ESCOBAR-RODRÍGUEZ, TOMÁS; GAGO-RODRÍGUEZ, SUSANA

"WE WERE THE FIRST TO SUPPORT A MAJOR IS INNOVATION". RESEARCH INTO THE
MOTIVATIONS OF SPANISH PIONEERS IN XBRL

"WE WERE THE FIRST TO SUPPORT A MAJOR IS INNOVATION". RESEARCH INTO THE MOTIVATIONS OF SPANISH PIONEERS IN XBRL

"FUIMOS LOS PRIMEROS EN APOSTAR POR UNA DE LAS PRINCIPALES INNOVACIONES EN SISTEMAS DE INFORMACIÓN". INVESTIGACIÓN DE LAS MOTIVACIONES DE LOS PIONEROS ESPAÑOLES EN XBRL

TOMÁS ESCOBAR-RODRÍGUEZ, Universidad de Huelva, tescobar@uhu.es
SUSANA GAGO-RODRÍGUEZ, Universidad Carlos III de Madrid

ABSTRACT

We conduct a field study to analyse the reasons why pioneers supported the introduction of the Extensible Business Reporting Language (XBRL) from its earliest days in Spain. The Spanish pioneers were able to visualize the possibilities of the XBRL as an effective tool for facilitating the transmission of accounting and related information. At that point in time, innovators had available a limited amount of technical information on XBRL, because it was in the process of development. Hence, their engagement in the introduction of XBRL was based more on intuition than on in-depth knowledge of the technological advantages to be gained from its application. Further, their support for the innovation was active and not passive.

KEY WORDS: pioneers, information technology innovation, diffusion of innovations, XBRL, qualitative research.
JEL Classification: O31, O33, M15 M40

RESUMEN

Mediante un estudio de campo se analizan las razones por las que determinados pioneros apoyaron la introducción del estándar Extensible Business Reporting Language (XBRL) desde sus comienzos en España. Los pioneros españoles fueron capaces de visualizar las posibilidades de XBRL como una herramienta efectiva para facilitar la transmisión de información económico-financiera. En aquel momento, se disponía de una limitada información técnica sobre XBRL porque se encontraba en plena fase de desarrollo. Por tanto, su apuesta por la introducción del XBRL estuvo más basada en la intuición que en un pleno conocimiento de sus ventajas técnicas. Más aún, su apoyo a la innovación fue activo, y no pasivo.

PALABRAS CLAVE: pioneros, innovación tecnológica, difusión de la innovación, XBRL, investigación cualitativa.
Clasificación JEL: O31, O33, M15 M40

1 | INTRODUCTION

The aim of this study is to investigate the "rationale" for the introduction of the Extensible Business Reporting Language (XBLR) in its early days, concretely to understand the pioneers' reasons for engaging in an embryonic standard, and supporting it while it was still in the process of development. Although previous research on Information Systems (IS) offers in-depth qualitative and quantitative studies of the reasons that motivate individuals to accept new information technologies (e.g. Piccoli and Ives, 2005; Venkatesh *et al.*, 2003), we aim to discover more about the motivations of pioneers. IS researchers have mainly focussed on studying the behaviour of early adopters (e.g. Agarwal and Karahanna, 2000; Debaraj *et al.*, 2008), detecting in them an awareness of the potential benefits associated with, for example, earlier entry into a market, in order to not only capture market share but also to achieve a higher chance of survival than those entering later (Bijwaard *et al.*, 2008).

The interest in examining innovators' views is because they are the first to engage with something new. It is the pioneers who first decide in favour of an innovation. They play a fundamental role in the successful diffusion of innovations and without their active involvement, the process of diffusion would never get started (e.g. Ryan and Gross, 1943). Pioneers basically play the important role of getting innovations started, and they transmit their beliefs and commitment through their professional networks, mainly by means of inter-personal communication, social interdependence and imitation. There is a particular set of characteristics that can be associated with the personalities of these pioneers. For example, innovators typically control adequate financial resources, have the necessary mental capacity to comprehend and apply complex technological knowledge, as well as the ability to cope with the high degree of uncertainty usually associated with innovation. They show no preference for adhering to predetermined rules or procedures, because they tend to look beyond the existing state of affairs, and to become rapidly aware of the potential returns from novel technologies (Kirton, 2000). Innovators are willing to run risks, given that the decision-making with respect to innovation takes place in an environment of uncertainty and risk of losses, even though this may be latent. They demonstrate knowledge, intuition, and wisdom (Cleveland and Jacobs, 1999).

Some researchers have applied the rational perspective to gain a better understanding of pioneers' motivations. Under the rational approach, pioneers make their decisions based on information about the innovation and how well it fits with their organizational context and objectives (Fichman, 2004). However, pioneers take important decisions on innovations when their benefits and losses are still not clearly defined (Harrison and Waite, 2006). IT fashions approach does not offer an adequate explanation of pioneers' behaviour, since the innovation is still only in the germinating phase. Similarly, alternative approaches such as the concept of mindfulness cannot be applied in this context (Swanson and Ramiller, 2004). It implies "enhanced attention to and awareness of current experience or present reality" (Brown and

Ryan, 2003: 822). At the time when pioneers engage with the innovation, neither experience nor a well-developed technology is available. Mindfulness is also associated with an inward-looking tendency and individual self-awareness and with thought rather than action.

We can observe that in state of the art there is an unanswered question: is the innovators' motivation more a matter of intuition or does it respond to economic rationality? We have undertaken a field study to investigate the way in which innovators construct their initial views on a significant innovation in IT. In particular, we have examined the processes involved in deciding to give active support to a new standard which, in many cases, is only in the embryonic stage. We are conscious that the entire innovation process implies accepting different degrees of technical, financial and social uncertainty (Gerwin, 1988). Nonetheless, it is innovators who cope with the maximum uncertainty, because they have to make their decisions on the basis of very little information and without the availability of previous references for comparison. Our study analyses how pioneers construct their view of a new reality –the XBRL– which represented a significant innovation simultaneously in two distinct arenas: accounting and information systems. The interest in examining the Spanish setting stems from the fact that Spain was one of the first countries engaged in XBRL and one of the most active during the first stage of the innovation process.

To examine the motivation of the pioneers, we adopt the postulates of epistemological constructivism (Sexton, 1997; Mingers, 2001). We assume that XBRL is an external technological reality, and that the innovators interpret XBRL through their mental constructions of it, constructions which are heuristic fictions (Chiari and Nuzzo, 1996). Our aim is to show that Spanish innovators did not receive XBRL knowledge passively, i.e., through their own perceptions and communication with counterparts; instead we hold that pioneers have actively constructed their knowledge about XBRL themselves following von Glasersfeld (2007). We review how innovators became aware of XBRL and formed some idea of its future functioning and utility, and their decision or engagement in the set of activities that led them to support the diffusion of XBRL in Spain.

The motives that guide decisions to adopt new accounting systems are diverse. Efficiency is not necessarily the prevalent factor in motivating management innovations; sometimes forced choices and fashions are also influential motives for adopting new managerial techniques and technologies (Abrahanson 1991, 1996). This is also the case in accounting innovations (Malmi, 1999; Carmona and Gutierrez, 2002). Hence, there are very diverse reasons that may underlie the decision to trust in XBRL as the potential solution for a set of problems in the organization.

Our paper is structured as follows. Firstly, we briefly introduce some basic essential notions for understanding XBRL. Secondly, we present the field study design. Thirdly, we discuss our findings and finally, we draw conclusions that contribute to a better understanding of the motivations of those individuals and organisations who are the first to innovate.

2 | XBRL AS AN INNOVATION

An innovation can be viewed as the introduction of new ideas, products, technologies or programs into an organisation, or the adoption of an old idea in a new context (Firth, 1996; Burns and Stalker, 1961). Technical and administrative innovations are different. Technical innovations improve the technological performance of the organisation whereas administrative innovations comprise both innovations in the organisation structure and in the management of people (Damanpour and Evan, 1984). The XBRL is an innovation at least from a technical perspective. XBRL enables companies to perform more effectively the many tasks requiring electronic communication of business and financial data. XBRL actively contributes to shrinking information asymmetries between the firm and the various external users of its financial and non-financial information. XBRL also allows the employment of software to search for and present business information (Hodge *et al.*, 2004). Benefits accrue from the increased ability to exchange information within and between organisations, from the reduced time required to perform business reporting tasks, from the environment of improved controls and reduced errors in data manipulation, and consequently from improved decision making (Cohen *et al.*, 2005).

XBRL is an open standard, i.e. there is no license fee payable for its use. XBRL has been developed in response to the need to homogenize information and ensure compatibility in an environment in which different entities must communicate with each other (Baldwin and Trinkle, 2011). With XBRL, systems of data mining and public data repositories can be developed that improve the information available prior to decision-making by the various different members of the networks (Vasarhelyi *et al.*, 2004). The applicability of XBRL is based on Taxonomies (AECA, 2003). Taxonomies are agreed dictionaries of electronic labels available for the transmission of information. Taxonomies are created after a process of discussion to reach a consensus on the correct definition of the labels and the business rules that govern their usage. This analytical work is carried out in a series of particular working groups inside an international non-profit consortium (Bonson *et al.*, 2009). The resulting taxonomy is put on the Internet, and from this moment there is open access to it.

The real-time economy generates a dynamic range of references, measures and standards (Vasarhelyi *et al.*, 2004) tied to the data that travel by various networks. The XBRL telematic structure enables an efficient transmission of data that satisfies the requirements of the real-time economy (Roohani *et al.*, 2010). A plain text file with the .xml extension supports the transmission of the data. XBRL reports are usually compact in size, which increases the available capacity of existing computer systems. Their syntax ensures that data items are conveyed intact and perfectly delimited. In the use of XBRL, issuers and recipients of information find an efficient "substratum" for making use digitally and electronically of the data in various ways, for example, for analytical applications. XBRL also allows the employment of software to search for and present business information (Hodge *et al.*, 2004).

To summarise, XBRL makes it possible to generate rapidly and easily formal business information, and contributes to minimizing errors, failures and frauds. Benefits come from the increased interchange ability within and between organisations, the reduced time required to perform business reporting tasks, the improved controls environment, reduced data manipulation, and improved decision making (Cohen *et al.*, 2005; Hannon, 2005). In brief, better, faster and cheaper are some of the words associated with the use of XBRL (OhAonghusa, 2005).

Despite its advantages, XBRL also has some disadvantages (XBRL, 2009). Firstly, problems associated with file management: lack of concurrence, testing for data integrity, security, etc. Secondly, the conversion and transformation of XBRL data require some manipulation of the information, so it is not always possible to guarantee the integrity of the output, nor ensure that it will be exactly the same as the original document received in XBRL.

It is also necessary that organisations perceive the advantages of XBRL, become familiar with the standard and be persuaded of its technological advantages (Bonsón *et al.*, 2009). The more contact with XBRL the company has, the more it will realize that XBRL can be utilized not only for disclosing information externally.

3 | RESEARCH METHOD

We have conducted in-depth interviews with four of the Spanish innovators in XBRL, to whom we have easy access since we have been collaborating with them on common projects related to the accounting development of XBRL during the last five years. Our objective in the interviews is to approach inductively the innovators' construction of their own knowledge of XBRL, starting from the interviewees' answers. In particular, we analyzed the processes of: (a) knowledge, i.e. how innovators became aware of XBRL and formed some idea of its functioning and utility, (b) persuasion, i.e. how they formed their favourable attitude towards XBRL, and (c) decision or engagement in the set of activities that led them to support XBRL.

We think that their construction of both the stimuli and the motives of which they were aware when they decided to adopt and actively promote XBRL should contribute not only to a better understanding of the process of XBRL diffusion but should also be helpful for understanding other pioneers' behaviour. In particular, we investigate the interviewees' reasons for trusting in XBRL.

The structure of the interview is based on a set of eleven open questions which aim to construct the innovators' views on XBRL (see appendix). Questions have been formulated both from the literature reviewed and in terms of our research goals in relation to this topic (Strauss, 1987). With this predetermined set of questions we aim to increase the reliability of our data by trying

to ensure that all our respondents apply similar criteria in their answers. These questions deal with general topics, thus stimulating discussion and the exchange of information (Yin, 1994). Although we use the same framework of questions as a guideline, interviewees are encouraged to do "all the talking" in the expectation that new perspectives will emerge. The format is intended to stimulate interviewees to develop their views relatively freely; hence the questionnaire is applied only as a guide. The open questions are worded to avoid directing or limiting the possible answers (Mason, 2002).

We carried out the interviews during 2007 and they referred to the period 2000-2005. The minimum length of interview was two and a half hours, and the interviews were recorded. Occasionally, the recorder was switched off for reasons of privacy or hesitancy in divulging information considered confidential by the interviewee. In addition to posing the questions, additional time was dedicated to an informal exchange of ideas on XBRL (Bruns and Kaplan, 1987).

Our first interviewee is a partner of Price Waterhouse Coopers (PwC) Spain; the second is a university full professor who acted on behalf of the Spanish Association of Accounting and Business Administration (AECA: Asociación Española de Contabilidad y Administración de Empresas). The third is the head of the Spanish Central Balance Sheet Office of the Bank of Spain; and the fourth is the Director of Financial Reporting at the Bank of Spain. The PwC partner participated from 2002 to 2004 in creating the provisional jurisdiction for the diffusion of XBRL in Spain. The professor participated from 2002 to the present day. The Bank of Spain interviewees have been leading the XBRL Spanish jurisdiction from 2004 to the present time, and have also developed the first Spanish applications of XBRL. The sequence of the interviews follows the sequence in which the innovators engaged with XBRL. Prior to each interview, we reviewed the data collected from previous interviews, and also the documentary data collected to that point in time. Thus, the available transcripts, notes, internal company documents, reviews and summaries, as well as our views, were in the background in each new interview.

A second source of evidence for triangulation was the documents that we collected, along with public declarations by the interviewees. We also collected data from other sources, such as internal documents from their organizations at that time, and material from the news published on their websites. We remain in touch with them now and have informally exchanged information and reports regarding the progress of this research.

Data analysis in this research was an interactive process. It was conducted in three steps (Miles and Huberman, 1994). Firstly, data collected from interviews, written documents, notes, etc., were coded and grouped according to common themes, and then categories were formed with similar themes. The aim here was to give order and meaning to the data collected. Secondly, data was organized to identify relations in the data collected. Finally, conclusions were drawn

and verified. Throughout the period of the field study, one of the researchers also maintained frequent informal contacts with all the interviewees.

4 | FINDINGS

4.1. The start-up of the XBRL diffusion process

In July 2000 the American Institute of Certified Public Accountants (AICPA) decided to create the XBRL International consortium, with the aim of launching the XBRL diffusion process on a world scale and it was then that the Spanish pioneers engaged in the project. In 2002-2003 *XBRL International* decided to organise XBRL diffusion thorough the creation of national and regional "jurisdictions". Each jurisdiction was responsible for developing its own XBRL applications, i.e. taxonomies, in a geographical area according to its particular model of financial statements. These jurisdictions are the principal means for starting the worldwide diffusion of the XBRL innovation. They perform an important educational role in explaining the principal benefits of XBRL, and provide facilities for the real-time implementation of XBRL.

There are two types of jurisdiction: provisional and established. Provisional jurisdictions are similar to start-up organisations. A small group is formed to focus on raising awareness and interest in XBRL within its region, and the group develops an initial taxonomy for its local accounting standards. After two years, successful provisional jurisdictions can achieve the status of a definitive or established jurisdiction. Established jurisdictions need to have a critical mass of members, several working groups, and to have made significant progress in taxonomy development and promotion of XBRL.

In 2002 *XBRL International* created the provisional jurisdiction for the diffusion of XBRL in Spain, in response to the work developed by the Spanish pioneers from 2000. In 2004 the Spanish jurisdiction was formally established and started development of the first real applications of XBRL in 2005.

4.2. The first steps: 2000-2002

The first pioneers to become aware of XBRL's existence were the professor and the Partner at PricewaterhouseCoopers (PwC). The professor was participating in the "World Continuous Auditing and Reporting Conference", held in January 2000 at Rutgers University. He realised that the XBRL language was an interesting innovation for both accounting and auditing and that it was supported by several relevant academics in the USA. This idea was reinforced when he conducted further research in this area. He presented and explained the interesting

features of this innovation to AECA, convincing them to view XBRL as a revolutionary project with potential future benefits for Spanish firms.

The PwC partner heard about the existence of XBRL in an international meeting of PwC in Paris in 1999. His activity involves searching for new business, and PwC Spain had delegated to him the task of seeking and incorporating systems innovations generally. He thought that XBRL might be of interest. A characteristic common to both pioneers was that they had very little technical information available with regard to the XBRL and there was no pilot demo that could help show its potential viability.

The construction of the potential interest in XBRL was also similar. The professor viewed XBRL as a tool which enabled organisations to produce personalized financial statements that also gave them the capacity to use that data interactively with many different software agents and applications, thus considerably facilitating the performance of diverse tasks. He was particularly aware that digital financial statements must be designed to communicate information to many different kinds of users, and ultimately to individuals, who operate under a particular accounting jurisdiction. There was a need for computers to understand and recognise the accounting language, in order to facilitate the automatic interchange of information. Another fundamental need was to unify the accounting language through a set of correctly defined and agreed financial standards. The satisfaction of both needs would create an environment in which the simultaneous provision of financial data in different geographical sites and their immediate transformation into useful information for analysis and decision-making would be a reality.

The PwC partner perceived the potential utility of XBRL as a facility for financial reporting and prepared reports on XBRL for his company. When he reported *"the potential of the tool called XBRL"*, it was *"only an intuition"*. Thus, he tells us: *"Pioneers support innovations with the heart, just because they believe in the project. The relevant matter is not to provide solid reasons for convincing others. Things advance because there is confidence in the project. But if it starts, it is because you are convinced. And the project is successful because you convince others, not because you achieve a prior consensus."* He indicated that his main motivation was the perception of XBRL as a potential source of business. He stated that he personally had been convinced of the future benefits that XBRL would have in the accounting and auditing professions as a new IT. However, he recognized that the first stages of XBRL in Spain were of "handicraft" work, due to, not only the lack of XBRL awareness among the accounting and auditing profession but also the limited interest that professionals showed in the application of XBRL when the first news about its existence appeared.

He sees several main advantages associated with XBRL. Firstly, considerable time savings are likely to be derived from its application, with potential for increasing organizational efficiency. Secondly, it will become a common site or archive, with a common language, in which information from different sources can be stored and organized together, whereas currently

it is dispersed. Thirdly, he believes that deriving information useful for decision-making necessarily requires a standard that all the users accept: XBRL provides this. Fourthly, the market demands financial and non-financial information, and XBRL will be an excellent medium for both types of information, provided that it is well-constructed and the non-financial concepts are well-configured. If the sector reaches a consensus on XBRL, the standard will provide consistent information, and demonstrate the achievement of the aforementioned goals, thus adding value to financial reporting. Thus, he sees XBRL as a tool that provides a more transparent, consistent and accurate way of transmitting information. The information will not need to be manipulated between the source and the end-users.

Both pioneers underestimate the risks associated with XBRL. The professor stated that he did not see any excessive risk in supporting XBRL, only the risks typically associated with a process of innovation. The partner of PwC did not see the project as excessively risky, since there was increasing international support for XBRL from PwC's parent company and the other companies participating in the project. He perceived the main risk as being associated with uncertainty about the acceptance of XBRL as the only standard, if a competitor standard appears. He also considered that there was a risk of not achieving consensus on the standards for financial reporting among different countries.

The CEOs of both organizations offered organizational support to them. The AECA started to collaborate with *XBRL International* in the technical development of the XBRL standard in Spain. Hence, AECA took the initiative in specific actions towards the diffusion of the innovation represented by the XBRL standard. The partner of PwC also stated that he had been able to secure the immediate support of his CEO because he is "a visionary, a person with a strategic view, able to look beyond the daily pressures." His CEO considered XBRL to be an interesting product for the company, and for the whole auditing profession, and decided to give it ample support in its initial stages.

The iteration among both pioneers was also useful to construct their positive view of XBRL. Both manifested that their confidence in XBRL increased over time through their various meetings. During this initial stage, they actively co-participated in the organization of meetings and conferences with entrepreneurs, academics, professionals and analysts. The aim of these activities was "*to provide information regarding the potential of the innovatory computer language tool or system, developed in the academic world, known as XBRL.*" (Partner of PwC) Both significantly contributed actively to the initial knowledge of the existence of XBRL and its potential benefits in Spain. They participated in various different forums over a period of three years which culminated with the organization of the first Spanish XBRL Workshop in February 2001. More than 80 Spanish CEOs and managers from the public and private sector attended this workshop, including the senior managers of the Bank of Spain who went on to lead the diffusion process. The aim of the workshop was to present XBRL to Spanish firms, independent professionals and institutions which may have potentially been interested in XBRL.

4.3. The second stage: 2002-2005

The three interviewees in this second phase were the professor and two top managers from the Bank of Spain. In a meeting in February 2002, the Executive Committee of *XBRL International*, whose permanent secretariat is housed in the offices of the American Institute of Certified Public Accountants (AICPA) in New York, approved the AECA proposal to constitute a Spanish jurisdiction for the development of the XBRL standard in Spain. *XBRL España*, as its name indicates, is the organisation responsible for the introduction and diffusion of XBRL in Spain. Responsibility for the Spanish jurisdiction, and thus, for *XBRL España*, was initially assigned to AECA. During the next two years, there was continuous contact between AECA and the principal institutions that regulate Spanish financial information.

The professor, who actively participated in the whole setting up process of *XBRL España* found that communication was very fluid on both sides. He pointed out that among the diverse social and economic agents that showed their interest in this project, the (central) Bank of Spain was one of the most significant. As the Bank of Spain deals with huge amounts of financial information, he thought it understandable that their senior managers perceived XBRL as an appropriate accounting language for their goal of standardising the numerous formats which were then available for the reporting required by companies. During this time, the pioneer from PwC continued to participate with the professor and attract the interest of firms, banks, the public sector, non-profit organisations, and others who would act as early adopters of XBRL or would contribute in other ways to the diffusion; but both pioneers took a secondary role when the pioneers from the Bank of Spain assumed the leadership. In 2005 there was a change in the leadership of *XBRL España*. The Director of Financial Reporting from the Bank of Spain became Chairman.

The head of the Spanish Central Balance Sheet Office (Bank of Spain) indicated to us that he knew of the existence of XBRL from reading articles written by the professor. He contacted him at the meeting held at PWC in 2001 and immediately became interested in participating in *XBRL España*. The Director of Financial Reporting from the Bank of Spain told us that he had learnt about XBRL mainly from international meetings associated with the Basle agreements in the European Union. When he became aware of the existence of XBRL, he was the chairman of the Committee of European Banking Supervisors (CEBS). The agreements of Basle II required a consistent approach in financial reporting in member countries. He saw XBRL as a trigger for the development of the new accounting environment, by creating common definitions. Moreover, XBRL would also provide international banks with a common standard for reporting.

The head of the Spanish Central Balance Sheet Office became involved with XBRL because of his personal interest in the XBRL project and, at that time, he did not represent his organization, the Bank of Spain, officially. That is to say, he considered it was of interest for

the Central Balance Sheet Office to participate in the XBRL project with the aim of reducing the information burden and the uncertainty that he detected in the way in which Spanish firms provided information to his office. He also considered that it was important to have available a standard for accounting information. However, he was not acting in representation of the Bank of Spain.

He was interested in XBRL mainly for the potential usefulness of the taxonomies. He valued XBRL positively because he considered it to be a valuable tool, for technical reasons. This was because it is based on XML, and produced a type of information which was standard, and had clear advantages over potential alternatives. The Director of Financial Reporting valued positively the fact that knowledge of XBRL reached him at an optimum moment, since it was a time of change in Spanish financial accounting standards which needed to be adapted to the international financial accounting standards adopted throughout the entire European Union. These changes also involved changes in the information systems of many entities. The implementation of XBRL would help in achieving these aims.

The Director of Financial Reporting saw positive returns from the involvement of his organization, the Bank of Spain, in the diffusion of XBRL in Spain. He considered XBRL to be a tool that could contribute to creating a critical mass of financial entities, and which brought together competitors, even in a regulated industry such as banking. He viewed the role of the Bank of Spain as being an active promoter of public and private collaboration, something that is quite unusual in Spain where the private and public sectors usually go their separate ways.

The head of the Spanish Central Balance Sheet Office considered the main risk to be that: *"IT firms that develop accounting software do not utilize XBRL… the companies who make accounting programs do not yet invest in it. The profits are medium and long term and the software companies have a short term view… It is a risk at any level. It is necessary to be ambitious and realistic… and to give it time."* In this case, given the nature of the innovators, none of them were aiming to secure a market share or profits in the short term; rather, they wanted to utilize the standard to obtain improvements in their business processes. Thus, the Bank of Spain was pursuing improved efficiency in the mechanisms for the control of financial entities, and automation in handling the information collected through its Central Balance Sheet Office. Moreover, its firm support for the project is one of the reasons why the standard is being generally utilized and why the development of software to employ this standard is being encouraged. They started processes of both diffusion and innovation. They diffused the XBRL standard but they also innovated because they applied this standard to the disclosure of financial information and to improving their technological performance.

The Director of Financial Reporting considered that he was exposing his organization, the Bank of Spain, to several risks. The first risk was related to the lack of real implementation of the standard, and consequently to the possibility that it could rapidly fall into disuse. However,

the possibility of exploiting not only the technical advantages but also the prospective benefits to the Bank's reputation for being among the pioneers of this new IT persuaded him to take the risk of leading this project. Another of the principal risks foreseen was that the standard may not be successful. However, his own assessment was that, if all the people involved worked towards it, in the end, XBRL would be successful. And if people postponed their engagement with XBRL until some future date, it might then be too late to participate and to obtain benefits, because others would already have done so. The benefits he was referring to are those of individuals' reputations as initiators and leaders. He considered that the risk of proceeding too fast derived from the technological risks, that the innovation might not be going anywhere. However, those who lagged behind in supporting the XBRL innovation would find all the key decisions already made. Those who were first in engaging with XBRL would be the leaders and would make all the relevant decisions. He declared that "*technology is not innocent: you end up taking a position on the capacity that you have to do things.*"

Both interviewees rated as positive the fact that XBRL involves people from Spanish public universities and AECA who do not have any profit motive, and *XBRL International* itself is a non-profit organisation. It is therefore feasible for them to work on XBRL without favouring one commercial interest over another: they can maintain professional impartiality. Thus, according to the head of the Spanish Central Balance Sheet Office: "*AECA is a non-profit organisation and involves people from the universities who have no profit motive. The Bank of Spain saw that XBRL International was and is a non-profit organisation and also that it is possible to work in Spain without privileging anybody.*" The Director of Financial Reporting valued positively the fact that the organization which is promoting XBRL in Spain is a non-profit-making organization.

The Director of Financial Reporting collaborated actively both in *XBRL Spain* and within the Bank of Spain to create a critical mass, to unify criteria and drive the phenomenon of XBRL, without the software companies or auditors feeling aggrieved. He regarded the situation as one not of competing but rather of working together for a future standard. Most importantly, he had the support of the President of the Bank of Spain for his involvement with XBRL. When he made the decision to assume the presidency of the XBRL Spanish Jurisdiction, he was aware that his presence signified that the Bank of Spain was supporting the innovation.

5 | DISCUSSION

The reasons why innovators engaged with the XBRL are quite similar. They acquired their initial knowledge of XBRL outside their organizations, often in international forums. This knowledge was in a more preliminary state in the case of PwC, but it was more advanced in the case of the innovators from the Bank of Spain. Their "rationale" for supporting the

still embryonic XBRL was based more on intuition than on an economic examination of the potential benefits and losses.

All of them evaluated very positively the advantages of XBRL and underestimated downplayed potential risks. Based upon their perceived advantages, they decided that this innovation was of interest for their organisations and adopted a proactive approach to get the innovation started. After being personally convinced, they led an active process for gaining adherents to the project, particularly the CEOs of their organisations. They were successful in gaining appropriate organizational support from the top hierarchy of their organizations. They also established a network with the other pioneers to capture "adepts" among other firms at a Spanish and international level. As a result of their interactions on this network, they were gaining the confidence needed to become partners in the organization of activities for initiating the process of diffusion of XBRL in Spain (Figure 1).

FIGURE 1: THE "RATIONALE" OF SPANISH XBRL PIONEERS
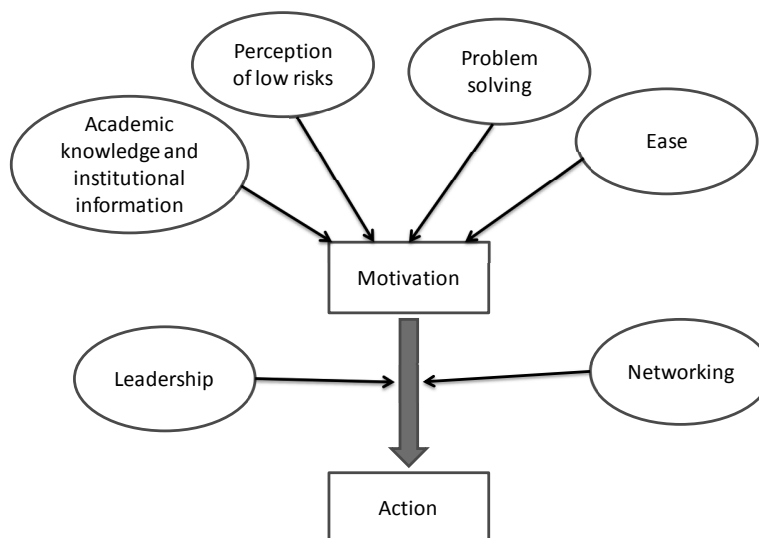
The pioneers acquired their initial knowledge of XBRL through their participation in diverse forums, in which they obtained very basic technical knowledge of XBRL. Most of this came from the academic world, which demonstrates the capacity of research and practice to obtain mutual benefits. The pioneers' knowledge was linked to the context of academic accounting research in the USA and Europe, and their background in XBRL came through their involvement in international activities (conferences, business meetings, etc.) In fact for all four, their initial knowledge was very preliminary, and consisted merely of some limited evidence that the XBRL

standard was generating a certain interest and gaining potential acceptance at an international level. For this reason, we can affirm that they acted mainly on intuition.

The Spanish innovators were able to deal with high doses of risk; in fact they did not seem to perceive a high degree of risk in their actions. Rather the reverse: they tended to forecast a reduced degree of uncertainty. They justified this low risk based on the technical capacities of the academics involved in the development of the XBRL, but were also influenced by the reputations of the international institutions that were supporting it. A personal readiness to take innovative actions is a characteristic of the Spanish innovators. We might classify them as neutral to the risk, as they valuate that the actions have a moderate risk when the risk of failure is maximum.

From their initial awareness of the innovation, pioneers perceived XBRL as a standard that would not be too difficult for them to understand and to implement, and they disseminated this belief, and their confidence, within their organisation. They believed that XBRL was not very risky because it is relatively easy to understand and use. However, the member of PwC does not indicate clearly whether he found the new standard easy or difficult; his interest, even before gaining much technical knowledge of XBRL, was based on the potential benefits for his company perceived from its use. When he acquired a greater knowledge of the language, he indicated that he saw its status as a potential standard as the principal advantage, but he did not refer to its facility of use.

As soon as the pioneers formed their positive perception of the usefulness of XBRL, they sent appropriate signals inside their organisations to obtain the support of their CEOs and Boards of Directors for the XBRL project. They were persistent in projecting their favourable perceptions about XBRL and they gained the support of the top hierarchy in their organisations. They did not seem to have had too much difficulty in successfully gaining that support. When their organizations became involved in the XBRL project, pioneers started to gain the support of other organisations and began to form a network, by communicating preliminary or general knowledge of the XBRL, through meetings and seminars and they were successful in creating the provisional and definitive XBRL jurisdiction for Spain.

The prospective new partners formed part of an innovative project that could bring considerable economic benefits to the participating organisations. For most of the pioneers, the institution's reputation also played an important role as a factor for securing the support of other organisations. It is very significant that the Bank of Spain is a public body that has the capacity to legislate and even to impose sanctions on the Spanish banking sector.

Summarizing, by constructing the commonalities in the views of the pioneers we can better understand the initial stages in the process of diffusion of the technological innovation represented by XBRL, which is a standard for the transmission of economic and financial

information. In particular we have looked for the specific motivations that were influential for the pioneers in the actions they took as early adopters of the innovation. In relation to their construction of motives, the knowledge of XBRL that they possessed at that time came mainly from the academic world. The perception of relatively low risk in promoting XBRL is a common factor to the four interviewees. However, while the innovativeness of the standard initially had a certain weight for the professor and the PwC member, the members of the Bank of Spain were attracted by its capacity to solve practical problems, i.e. they viewed XBRL as significant for their own entity, and their own functional responsibilities in its own right. In addition, since their participation took place when the innovation was more advanced, they already had certain knowledge of the standard through its existing diffusion at an international level. The earliest knowledge is obtained from the academic studies that generated the innovation. The interviewees held positions of leadership in their respective organizations. This fact is fundamental for understanding the success that they achieved in their subsequent actions to gain organisational support for the acceptance and diffusion of XBRL.

With regard to the progression of XBRL in Spain from 2005 to the present, several different projects were put into action for utilising XBRL as the format for disseminating accounting information. In 2008 the Bank of Spain gave up the presidency of the Association, which has now passed to RED.ES, a public company belonging to the Ministry of Industry, Tourism and Commerce, which includes among its functions the promotion of the "Information Society" in Spain.

Currently, the use of the standard is spreading to all areas. In the public sector, a taxonomy for the rendering of accounts by the Local Entities of the Ministry of Economy and Finance has been developed, on the initiative of the General Inspectorate of the Administration of the State, the Ministry of Economy and Finance, and the General Directorate of Financial Coordination with the Autonomous Communities and with Local Entities. In the private sector, the taxonomies of the Institute of Accounting and Auditing of Accounts of the Ministry of Economy and Finance (ICAC) and of the National Commission of the Securities Market (CNMV) are significant.

The taxonomy of the ICAC is orientated towards those companies that are obliged to deposit their annual accounts in the Business Register. The taxonomy of the CNMV is being utilized to disseminate, via the Web, the periodical public information of the entities that issue securities admitted for dealing in various securities markets. Lastly, it should be stated that this process of standardization is extending beyond the accounting information traditionally included in companies' financial statements. An example of this is the AECA taxonomy for reporting Corporate Social Responsibility; this provides technological support for the generation, transmission and processing of reports in XBRL format on the activities and situation of companies and all types of entities, regarding matters of Corporate Social Responsibility (Navarro *et al.*, 2010).

6 | CONCLUSIONS

This paper makes an interview-based survey of XBRL development in Spain. We have conducted in-depth interviews with four of the Spanish innovators in XBRL. Our findings show that diverse official bodies, institutions and companies have adopted the XBRL format as standard for the dissemination of economic-financial information, as a direct result of the initial impulse, efforts and legitimacy of the pioneers. The Spanish pioneers were able to visualize the possibilities of the XBRL as an effective tool for facilitating the transmission of accounting and related information. At that point in time, innovators had available a limited amount of information on XBRL, and his engagement was based more on intuition than on in-depth knowledge of the XBRL.

7 | APPENDIX

1. Please tell us how your organisation got to know about XBRL.
2. Please describe your organisation's decision-making process on XBRL and the role that you performed in that decision.
3. Please indicate the reasons for deciding to adopt XBRL.
4. Please rank this reasons by importance.
5. Please evaluate the state of knowledge of XBRL during the decision-making.
6. Please identify the persons, organisations and institutions that were relevant in the adoption of XBRL and the ways in which they exerted their influence.
7. Please indicate the potential benefits of XBRL that your organisation perceived during the decision-making?
8. Please indicate the risks that your organisation perceived during the decision-making on XBRL?
9. Please describe the current stage reached in the process of adoption of XBRL.
10. Please tell us if XBRL has achieved the original goals, and if so, why.
11. Please tell us how you see the future of XBRL

REFERENCES

Abrahamson, E. (1991). Managerial fads and fashions: The diffusion and rejection of innovations. *Academy of Management Review*, 16 (3): 586-612.

— (1996). Management fashion, *Academy of Management Review*, 21 (1): 254-285.

AECA (2003). *XBRL: Un estándar para el intercambio electrónico de información económica y financiera*. Documento de la Comisión de Nuevas Tecnologías y Contabilidad. Bonsón, E., de Andrés, J.

Agarwal, R., & Karahanna, E. (2000). Time flies when you're having fun: cognitive absorption and beliefs about information technology usage. *MIS Quarterly,* 24 (4) 665-694.

Bijwaard, G. E., Janssen, M., & Maasland, E. (2008). Early mover advantages: an empirical analysis of European mobile phone markets. *Telecommunication Policy* 32 (3-4) 246-261.

Baldwin, A., & Trinkle, B. (2011). The Impact of XBRL: A Delphi Investigation.
The International Journal of Digital Accounting Research, 11, 1-24.

Bonsón, E., Cortijo, V., Escobar, T., & Flores, F. (2009). Implementing XBRL successfully by mandate and voluntarily. *Online*. March/April. 23-26.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: mindfulness and its role in psychological well-being. *J. Pers. Soc. Psychol.* 84 822–848.

Bruns, J., & Kaplan, R.S. (1987). *Accounting Management. Field study perspectives.* Ed. Harvard Business School Press. USA.

Burns, T., & Stalker, G. M. (1961). *The Management of Innovation*. Tavistock, London.

Carmona, S., & Gutierrez, I. (2003). Vogues in management accounting research, *Scandinavian Journal of Management*, 19 (2) 213–231.

Chiari, G., & Nuzzo, M. L. (1996). Psychological constructivism: a metatheoretical differentiation. *Journal of Constr. Psychol.* 9 (3) 163-184.

Cleveland, H., & Jacobs, G. (1999). Human choice: the genetic code for social development. *Futures* 31 959–970.

Cohen, E. E., Schiavina, T., & Servais, O. (2005). XBRL: the standardised business language for 21st century reporting and governance. *International Journal of Disclosure and Governance*, 2 (4) 368-394.

Damanpour, F., & Evan, W. M. 1984. Organizational innovation and performance: the problem of "organizational lag". *Administration Science Quarterly,* 29 (3) 392–409.

Devaraj, S., Easley, R. F., & Crant, J. M. (2008). Research note—how does personality matter? Relating the five-factor model to technology acceptance and use. *Information Systems Research*, 19 (1) 93-105.

Fichman, R. G. (2004). Real options and IT platform adoption: implications for theory and practice *Information Systems Research*, 15 (2) 132-154.

Firth, M. (1996). The diffusion of managerial accounting procedures in the people's Republic of China and the influence of foreign- partnered joint ventures. *Accounting, Organizations and Society,* 21 (7) 629-654.

Gerwin, D. (1988). A theory of innovation processes for computer-aided manufacturing technology. *IEEE T. Eng. Manage.* 35 (2) 90-100.

Harrison, T., & Waite, K. (2006). A time-based assessment of the influences, uses and benefits of intermediary website adoption, *Information & Management,* 43 (8), 2006, pp. 1002-1013.

Hodge, F. D., Kennedy, J. J., & Maines, L. A. (2004). Does search-facilitating technology improve the transparency of financial reporting? *Accounting Review,* 79 (3) 687-703.

Kirton, M. J. (2000). *Adaptors and Innovators: Styles of Creativity and Problem Solving*. KAI Distribution, London.

Lee, A., & Hubona, G. (2009). A scientific basis for rigor in information systems research. *MIS Quarterly,* 33 (2) 237-262.

Malmi, T. (1999). Activity-based costing diffusion across organizations: An exploratory empirical analysis of Finnish firms, *Accounting, Organizations and Society*, 24 (8): 649-672.

Mason, J. (2002). *Qualitative Researching*. Sage Publications, London.

Miles, M. B., & Huberman, A. M. (1994). *An Expanded Sourcebook Qualitative Data Analysis*. Sage Publications, London.

Mingers, J. (2001). Combining IS research methods: towards a pluralist methodology. *Information Systems Research*, 12 (3) 240-259.

Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*, 2 (3) 192-222.

Navarro, A., Alcaraz, F.J., & Ortiz, D. (2010). The Disclosure of Corporate Social Responsibility Information in Public Administrations an Empirical Study in Local Governments. *Revista de Contabilidad-Spanish Accounting Review,* 13 (2) 285-314.

Piccoli, G., & Ives, B. (2005). IT-dependent strategic initiatives and sustained competitive advantage: a review and synthesis of the literature. *MIS Quarterly,* 29 (4) 747- 776.

Rogers, E. M. (2003). *Diffusion of Innovation*, 5th Edition. Free Press, New York.

Roohani, S., Xianming, Z., Capozzoli, E., Lamberton, B. (2010). Analysis of XBRL Literature: A Decade of Progress and Puzzle. *The International Journal of Digital Accounting Research*, 10, 131-147.

Ryan, B., & Gross, N.C. (1943). The diffusion of hybrid corn in two Iowa communities. *Rural Sociology,* 8 15-24.

Sexton, T. L. (1977). Constructivist thinking within the history of ideas: the challenge of a new paradigm. *Constructivist Thinking in Counselling Practice, Research, and Training*, T. L. Sexton and B. L. Griffin (Eds.), Teachers College Press, New York, 3-18.

Strauss, A. (1987). *Qualitative Analysis for Social Scientists*. Cambridge University Press, Cambridge.

Swanson, E. B., & Ramiller, N.C. (2004). Innovating mindfully with information technology. *MIS Quarterly,* 28 (4) 553-583.

Vasarhelyi, M. A., Allles, M. G., & Kogan, A. (2004). Principles of analytic monitoring for continuous assurance. *Journal of Emerging Technologies in Accounting,* 1 (1) 1-21.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F.D. (2003). User acceptance of information technology: toward a unified view. *MIS Quarterly,* 27 (3) 425-478.

Von Glasersfeld, E. (2007). A constructivist speculation about Parmenides. *Constr. Found,* 3 (1) 27-29.

Yin, R. (1994). *Case Study Research: Design and Methods*. Sage Publishing, Beverly Hills.