Research Paper Accountancy

The Impact of Accounting Information Technology on the Roles of Accountants in Nigeria

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ABSTRACT

Many authors have observed that unless accountants adapt to developments in information technology (IT) they risk being reduced to a subordinate role. This paper reports on the results of two surveys of chartered accountant members in Nigeria spanning ten years. These surveys aimed at assessing the change in their roles as a result of IT developments. The paper identifies some specific IT skills necessary for decision support systems and discusses how such skills should be incorporated in accounting profession and also examines the possibility that accounting functions within organisations are becoming restricted to the areas of financial reporting and transactions processing, rather than decision making and problem solving. The findings of both studies show that chartered accountants perceive they spend on average only a half of their time on the latter types of accounting activities.

Introduction

The wider impact of information technology (IT) on the accounting profession has been of concern to professional accounting bodies. The Institute of Chartered Accountants of Nigeria (ICAN) reported on several occasions that accountants need expanded skills in IT as well as strategic and general business skills if they are to remain relevant to society.It warned that if accountants fail to expand their skills, they will be replaced by lawyers and other mushroom accountants/ professonals.(ICAN 2010). While accounting traditionally entailed the processing of historical data, the report further asserted that accountants' roles will change to 'be focused on adding value, having far greater input to … societal decisions' However the report provided little evidence that this was actually happening. Given the multi-disciplinary nature of managerial roles in modern society, it is possible that decision making has increasingly been taken over by professionals in non-accounting disciplines. This paper reports on two surveys of chartered accountants in Nigeria conducted in 2001and 2011 aimed at examining to what extent chartered accountants roles within Nigeria organisations have changed, and to what extent they are restricted to the areas of financial reporting and transactions processing. The research was aimed at identifying those areas of accounting on which IT has made its greatest impact. The paper identifies the specific IT skills necessary for decision making and discusses how such skills should be incorporated into accounting profession practices.

Developments in (IT) over the past 10 years have resulted in considerable changes in the nature of business and, with these changes, the work of managers and business professionals. Developments in IT have equally increased the variety and volume of easily accessible information, from both internal and external sources, and at all organizational levels (ICAN 2002) Therefore ,most professionals should now be sufficiently competent with IT to be able to access and analyse a wide variety of data in order to make or recommend business decisions.

Changing roles also require that people in business possess cross-disciplinary attitudes and be able to work in teams. Indeed, some commentators argue that modern business organisations should place importance on the ability to be flexible in roles (Iwarere 2010). Process improvement requires creatively developing and implementing ideas in organizations which entreat staff to "think beyond the frame" and "find better ways" in order to survive and succeed in competitive markets and industries. The picture of the ideal worker is one who has the imagination to develop new markets, create new ideas and new products, and not simply fit into traditional or existing patterns (Porter 1997)

The reflection in the commentary on the work of accountants who provide decision for managers in operations, marketing, human resources and other functions.(ICAN,2006) suggest that the work of accountants decision management as "business partners".Helpful comments received from participants at the 41st ICAN Conference on International Accounting Issues (Abuja) in November 2011 are also acknowledged .. requires a variety of skills,

encompasses several disciplines, and impacts on the organisation in various ways. They still hold fiduciary responsibilities (but) they definitely do more than accounting. They are involved in strategic planning, process improvement, team building and a host of other activities ." In the competitive environment of business, all staff employed in a firm should add value beyond their salary. If chartered accountants are to add value to the society for whom they work, they must be able to advise and support managers on a number of dimensions and generally remain strategically relevant in their responsibility.

Harrison (1993) argued that management accountants should be active in decision making: Chartered accountants can be value added business partners … (if they) step out-

side the traditional role of compilers (accurate and controlled transaction processors) and take on the roles of interpreter, adviser, and partner.

Chartered accountants who limit their role within organisations to traditional "bean counting" will generally fail to add sufficient value to the firm. This paper is based on the premise that accountants who cannot add value in their decision making process risk being reduced to a subordinate entity. Adding value requires that chartered accountants utilize a broad range of skills. It should equally appreciate that the management of a business strategy and business functions such as operations, marketing and customer service interacts closely with the work of the chartered accountants.

The accountant's task can be considered as consisting broadly of two key elements namely, scorekeeping and decision making (Olaoye, 2007). Scorekeeping is concerned with transactions processing resulting in financial reports and monthly management accounts used to monitor budgets. Decision making on the other han deals with management decision making. Johnson and Kaplan (1987) have however observed that scorekeeping seemed to dominate the accounting information provided by accountants.

Since accountants generally provide only one set of information, management accounting practices often become subservient to, financial accounting practices. ICAN (2000) stated that in order to remain relevant, chartered accountants should 'move away from being scorekeepers of the past to become the designers of the organisation's critical accounting information systems' While agreeing that chartered accountants should adopt more of a decision making responsibility, other writers have specifically addressed the impact of IT in expanding the information readily available to managers. Adewoye and Olaoye(2011) sought to gain insights into the changes taking place in accounting practice. They noted that chartered accountants have a supporting role in providing managers with some (although not all) of the information they need, rather than being a system concerned with controlling managers. These authors however stated that unless the chartered accountant seeks to be more actively involved in supporting managers in decision making, there is a real possibility that many of the functions of the chartered accountants will be taken over by managers and other mushroom accountants/ personnel who, with the aid of IT, can produce and use much of the information previously produced by chartered accountants. A qualitative study of 16 Nigeria firms by Asaolu (1997) concluded that there is evidence that IT developments have been used to make significant improvements in the routine scorekeeping and reporting activities. However, they found only limited evidence that chartered accountants have used IT to provide more focused information or to enhance their decision making services to management. They then observed that in organisations where accountants were acting as historians or scorekeepers, there was a tendency for non accounting managers to develop independent information systems. These concerns have raised issues for accounting profession and development of chartered accountants.

Adewoye and Olaoye (2011) suggested that professionals must address the importance of IT and reflect the changing roles of the chartered accountant. Ilesanmi,(1997) equally recommended the retraining of chartered accountants to include broader management and IT skills. ICAN (2008) used perhaps more dramatic language, suggesting that chartered accountants who do not develop an appropriate skill set 'risk finding themselves at a career dead-end'.

Accountants, as do all professionals, use more than just a body of knowledge in their work. The decision support role of accountants draws on problem-solving skills amongst others. The Accounting profession included the 'ability to identify and solve unstructured problems in unfamiliar settings and to apply problem-solving skills' in the set of intellectual skills necessary for accounting graduates.

A taskforce of the ICAN (1998) has identified the skills required by the accounting professional to function effectively in an IT environment in the 21st century. However, the report did not make clear whether problem solving and decision support require specific IT skills, different from those necessary for scorekeeping. The objective of the studies reported in this paper was to determine whether Chartered accountants roles within Nigerian organisations have changed as a consequence of the impact of IT and whether they have become restricted to the areas of financial reporting and transactions processing. In specific terms, and adopting definition of ICAN(2009), the objectives were to determine if developments in IT were being used by chartered accountants to enhance the decision and problem solving support provided to other managers and whether chartered accountants perceive their role will change in the future.

In both surveys the following research questions were asked in relation to the impact of IT on Nigerian organisations.To determine the extent to which Nigeria chartered accountants are involved in decision making and problem solving, the proportion of chartered accountants' time devoted to scorekeeping and decision making (as per the definitions of ((Beaman etaal2007)).

The first set of research questions are as follows:.

i What proportion of chartered accountants time is being devoted to scorekeeping?
ii What proportion of their time is being used for decision makingt to managers?
iii Given concerns about IT skills would chartered accountants need to add some value through decision making activities,

The second set of questions focused on assessment of the impact of IT on decision making activities as follows:

i. Has the introduction of IT enabled chartered accountants to provide more focused information and/or improved the level of decision support provided to management?
ii. Do the Accountants perceive their role will change in the future as a result of IT systems?

Given the implications for accounting professionals development:

iii. What types of IT skills do chartered accountants believe they need in order to provide valuable decision support?
iv. Has there been a significant change in the perceptions of the respondents over the intervening period between the two surveys?

IT Skills

Respondents were asked to indicate the IT skills they considered necessary in order to provide valuable decision making to management. Respondents selected these skills from a list of seven skills drawn from a paper titled Information Technology in the Accounting Curriculum published by the International Federation of Accountants (IFAC) (2003). The results are summarised in Table Five.

METHODOLOGY AND PROCEDURE

In 2001 a questionnaire was administered on a stratified random sample of 300 chartered accountants drawn from the membership database of the financial members of ICAN. It was sample were randomly selected, arranged and mailout in order to preserve confidentiality. In order to gain only the perceptions of those who see their career as a professional accountant and who potentially have the role of providing decision making within an organisation, the sample was restricted to , (i)(ICAN) qualified accountants, (ii) employed in industry, commerce or government, and (iii)who had indicated that their primary job function was performing accounting function .

The questionnaire developed for the study was pre-tested on a number of professionals and their feedback was used to

amend those questions that seemed confusing or ambiguous. Background information was obtained on the respondents' profiles (e.g. size of company, years of experience), and information on how IT has impacted and will impact on their jobs (e.g. proportion of time spent on various tasks, new skills considered necessary). In 2011, the same questionnaire was re-administered on a random sample of 300 chartered accountants drawn as the 2001 respondents.

In 2001,100 responses were received, of which 98 were useable, representing a response rate of 44%. In 2011, again 100 responses were received, of which 96 were useable, representing a response rate of 43%. In both 2001 and 2011, the majority of these responses were from industry and/or commerce.

Features of the respondents

The profile of the respondents is shown in Table One. All sizes of companies were represented and reasonably evenly distributed across the range. The qualifications and years of accounting experience of the respondents are given in Tables 2 and 3. The vast majority of respondents are University degree holders with more than three years experience, but with the ICAN members having a significantly higher level of academic qualifications.

From the tables 1 to 3, it is clear that the survey respondents represent a full spread over all sizes of companies, academic qualifications and years of experience.

Results

Time Allocation

A key finding of the 2011 study was that in spite of the proliferation of IT developments over the last ten years, the average amount of time respondents spend on decision support activities changed from only26% to 40%. A separate question determined that in terms of staff hours under the control of the chartered accountant, the average percentage of time spent on processing routine transactions and generating standard reports was as 53.0% in 2001 and only dropped to 41.0% in 2011. Time spent on non-standard analyses using data from within the company's databases, dropped from 34.5% in 2001 to 27.5% in 2011. Time spent managing and enhancing the computerised systems increased from 12.5% in 2001 to 19.3% in 2011. These results are summarised in Table 4. This time allocation seems to be widespread across company size and level of seniority. There was no significant statistical relationship between time spent on scorekeeping activities and number of employees in the company (F = 2.094 in 2001 and F = 1.658 in 2011) or with the number of directly supervised accounting staff (F = 1.059 in 2001 and F = 2.136 in 2011).

Impact of accounting information technology on Decision making

The proportion of respondents that agreed that AIT had enabled them to provide more focused or specifically tailored information for decision support hardly changed from 2001 to 2011 (92% to 90%). The proportion of respondents which indicated that the introduction of Accounting Information Technology (AIT) had made a significant or radical improvement in the decision making they provided to management dropped from 83% to 74%. The finding that the respondents on average spent approximately one third of their time (25.6% in 2001 and 38.4% in 2011) on decision support activities seems in marked contrast to their perceptions of the potential for AIT to improve these activities.

In 2001, only 31.8% of respondents perceived that their future roles would change significantly or radically as a result of IT, compared to 42.1% in 2011. A majority of them in 2001 (67.2%) believed that their roles would either not change or change only marginally. It is of note that this percentage reduced significantly to 45.4% in 2011 (F = 6.43). However, there was no significant statistical relationship (F = 0.377 in 2001 and F = 0.645 in 2011) between this perception and the respondent's years of accounting experience.

Discussion

Changing Roles

It is surprising that despite the proliferation of IT developments since the few years ago, the percentage of their time respondents perceived they spent on decision making activities only changed from 26% in 2001 to 40% in 2011 (tvalue of – 3.915). Regardless of the strict definitions of the terms scorekeeping and decision support an average of approximately one third indicated that respondents perceive their role to be dominated by scorekeeping and other requirements. In 2001, respondents had indicated that their primary job function was in accounting, and in the case of the 2011 study had chosen to join the ICAN – a specialist in training accounting professionals. This is not to suggest that accounting should not involve any scorekeeping, but that decision support should have a greater time allocation for chartered accountants, especially if those chartered accountants are to add value.

The proliferation of IT and the consequent productivity improvements in the scorekeeping area could allow chartered accountants to spend more time on decision making. It could be speculated that productivity improvements in recent years in the scorekeeping area have been used to reduce management accounting staff or to cope with growth. This may leave the management accountant still snowed under with routine scorekeeping, such that they feel under too much pressure to proactively seek to enlarge their role. The results are consistent with the earlier claim of Beaman et.al(2007)) reported , that management accounting had become subservient to the demands of financial accounting. It could be argued from the results that the prediction of Cooper (1996) that the need for chartered accountants will fall is not outside the realms of possibility if they continue to spend such a high percentage of their time on scorekeeping activities. Regardless of whether he is being overly pessimistic or not, it is certainly true that the information available to managers today is much broader, and no longer limited to financial transaction-based data. If management accountants find themselves spending most of their time supplying only transaction-based (or scorekeeping) data, then managers may well look elsewhere for additional information they need.

It is also possible that as a result of a shrinking middle management level in most organisations, chartered accountants (who typically have found themselves in this level), are being either moved up or down the management tree. Those who are moved down will probably find themselves doing more of the scorekeeping activities, and those who move up will be making decision that will be in support of the management. Those who remain in the middle level may have their roles dictated by top managers, and these managers may see the chartered accountant's role limited to that of a traditional/ scorekeeping accountant. The sort of analysis which is called decision making in this paper is often carried out by all levels of management with easy to use data mining software. From Table 4 it is apparent that there has been no significant change in the perceptions of the respondents over the intervening period between the two surveys regarding time allocation. The only significant change is in the respondent's perception that their roles would either not change or change only marginally and could not foresee any significant or radical change in the future (67.2% in 2001 and 45.1% in 2011; F = 6.43).

This raises the problem of interpreting the result. Either the academics of ten years ago were wrong in their dire warning of the demise of the profession, or that chartered accountants are ignoring these warnings at their own peril. The two studies reported on in this paper do not address this question. Further research involving interviews/questionnaires with the managers who use the information provided by chartered accountants, in order to determine their perception of the usefulness of that information, and whether those managers are going

elsewhere rather than to the chartered accountant for the information they need for decision making, could well provide an answer to this question.

IT Skills and Accounting Profession

The Education Committee of the International Federation of Accountants (IFAC) has recently considered IT in the accounting curriculum. The International Education Standard on the Content of Professional Accounting Programs (IFAC, 2003) identifies 'Information Technology knowledge and competences' as one of three knowledge and skills areas that a professional accounting profession should contain. Arguably, IT knowledge and skills should be included in formal, post primary and tertiary education programs, not just seen as part of the practical work environment. Interestingly, a study by Tan, Fowler and Hawkes (2004,) found that both practitioners and academics rated problem solving and quantitative skills at the top of their list of skills considered important for graduate entry chartered accountants. Table Five reveals that spread sheeting is perceived to be the IT skill most commonly seen as necessary for decision support (83.0% in 2001 and 87% in 2011 selecting this skill). This has implications for accounting profession because spread sheeting is an IT skill which requires the application of generic problem-solving skills.

Given that the Accounting Education Change Committee (AECC) (1990) identifies problem-solving skills as an important element of accounting programs, it follows that spreadsheet design principles, as an extension of problem-solving skills, should be included in university accounting programs. An examination of Nigerian university handbooks has found that most accounting programs include a course on basic computing which may include a spreadsheeting exercise, but not a course specifically designed to teach spreadsheet design principles. Spreadsheet design principles should be taught in secondary schools as well as in undergraduate level, rather than leaving these skills to be developed after graduates are in the workforce. Consequently, there are very few textbooks specifically catering to covering spreadsheeting skills in accounting models (the exception being Beaman, et al, 2006). Many spreadsheets in business today are used as aids to decision support. Successful spreadsheet models depend heavily on the model builder's problem-solving skills and adherence to spreadsheet design principles. It is therefore the responsibility of accounting educators to develop teaching programs to provide graduates with these skills. The challenge for accounting educators is to produce graduates who can not only understand the mechanics of spreadsheeting software, but who are able to build financial models which are flexible and error free so as to be useful to other managers for decision making.

Conclusions

Although numbers in 2001 and 2011 were limited to a sample of 300, the response rate was high and because of the spread in the characteristics of the survey respondents, the results of the two surveys are regarded as valid. The study was restricted to the perceptions of chartered accountants regarding the proportion of time they currently devote to scorekeeping vs. decision support activities. In order to determine whether the proportion of time devoted to decision support by

accountants represents sufficient support to management, further research should involve interviews/questionnaires with other accountants who are not chartered accountants ,and managers who use information provided by accountants, to determine managers' perception of the usefulness of accounting information. If the results of the present survey are true of the majority of chartered accountants in Nigeria (ie spending on average only a half i.e of their time providing decision support information to managers), then further research may well confirm the findings of (ICAN 2011) that many managers are going elsewhere, rather than to the chartered accountant, for the information they need for decision making. This is supported by ((Richardson et.al 1999)) who state that 'traditional accounting measures are being supplemented by other performance indicators … provided by the operating control systems and only later input into the accounting system' Further research could also involve qualitative interviews with chartered accountants to further explore their changing roles. It is possible that the definitions of "scorekeeping" and "decision support" adopted for this paper from (Beaman etaal2007) do not sufficiently allow for new and emerging roles performed by chartered accountants, for example their role in managing and enhancing computerized systems. The implications of the findings in this paper both for practicing chartered accountants and for accounting educators are clearly significant. If chartered accountants continue to spend too much time on "scorekeeping" activities rather than providing the decision support services that managers need, then the prediction of (Beaman etaal2007) that they 'risk finding themselves at a career dead-end' may come true. The authors are of the opinion that an allocation of one half of their time to decision support is too little and that to improve decision support to managers and thus maintain their role, chartered accountants must not only allocate more time to decision support, but must also update their financial modelling and other IT skills.

Table 1: Size of Company

Number of employees	2001 study(N=98)	2011 study(N=96)
1-50	19% (n=19)	17%(n=17)
51-100	21%(n=20)	12%(n=12)
101-500	14%(n=14)	14%(n=14)
501-1,000	16%(n=16)	17%(n=17)
1001-10,000	23%(n=23)	16%(n=16)
10000+	7%(n=6)	24%(n=20)

Table 2; Academic Qualifications

	2001 study(N=98)	2011 study(N=96)
Professional Qualifications	11%(n=12)	8%(n=9)
Diploma	14%(n=14)	7%(n=8)
Bachelors Degree	67%(n=62)	33%(n=30)
Higher Degree	8%(n=10)	50%(n=43)
Other		4%(n=6)

Table 3 . Years of Accounting Experience

	2001 study(N=98)	2011 study(N=96)
0-5	13%(n=13)	6%(n=6)
6-10	33%(n=32)	10%(n=12)
11-20	39%(n=37)	30%(n=29)
21+	15%(n=16)	54%(n=49)

Table 4: Average time spent on various tasks by the respondents

Percieved Time Spent On	2001 survey		2011 survey		
	mean	Std dev	mean	Std dev	t
Decision taking	27.6%	19.8%	40%	24.3%	-3,71
Staff processing of routine transaction	55.1%	23.7%	42.6%	27.5%	1.16
Non- standard analyses	36.4%	17.6%	29.9%	15.4%	2.97
Managing & enhancing computerized system	14.6%	20.6%	21.8%	19.9%	2.56

Table 5: IT Skills Considered Necessary Skills sufficient to use: 2001 Study

Skill sufficient to use;	2001 study (n=98)	2011 study (n=96)
Spread sheeting	83%(n-75)	87%(n-78)
Executive Information Systems	68%(n-63)	68%(n-61)
Security & control of sensitive datat	51%(n-46)	63%(n-57)
Database design: open systems tools	40%(n-36)	45%(n-40)
Networking Software	39%(n-35)	30%(n-25)
Electronic Data Interchange	27%(n-24)	50%(n-45)
Emerging technologies	13%(n-12)	21%(n-19)

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