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ERPs and accountants' expertise: the construction of relevance

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Abstract

Purpose – This articulation sets out to focus on the mechanisms and dynamics of "expertise constitution" where it is understood as an "accomplishment" or an "achievement". This understanding appears to be an important step in studying the interrelation of accountants and ICTs, while avoiding the traditional de-skilling or empowering accounts of technologies that still inform much of the current debate on the uses of ICTs.

Design/methodology/approach – The paper, using accountants and enterprise resource planning systems in Egypt as an example, illustrates how ERP represents an opportunity for accountants to assert their expertise and to produce new identities for themselves by acting as the spokesperson of technology and by promoting claims of expertise in terms of identifying what is required for ERP to work in their companies.

Findings – Finds that there is no dilution of expertise in relation to ICTs; rather, some accountants are promoting themselves as a group of relevant experts in deriving benefits from these systems. Rather than a threat, accountants mobilize the advent of ERP as an occasion where their skills and their accounting knowledge are represented as important for the proper functioning of these technologies.

Originality/value – This paper is seen to contribute to the existing literature, by addressing calls for the study of the relation between ICT in general and ERP in particular, and accountants' expertise, and offering a different conceptualisation of their interrelationship.

Keywords Communication technologies, Manufacturing resource planning, Egypt, Accountants, Skills, Case studies

Paper type General review

Introduction

The impact of new information and communication technologies has been widely cited in the literature as one of the most important factors affecting the future demand for accountants' expertise (for example AICPA, 2000; ICAA, 1998; ICAEW, 1997; Chapman and Chua, 2003; Scapens *et al.*, 2003). A key argument developed in the literature is the suggestion that new advances in ICT is likely to result in standardization and commodification of knowledge and expertise, where knowledge turns to a commodity available in markets and can be easily approached by everyone. For example, according to Scarbrough (1996, p. 26) access to knowledge and expertise, reconfiguring it in novel ways and offering it for sale, are becoming specialized functions where consultants, software and hardware suppliers are typically viewed as being proactive in bundling and commodifying knowledge into particular packages.

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It is argued in this paper that the above conceptualisation of the relationship between ICTs and expertise is based on the assumption that expertise is a given resource that exists prior to the practices that constitute it. This paper proposes a different understanding of the notion of "expertise" that focuses on the process of its construction and on considering it as an outcome of a web of relations involving multiple actors and a diversity of institutions and representational practices. In other words expertise is regarded as a dynamic processes that is always in the making. The argument is illustrated by a case study in a large Egyptian company that has implemented an ERP system, and the paper considers the mechanisms by which accountants attempt to redefine themselves and reinvent their expertise in relation to the ERP system. The case highlights how the introduction and implementation of ERP enables skilled performances by some of the accountants as they seek to accommodate it and redefine their work practices in relation to it.

This paper is seen to contribute to the existing literature, by addressing calls for the study of the relation between ICT in general and ERP in particular, and accountants' expertise (for example: Bhimani, 2003; Granlund and Mouritsen, 2003; Hunton, 2002) and offering a different conceptualisation of their interrelationship. It is argued in the paper that most of the existing literature focuses on the "what question", that is, what are the implications of technology for accountants' expertise and what do the accountants need to do to meet those challenges/or opportunities created by ICTs? The argument made here is for the need to understand the "how" question through considering the mechanisms by which accountants are redefining their expertise and constructing their relevance in terms of defining what is needed for these systems to work in their organizations and in terms of deriving benefits from ERP systems.

The paper begins by discussing the existing accounting literature, which considers the implications of ICT in general and ERP on accountants' practice and expertise, and identifies the need for more studies that reflect on the mechanisms of "expertise accomplishment". The second part attempts to fill this need through a discussion of a case study in a large Egyptian company, which has implemented an Oracle ERP system and considers the mechanisms by which accountants are reinventing themselves through promoting claims of expertise in defining both the scope of ERP, and the nature of their business and its needs.

Accountants and ICTs

The accountant and technology relationship has been discussed by academic researchers (for example: Abbott, 1988; Chapman and Chua, 2003; Graunland and Malami, 2002; MacDonald, 1995; Scapens and Jazayeri, 2003) and through a number of reports issued by different professional bodies (for example: AICPA, 2000; IMA, 1999; ICAEW, 1997). For example, the rise of technology has been considered by Abbott (1988, pp. 144) along with the rise of the large-scale organizations, as two significant factors influencing professional jurisdictions[1]. Abbott (1988) stated that although technological revolution has created large numbers of professional jurisdictions, it has also created the tools for turning professional knowledge into commodities at an ever-increasing rate. Abbott (1988) explored how esoteric professional activity can be embodied in commodities, which can then be bought and sold without the involvement of jurisdictional professions.

In the ICAEW (1997) report, discussing the future of chartered accountants, it was stated that by 2005, the power and capabilities of computer technology will have

grown dramatically, and costs will have fallen substantially. The report stated that knowledge bases will be more affordable and widely available, and that information technology will be capable of handling many of the aspects of an accountant's work more efficiently. It is also argued that, although the analytical and interpretative functions are likely to remain under the control of skilled professionals, those professionals would not necessarily be accountants. This argument is supported in recent times by other occupational groups developing techniques, such as just-in-time manufacturing and total quality management (TQM), which have gained eminence and created a source of competition for accounting controls. As stated by Miller and O'Leary (1993. p. 203):

> These technologies for governing the enterprise are in the process of transforming the organization and control of production processes. Whilst it is too early to assess fully the extent and implications of such changes, it is nonetheless evident that accounting expertise, at least in the American setting, no longer automatically holds untrammelled sway.

In a recent academic report (Scapens *et al.*, 2003) on the future direction of UK management accounting practice, a number of factors were identified as having an impact on management accounting practice; these include the dispersion of information around the organization facilitated by database technology. According to the report, technological advancement results in making information easily accessible at all levels of the organization; thus, managers with PCs on their desks can immediately see their variance and monitor their actual performance possibly daily or even in real time. This replaces the previous system whereby managers had to wait until the end of the month for the management accountants to "produce the numbers".

As such, accounting reports are extracted from the information system directly. Accountants, who are being thought of as primary controllers of accounting knowledge and information processing in organizations, are seen to be turning out to be consumers of the information technology (Westrup and Newman, 2003). Thus, it has been argued (Parker, 2002) that accountants will find themselves at a career dead-end as their traditional management accounting function is decentralized and the demand for their traditional skills drops. The de-skilling impact of technology was emphasised by Robinson and Wilson (2001, p. 25) in relation to ERP systems, who state that:

> By defining the business processes, and thus job content, ERP software also specifies the ways in which the work is to be carried out. Expected to switch from task to task, the employee is left with little choice as to how the tasks should be carried out as the processes are inflexibly coded into the system. Thus, ERP also has a classic de-skilling effect in that knowledge and control, previously in the hands of the employees, now appear as objective properties of machinery.

It is to the discussion of ERP in relation to accountants' expertise that this paper will turn in the next section.

Accountants and ERP

ERP is one of the information technologies that enjoys a widespread diffusion worldwide. In the Middle East region, about 60-70 per cent of ICT spending is on ERP systems (American Chamber, 2002). These implementations represent considerable investments in any company's information system budget, in terms of both monetary and intellectual resources, and are thus an important issue for developing countries.

ERP systems can be described as configurable, standard application software which includes integrated business modules for the core processes and functions of an enterprise, that seek to present a holistic view of the business from a single information and IT infrastructure (Bancroft *et al.*, 1998; Klaus *et al.*, 2000; Scapens *et al.*, 1998). They are process-driven modules built around software representations of complete business processes that are supposed to represent best business practice in the industry (Robinson and Wilson, 2001, p. 23). ERP systems are currently being widely implemented in large organisations (Klaus *et al.*, 2000; Sia *et al.*, 2002; Swanson, 2003) as well as small- and medium-sized enterprises.

The spread of these systems is being associated with calls for studying the implications of these systems for accounting information systems in organizations and accountants' practices (for example Chapman and Chua, 2003; Granlund and Mouritsen, 2003; Hunton, 2002). Most of the studies that address the relation between ERP and accountants' practices focus on the implications of these systems and the way in which ERP is regarded as shifting the balance of significance away from the "idiosyncratic local knowledge towards the delivery of standardised outputs based on standardised inputs" (Chapman and Chua, 2003, p. 85). For example, Chapman and Chua (2003) argue that both aspects of automation and integration, which characterise ERP systems, reduce the need for employing management accountants. They add that the enhanced possibilities for control offered through these systems are enabled by the reduced scope for individual discretion, and the automated monitoring of activity.

Attempting to address these challenges a number of studies come up with various recommendations. For instance, it is argued (Scapens *et al.*, 1998, 2003) that keeping abreast of technology is critical to increased opportunities for accountants to optimise performance and expand services. Caglio (2003, p. 145) emphasises the importance of the hybridisation of the role of the management accountants, which means dealing "less with traditional accounting activities, devoting more time advising and supporting line people as internal consultants whilst previously having acted as independent monitors and controllers of the operating activities". Graunland and Malami (2002) state that the greatest benefit of ERP for accounting implies enhanced mass processing of documents, which gives accountants more time to devote to business support. Scapens and Jazayeri (2003), based on a longitudinal case study in the European division of a large US multinational, conclude that the work of management accountants has shifted from traditional accounting activities towards a more interpretative role. According to the authors, this situation has potentially put the management accountant in the position of an internal consultant or analyst, who assists managers to create strategies and to take operating decisions.

These studies are important in terms of illuminating different aspects of the relation between ERP and accountants but they can be qualified as they start from given features of the technology. What ERP is and what it does are assumed to be read off the technology. However, as argued by Bloomfield and Vurdubakis (1994, p. 10):

> ... any account that takes the properties of a particular technology as its starting point, is from the beginning caught up in those practices that generate and sustain the objectively given quality of those properties.

Accordingly, it is argued in this paper that these properties need to be "articulated" and aligned with the business needs by a technology spokesperson. In other words, ERP

systems have to be represented in terms of their capacities and potentialities, which cannot be defined a priori and this created a scope for accountants to promote themselves as a group of relevant experts for defining ERP system within their companies. Thus, although it could be argued that the implementation of ERP system results in lose of control over the design of accounting systems and lose of discretion in applying the procedures for the collection and provision of information which can be regarded as deskilling impact of ERP, nevertheless, the implementation of these systems were mobilised by some accountants to redefine their expertise in terms of how the system should work within their companies. The next section aims to highlight those issues by shedding light on the interaction between accountants and ERP in a large Egyptian company. The process of data collection and the methodological underpinnings of the research will be discussed first, before the actual findings of the case are considered.

Research method

The choice of qualitative research based on a case study approach directly follows from the paper's objectives, which have to do with understanding expertise in terms of its constitution in relation to ERP. As stated by Yin (2003, p. 13):

> Case studies are the preferred strategy when "how" or "why" questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within its real-life context.

Since the paper is concerned with understanding how the accountants were representing themselves and constructing their relevance in terms of deriving benefit from an ERP system, the case study approach was seen as appropriate. The data presented in the paper is based on a longitudinal case study conducted between 2000 and 2002 in a large company in Egypt – the Sun Steel which is one of Sun Group[2] companies. The longitudinal case study allowed me to capture, though perhaps to a limited extent, the dynamics of the relationship between accountants and ERP and to be present at various periods during which observations of accountants' interactions and practices were possible. The study was conducted on the basis of three visits. The first visit took place in August 2000 and aimed to assess the feasibility of the research project and to make sense of the case and its specificities. The second visit took place in March-April 2001 and it was a central visit where most of the data were collected. The third visit in July-August 2002 was mostly concerned with following up the different issues related to the research objectives that were identified in the second visit, and exploring whether the problems raised by some of the interviewees in their interaction with ERP systems had been sorted out (and how), or whether these issues still represented a problem and why. The primary method for gathering data was face-to-face interviews.

In between the second and third visits further interviews were conducted over the phone. These were rather more structured, aiming to confirm some aspects that had been less clear in previous interviews and conversations and in other cases, to address very precise issues regarding interpretations.

Interviewees included key personnel involved in the implementation and use of the ERP including: the Chief Information Officer (CIO), the Senior Financial Officer (SFO), the head of the accounting department, senior accountants, accountants as well as ERP implementers (see Table I).

Table I.
Summary of the three field studies

Visits	Pilot	Main	Third
Sun Steel	CIO	CIO SFO 2 IT implementer	1 IT implementer
	3 senior accountants	Head of accounts department 4 senior accountants 3 accountants 1 accountant working with the purchase module (purchase department)	Head of accounts department 1 senior accountant 3 accountants

Interviewees are asked different questions. For example interviews with SFO and head of Accounting department covered the following issues; the organisational environment, the organisation of the work in the accounting department and the accounting system that used to exist before the implementation of Oracle, how they describe the decision to implement Oracle ERP solution, whether (in their opinion) ERP provides a solution to any problems the company might be facing, and if not, then what alternative solutions could they think of, understanding how the implementation process of Oracle was taking place, how they described and articulated the difficulties in the implementation process and the usage of the system, and the strategies adopted to face these difficulties, the benefits that were expected from Oracle and to what extent these benefits are fulfilled.

Interviews with senior accountants and accountants who are in direct contact with ERP included their work activities, the organisational environment, what they think of as reasons for implementing ERP systems in their company, their role in the implementation process, and how it was handled. In particular, the interviews aimed at understanding how ERP systems result in: changes in their working practices, their relations with their colleagues, their relation with other departments, the need for developing different skills to their existing ones, the training they received on the system, how they articulate their problems with ERP systems and what strategies they followed to solve them.

The third group of interviewees included those responsible for the implementation of ERP systems and involve the CIO, and ERP implementers. The interviews explored the changes in the ICT sector in Egypt and the ways in which these changes affected their company, how the decision to go for ERP was made, how the implementation process was taking place, the relationships with Oracle and Oracle's partner Erate, and how they represented and articulated the problems of ERP in relation to their company.

The fieldwork involved a total of 23 semi-structured interviews, which varied from one to three hours. In some cases, the same individual was interviewed more than once – mainly those who had raised some points that needed to be followed up, and those who had been expecting certain changes to happen related to the introduction of new modules. The interviews normally commenced with the researcher outlining the background to the study and the research interests, and how the implementation of ERP systems in different companies resulted in different outcomes; i.e. on some occasions it was successful while in others it was not. This seemed to contribute to creating a relaxed atmosphere, especially with those who were not happy with the system, as it suggested their problems were shared with others. This also makes it

easier to build trust and willingness to exchange ideas. The interviews were tape-recorded as permitted by the interviewee. Nevertheless, the recorder was turned off on some occasions when the interviewee wished to disclose an issue that he did not want to record. Notes of these issues were written down after the interview. The interviews were transcribed and analysed.

Besides these interviews, several types of documentary evidence related to ERP project were collected and analysed. These include: contracts between the company and Oracle, documents related to the selection and implementation process, newspaper and magazine articles on the company and interviews with the chairman, the company's brochures and internal documentation.

From the data collected different themes were identified which included the contested nature of ERP systems and the importance of articulation and representation processes in defining what they are and what they are capable of doing, how accountants' expertise is coevolving in relation to ERP and in relation to the changes in the ICT market, the web of relations that are playing an important role in the configuration of the interaction between accountants and ERP.

Company profile

Sun group is a holding group of companies, which ventured into industry by investing in the ceramic tile industry and by producing steel. Today, Sun industries are considered one of the largest producers of steel, dominating the steel industry in Egypt, and enjoying a strong presence in the ceramic tile market.

"Sun Steel" is one of the Sun Group companies that was established for the purpose of manufacturing, trading and distributing steel. The factory is located in one of industrial cities in Egypt and away from the head office where the accounting department is located. All communications between the factory and head office were based on fax and telephone calls, and exchanged documents used to be brought in next day from factory to head office, and vice versa. Periodic business performance reports are prepared on a monthly and quarterly basis at the factory and sent to the accounting department. These reports are accompanied by a summary of any disruption to the production process that might have happened during the period covered by the report. These reports reflect cumulative operating data, which are then checked against predefined standards, and the causes of variance are reviewed and discussed with production people through meetings held at the head office, and the results of these discussions are reported to top management.

Accountants at Sun Steel used to work with a local software accounting package, which they were using as a way of automating their work. For them, this package was a tool over which they had full command in terms of classifications and presentations of figures. Accountants, especially those who are not in direct contact with factory, were satisfied with those representations coming from the package. The package was serving their purposes but it was slow and with the expansion in the volume of business it became even slower. Most of the accountants were using Excel and combining its output with those coming out from the accounting package they were using.

The head of the accounting department explained that the company is known for putting a strong emphasis on the education and training of its employees. Approximately 2 per cent of the group's annual turnover is spent on training and in subsidising professional qualification courses for different employees of the group. For

accountants, these are mainly the professional qualification courses run by the American Chamber of Commerce in Egypt.

The question then is why going for an ERP system? And how do things change/not change when an ERP system is introduced. How is the relationship between accountants and production people at the factory reconstituted? How is ERP defined and articulated? This is explored in the next section.

ERP and accountants at Sun Steel

With respect to the specific ways in which IT contributes to improving the work performance at "Sun Group", Mr Sun (the group owner) stated:

> Today, we no longer have the possibility to question ourselves about whether we need to adopt advanced Communication and IT or not. We have no choice but to ensure that our products are produced in conformity with the International standards. Applying training and development programmes is no longer an option. All these measures have become a necessity, and the development of Industrial operations cannot be achieved without the adoption of advanced information systems (Mr Sun, Company's internal document, accessed 2001).

The adoption of advanced IT including ERP system was set forth by Mr Sun (group owner) as an obligatory passage point (Callon, 1986) to ensure and sustain existence of any business in the market, and for meeting global changes[3]. Not only is ERP seen as important in terms of its organisational capabilities, but it is also to serve as a symbolic status, as was emphasised by the senior financial officer (SFO) of Sun Steel Company. When asked about the reasons behind the introduction of ERP systems, the (SFO) stated that:

> Mr Sun was looking for modern management systems that had an integrated database so that management could have access to real time information. Further, he is undertaking lots of effort to make his group more like a modern international company in terms of management, human resource and production systems in the factories (SFO, interviewed 2001).

Regarding the decision to choose Oracle as a vendor and as software can be attributed to how Oracle was presenting its products in terms of the most modern systems bringing in the "best business practice" to Egyptian companies and how its existence in Egypt is likely to ensure the delivery of proper support.

As explained by the CIO:

> Oracle was selected because, first, it offers the functionalities we are looking forward, secondly it is a worldwide ERP vendor with a strong name and presence in the Egyptian market, which means better support (CIO, interviewed 2000).

The implementation process was taking place through the company's IT department, working in collaboration with Erate[4], which is a sub-contractor of Oracle. The SFO at Sun Steel mentioned how the scarcity of highly qualified IT people was a major problem, and those who are really good are attracted to other, more specialised and well paid jobs. This turnover had its impact on sorting out the problems of the ERP system quickly and created a scope for accountants to find alternative methods for doing their work. For example, one of the accountants stated:

> With the problems that we started to face we were not quite sure whether the system was really good as we thought but we don't know how to deal with it or was it a bad system in itself. But what I can say is that with the usage of the system we became dependent most of

> the time on IT people for support and advice in sorting the different problems that arise in dealing with the system ... Because of the long time taken to sort these problems I was determined then to follow the rule "help yourself". This doesn't mean to replace and start playing the role of IT people which cannot be done, for at the end of the day I am not an IT expert, but what I did is using the help menu within the system and reading more about it, discuss the problems that I might face with some of my colleagues here who are also interested in "discovering" the system and make use of their experience ... I am not saying that your success in understanding the system can be easily achieved or what is needed is just more training, but it is a range of different things including first of all the extent to which you master and understand the technicality of your own work and what you are doing, and to be able to see how the system can be of help to you (Senior accountant, interviewed 2002).

This quote sheds light on interrelated and important issues in relation to the arguments developed in this paper. First, it illustrates the importance of intermediaries which circulate and mediate expertise and knowledge about technology and how technology becomes recognized in the way it appears to be (Bloomfield and Vurdubakis, 1994). This problematises the notion of "solidity of the technical" (Bloomfield and Vurdubakis, 1994) which accounts for ERP as if it is a thing or a given entity with a life of its own and whose properties can be defined a prior. Such conceptualisation sheds light on the flexibility with which the boundary between technical and organizational is set forward and the role of the technology spokesperson in the constitution of those boundaries.

Second, it reflects how the accountants are developing their understanding of the technology, for example, the interviewee was not sure at the beginning whether the problems that arise are related to the system itself or to those who are using the system (i.e. technical or organizational problems), and how his views start to change as he develops his understanding of ERP.

Third, and in relation to the above point, the quote draws attention to the importance of existing bodies of knowledge and expertise of accountants for the ways in which ERP is defined, which in turn has its implications for how accountants' ways of formulating knowledge becomes redefined (Scarbrough, 1996). In other words, it reflects how both the accountant's expertise and ERP are being mutually defined in relation to each other within Sun Steel Company, rather than being considered separately and interrelated through a one-way relationship. As mentioned above, mastering accounting technicalities and expertise is presented by senior accountants and some of the accountants as being important in terms of dealing with the system and at the same time this expertise is being redefined through the intermediation of ERP and the way it is used within Sun Steel.

Another instance through which the accountants were seeking to establish themselves as the spokespersons of their business and attempt to control the series of events implicated in the implementation of ERP is related to the early stages of the system implementation and the process of defining cost centres. As explained by the SFO, the factory manager and production people were not primarily interested in the ERP system; rather they favoured systems designed to extend their own autonomy by improving production control within their own jurisdictions. However, with ERP, accounting and manufacturing systems will be mobilising a single database and a single point-of-entry for information; in other words, they need to be integrated using the same transactions and the same measurement data. The configuration of ERP and the problem of developing the master data file, together with the need for the allocation

of cost centres, created an interesting arena of struggle within which the accountants and the production people at the factory were trying to exert control over the system and, hence, over what the system can and cannot do. As explained by a senior accountant:

> The factory manager [an engineer] wants to exert his control over the system, when in fact the system should be under the accounting department's control because in the end the last paper coming out of the system is the financial statement. He wants to impose his technical point of view in defining how costs and expenses should be represented and classified. However, his classifications do not make sense from the accounting point of view (Senior accountant, interviewed 2001).

Therefore, installing the ERP could be seen as resulting in drawing different representations together (Latour, 1990), showing differences between the representations of accountants and engineers. It draws attention to the role of ERP in the process of making particular segmentations of the organisational arena that constitute a distinctive terrain for the struggles between accountants at the head office and factories, and it shows how ERP both mediates and reconfigures the boundaries between responsibilities, practices and knowledge of the different professions involved. The way in which this conflict is resolved highlights how accountants are re-inventing themselves, not only by articulating and re-representing their business's needs but by developing their IT skills.

As explained by a senior accountant:

> ... at last we [accountants] came up with a coding system capable of doing a mapping process between what we need to see and what the factory manager wants. I should say that was not easy, but because we were getting more involved with the system and we were trying to solve its puzzle, in addition to mastering our work as expert accountants and understanding its technicality, we managed to sort it out (Senior accountant, interviewed 2001).

As can be seen from the above, accountants' attempts to develop this coding system provide an example of how they were articulating claims of competency in an area of work with which it is not natural to associate themselves. In doing so, accountants were re-defining both ERP in their company and themselves.

Discussion

The above examples illuminate accountants' attempts to extend their control over the definition of ERP and to construct their expertise using ERP systems. Some of the accountants at Sun Steel were intervening to identify what is required for ERP to accommodate what they presented as "local accounting practices" in their company. Accountants at Sun Steel are in good position in that sense, especially those holding professional qualifications offered by the American Chamber of Commerce. An accountant holding this qualification could be said to have a more legitimate representation of what the business requires.

However, such redefinition needs to be viewed as the outcome of associations among heterogeneous entities including both technical elements and the personnel whose knowledge and skills are developed to maintain ERP in operation. For example: if we look to top management we can find how the owner was interested in having the system up and running both for operational as well as status symbolic reasons. A number of accountants commented on top management concerns for not letting the

system fail in the company. If, however, the case was different and management decides to ignore ERP, then the above network, where accountants were presenting themselves as experts in deriving benefit from these systems, can hardly be built.

Similarly, both hardware and software represent important resources in configuring the interaction between accountants and ERP. As explained by the SFO:

> Oracle financial version 10.7 does not adequately recognise the vast number of currencies that we use, and we had to do a fair amount of work to get around that problem, as it was affecting, for example, cash planning purposes with respect to imported goods. This work had to be done outside the system (SFO, interviewed 2001).

However, as stated by the head of the accounting department:

> Oracle realized that they had to redefine their products, and thus the newest version gave more flexibility and accounted for those problems (Head of he accounting department, interviewed 2002).

Such ongoing modifications in the new versions of ERP, which are simply an outcome of dealing with commodity systems, are likely to lead to continuing phases of mutual definition of ERP and users, and create an opportunity for different groups to try and define how these changing technologies can be deployed to best effect. This highlights the quasi-nature of ERP and the difficulty of defining it once and for all (Quattrone and Hopper, 2001). The SFO explained that these problems, which they face with Oracle, could be related to the fact that Sun Group was one of the early implementers of Oracle in Egypt.

If we move on to the accountants themselves in Egypt, it could be said that the number of accountants graduating each year from faculties of commerce is higher than the demand for their services. This results in their receiving low salaries compared to technical staff such as engineers. Thus, for an accountant to be able to find a better job in the market with a higher salary, he needs to differentiate himself and reinvent his services. It could be mentioned here that the ability of accountants to redefine their professional knowledge using ERP systems is facilitated by the inability of technology designers to predict all the possible ways in which the technology will be used (Akrich, 1992; Westrup and Newman, 2003), so a scope of accountants' interpretations of what is required to make the system work is made available.

Finally, it could be said that the market for accountants' services in Egypt has started to change. One of the accountants stated:

> ... the market for accounting services is changing, new demands are put forward and the chances of getting a good job depending on traditional skills is declining (Accountant, interviewed 2002).

Another stated:

> ... now it is not only a matter of computer knowledge but experience with new advanced packages is becoming a prerequisite. See yourself the adverts in newspapers and what they are putting forward as requested qualifications (Senior accountant, interviewed 2001).

These comments reflect how meanwhile accountants are looking for new ways to reinvent themselves and their services so as to secure good job.

In short, we do not see the withering away of the role of accountants nor stagnation in terms of their role and working practices. This paper agrees that the routine aspects

of accountants' work is now carried out by technology, and their working practices are affected by ERP, but rather than thinking of expertise in a conventional way and as being commodified as a result of the deployment of ERP, it is suggested here that, at least in this case study, it is being redefined. This redefinition is conditioned by multiple resources which include: impute for the development of the ICT industry in the Egyptian market, businessmen's interest in exploiting new advances in ICTs to harness their potential and to align themselves with national initiatives, and attempts of big ERP vendors in the Egyptian market to define themselves and their products. In addition, most of the accountants do realise the importance of aligning their activities with the new technology, first because they are under pressure from stakeholders who are interested in seeing a return on their investments, second because they are able to get better jobs through mastering the new technology. Thus, although the scope for designing their accounting systems has been reduced, the scope for shaping the implementation and hence the definition of ERP is asserted.

Conclusion

This paper started by arguing for the need to focus on the mechanism of "constructing expertise" and to think of expertise as contestable and emergent. The discussion highlighted a number of issues with respect to accountants' expertise. First it highlighted how it has been widely acknowledged in accounting literature that the boundaries of accountants' activities and practices are undergoing considerable changes. Understanding the implication of ERP systems on the expertise and practices of accountants within organisations is set forth as an area of research where it has been emphasised that the traditional accounting role within organisations is declining. Second, it has been argued that with new advances of ICTs, accounting literacy becomes easily transferable to non-accountants, such as managers and IT people, where IT is seen as contributing to the increasing use of accounting knowledge throughout the organisation. Accountants are seen as no longer enjoying a monopoly thereof and are facing the erosion of their expertise by competing professional groups or line managers. In that sense, accountants are seen as losing control over their work and need to develop themselves through acquiring or expanding upon a number of skills including communication, teamwork, broad business knowledge and strategic thinking, as well as analytical and interpretative skills (Scapens *et al.*, 2003).

However, the argument in this paper questions the extent to which it is possible to understand what accountants are doing when only the formalised structures of knowledge and expertise are taken into account. Instead, it argues for a more localised perspective that tries to ground its understanding of how knowledge and expertise is performed in practice.

The paper has shed light on the accountants' attempt in Sun steel to redefine and re-position themselves in relation to ERP. The case shows no withering away of expertise in relation to ICTs; rather, some accountants are promoting themselves as a group of relevant experts in deriving benefits from these systems. Rather than a threat, accountants mobilize the advent of ERP as an occasion where their skills and their accounting knowledge are represented as important for the proper functioning of these technologies. In that sense, it could be said that the relationships of accountants and technologies, such as ERPs, have become increasingly entwined: they start depending on ERP and follow its inscriptions but nevertheless are reshaping the system through

their use of it. In so doing, they are redefining their expertise. Thus, it is not the case that accountants' expertise is being eroded but their expertise is being redefined. Such redefinition in turn needs to be understood as an outcome of a web of relations among heterogeneous entities that enact the space and enable this process to take place. This web of relations can only be uncovered by thinking of expertise as being contested and emergent, and by focusing on the mechanism of its "constitution" or "achievement". In that sense, neither ERP nor accountants can be considered as passive actors nor can they be defined a priori. Rather, they need to be thought of as being mutually redefined in relation to each other.

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Further reading

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