nevertheless, while these developments have significantly raised the profile of XBRL in the UK corporate consciousness, there is little evidence to suggest that organizational involvement in the organizing vision discourse for XBRL has intensified significantly. In fact, it may have adversely affected involvement, at least in the short term, because some actors have now relinquished responsibility to the government regulators:

> I think one of the downsides perhaps of regulators driving this is that inevitably everybody else will say this is something which is being driven by regulators. So alright, when they say you've got to use it, they darn well have to use it and until they do, it means that even they themselves are not confident about it and

therefore we needn't even start thinking about it yet. (Professional accounting bodies/industry associations Interviewee)

Limited participation of user groups in XBRL discourse Interviewees consistently indicated that the involvement of various user groups, including SME producers and investors, in the XBRL discourse has proven to be challenging both before and after government agencies began driving XBRL discourse in the UK. At least partially, lack of involvement of user groups was attributed to the limited awareness about XBRL which it was unanimously agreed to exist predominantly amongst SMEs, and "run of the mill accountancy firms." (Software developer/vendor Interviewee) rather than larger organizations (Dunne et al., 2009). In response to this, government agencies are attempting to stimulate involvement of XBRL user groups in the discourse by organizing workshops, roadshows, and XBRL introduction packs. Additionally, professional accounting associations are collaborating with industry in order to produce publications that aim to "demythologize" XBRL (Davenport and Stoddard, 1994, p. 121). For instance, publications such as "Demystifying XBRL" attempt explaining XBRL in simple, non technical terms and focusing on the benefits that can be achieved by adopting XBRL rather than on its technical aspects (Davenport & Stoddard, 1994; Sharma & Dorfling, 2010).

5.3   The IS practitioners' subculture

Disconnect between ICT professionals and financial reporting actors Legitimizing a technical lexicon for use in the emerging XBRL discourse has created a disconnect between ICT professionals and financial reporting actors in the UK which has adversely affected dialogue amongst these actors. Dominated by ICT professionals, XBRL discourse has been biased towards its technical aspects which has affected both numbers of participants and the extent to which accounting profession actors can contribute. Yet, there is agreement that if the organizing vision for XBRL is to effectively emerge, the financial reporting experts need to be engaged effectively in the discourse. In fact, XBRL discourse has to be carried out jointly between ICT and the widest range possible of financial reporting actors:

> The discussions have been discussions which accountants by and large can't contribute very much. ...
> [However,] the accountancy profession still, I think, does have a central role [in the XBRL discourse]. It's a
> bit paradoxical – it does have a central role even in the technical discussions even though by and large its
> members aren't the people who are having them. (Professional accounting bodies/industry associations
> Interviewee)

The nature of the ongoing discourse has, as a consequence, adversely affected the cohesiveness and comprehensiveness of the emerging organizing vision of XBRL.

Expectations of software developers for government incentives Software developers constitute one of the most important categories of actors of the XBRL community. They provide software tools that can facilitate XBRL benefits to be observed and trialed. The expectations of software developers in the UK for government incentives constitute another issue that may have adversely affected their involvement in the organizing vision of XBRL. In the past, HMRC have provided monetary incentives to both adopters and software developers to participate in the adoption innovations (e.g. e-filing service). Conditioned by this, software developers may be expecting similar incentives to be offered before they become active contributors to the organizing vision for XBRL in the UK:

> ...it would be fair to say that there has been a bit of resistance from the software suppliers or some of the
> software suppliers perhaps because they hope that the government will provide them with a nice fat subsidy
> to help with the [XBRL] development work. (Professional accounting bodies/industry associations
> Interviewee)

5.4   The business problematic

The business problematic concerns the relevance of the XBRL organizing vision in "the material economy" and XBRL's "perceived practical importance" (Swanson and Ramiller, 1997, p. 466) as it applies to financial reporting. Thus, business problematic is an important interpretative resource for

the discourse that can legitimize the organizing vision for XBRL. Current financial reporting is characterized by problems with efficiency, accuracy, and transparency and there was agreement amongst interviewees concerning these. Although interviewees consistently argued that XBRL can help address these problems, the manner in which XBRL can address them may have not been explained well to prospective participants as "people haven't believed it" (Professional accounting bodies/industry associations Interviewee). This suggests that producers may be having trouble in assessing the organizing vision's practical importance which may adversely affect participation appeal. Additionally, interviewees argued that consumers are expected to experience XBRL benefits immediately from the start of XBRL implementation whereas producers are still less clear about what their benefits will be and how quickly these will be materialized:

> The Government is really the major party that gains from the implementation of this technology [XBRL]. I do honestly believe that the least benefit, at least initially, is to the preparer [producer]. (Large accounting firm Interviewee)

Though not clearly stated to trigger widespread interest from producers, the interviewees unanimously agreed that in the long term XBRL can help producers save costs in relation to government reporting in terms "fewer forms to complete" (Software developer/vendor Interviewee), "improved reporting processes" (Regulatory agency Interviewee), "minimize reporting costs", "lesser bureaucracy" and "improved service" (Professional accounting bodies/industry associations Interviewee).

5.5   Core technology

The benefits of XBRL can be hard to communicate to its users without adequate applications that take advantage of its features and automate them into business capabilities. Thus, XBRL-enabled applications can provide an image of XBRL, and therefore, facilitate the production of its organizing vision. That is, applications can enhance interpretative and sense-making attempts of participants in the XBRL community. Also, by providing opportunities for both producers and consumers to observe and trial the espoused benefits and capabilities, XBRL-enabled applications can legitimize XBRL. Interviewees were consistent in the view that there is limited software support for XBRL in the UK. Although XBRL tools are available, they are characterized by flaws and omissions, that is, none can address adequately the financial reporting problems that XBRL purports to resolve:

> There's some tools out there to build instance documents. But they're not perfect. And sometimes they don't talk to each other either. So, you can build an XBRL report on one tool, and you'll have problems if you try it on another tool. (Large accounting firm Interviewee)

However, the organizing vision of XBRL is in a reciprocal relationship with XBRL applications. That is, while the organizing vision makes these applications meaningful in the financial reporting domain, it can also be challenged by their capability to enable XBRL and refine its organizing vision. Failure to observe XBRL benefits has created expectations in the XBRL community for software developers to provide adequate XBRL tools. However, there is no evidence to suggest that these expectations have been sufficiently compelling to create "technology pull" pressures. Therefore, the extent to which the organizing vision of XBRL can shape available applications in the UK has not been sufficiently resilient to result in adequate XBRL-enabled applications. There are a number of reasons that interviewees offered in attempts to explain the limited offerings of XBRL tools, including i) lack of demand, ii) XBRL complexity, iii) lack of expertise, and iv) threats of free XBRL-enabled applications. First, lack of demand for XBRL-enabled software suggests that there is a weak business case for software developers to justify software development investments. Second, XBRL is regarded widely as a complex technology. While this does not affect producers and consumers, it is directly "relevant to the software vendors" (Software developer/vendor Interviewee). Complexity, therefore, affects software developers' ability of to produce quality XBRL tools. Third, limited XBRL expertise amongst software developers was also cited as a factor contributing to limited availability of XBRL tools. Fourth, another negative impact relates to free XBRL tools (of lesser quality) that are expected

to be offered by regulators. This may be detrimental to and negatively impact the involvement of software developers and their business case for XBRL tools.

5.6   XBRL adoption and diffusion

The mutual impact of adoption and diffusion on the organizing vision of XBRL in the UK could not be observed in the collected data, suggesting that XBRL adoption and diffusion may not have commenced in the UK until 2010. Nevertheless, interviewees agree that consumers with legislative powers, including regulatory agencies, are the only actors who can start XBRL adoption and diffusion. These bodies can use their legislative powers to mandate XBRL as without government mandate "XBRL would still be just an interesting idea." (Large accounting firm Interviewee):

> I think it does all come back to critical mass and critical mass has to be generated by some stimulus and that stimulus is going to be in one form or another in the UK at any rate, regulators. (Professional accounting bodies/industry associations Interviewee)

Therefore, legislating adoption can generate bandwagon impacts resulting in widespread diffusion which suggests that government agencies have a critical enabling role in the adoption and diffusion of XBRL in the UK. Cumulative adoption experiences, including success stories and failure reports, will constitute pragmatic evidence validating XBRL as a solution to existing financial reporting problems. As these experiences become part of the discourse, they contribute further to the formative refinement and growth of the organizing vision of XBRL in the UK.

6   Discussion and Conclusion

In this paper we have adopted Swanson and Ramiller's (1997) organizing vision framework to explore the emergence of XBRL in the financial reporting industry in the UK. The organizing vision constitutes an analytical framework for showing how institutional arrangements are engaged during the emergence of ICT innovations such as XBRL. Also, it shows that choice and decision-making in individual organizations is often played out at the institutional level. We illustrate that the organizing visions framework helps improve current understanding of how and why XBRL emerges and can succeed (or fail) to be adopted in its community. We find that the organizing vision of XBRL in the UK is yet to be widely diffused and become institutionalized. In the early days, XBRL entrepreneurs may have undermined community understanding of XBRL by adopting a lexicon of buzzwords that have created unintelligibility and confusion in the community (Dunne et al., 2009). Also, they may have oversold XBRL to the degree that arguably may have actually done harm to its institutionalization (Dunne et al., 2009). Lack of adequate tools has prevented curious organizational actors from appreciating XBRL benefits in practical financial reporting thereby limiting their involvement in organizing vision processes. Instead current and ongoing participation of government regulators has provided the critical enhancement needed to legitimize XBRL, and their coercive influences are anticipated to stress urgency and enhance organizational participation for refining the organizing vision of XBRL in the UK.

This paper, therefore, contributes by highlighting the value of the organizing vision framework as a compelling tool for researchers to illuminate the institutional impacts of heterogeneous networks of organizational actors on emerging ICT innovations. Additionally, it contributes by highlighting the need for screening processes as an organizing vision is conceived to ensure its clarity and business relevance. These might be particularly critical for complex ICT innovations the value of which is hard to appreciate without adequate tool support. This contribution is relevant in today's economy where time-to-market cycles of ICT innovations are relatively short (Firth, 2001). Furthermore, exploring the organizing vision of XBRL has helped portray the interplay of complex interests, the emergent causality, the reciprocalities, and the organizational social interaction processes through which XBRL is emerging in the UK. Practitioners are learning that members of the XBRL community in the UK might be in a better position to monitor the manner in which the organizing vision of XBRL evolves,

instead of ignoring it or remaining passive. That is, by understanding how actors influence the organizing vision of XBRL, individual organizations can better predict its evolution path and, consequently, adjust their positioning and strategies accordingly (Firth, 2001). Thus, there is a significant need for these organizations to better understand how ICT innovations such as XBRL are shaped given the idiosyncrasies of the industries to which they belong. By focusing on the emergence of XBRL in financial reporting as an illustration, this paper, therefore, also contributes by adding to prior literature and responding to calls for further research in this area (Currie, 2004; Kaganer, Pawlowski & Wiley-Patton, 2010; Wang & Swanson, 2007).

While, in this paper we use the experience of various participating organizations to make a contribution to current understanding, we also recognize that this review can be more comprehensive. We appreciate that a limitation of this paper is that the emergence of XBRL in the UK includes only nineteen interviews across thirteen organizations in addition to secondary data from industry and professional publications. However, given the nascent state of XBRL in the UK, this study is characterized by exploratory rather than generalization objectives. We recognize that further research is needed that investigates the emergence of XBRL both from other perspectives in the UK, and particularly, in other contexts in order to address this limitation. However, we also argue that, given the wide range of participating organizations and the rich nature of data collected, certain practical implications can also be derived. Individual organizations that are expected to shape the organizing vision of XBRL need to be convinced that XBRL is an ICT innovation that will lead to more efficient, accurate, and transparent financial reporting relative to existing alternatives. In exploring the emergence of XBRL in the UK, managers and policy makers can learn that XBRL entrepreneurs need to develop an organizing vision that is driven by a compelling business case that clearly stresses the manner in which organizational actors can benefit from XBRL and how it can improve financial reporting and address its existing problems. This is likely to encourage organizational participation and increase the extent of their contribution in shaping the organizing vision of XBRL in the UK.

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