

## **Towards Paperless Accounting and Auditing**

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### **ABSTRACT**

In Finnish accounting the revised Accounting Act in 1997 makes it possible to use technical data media in transferring, maintaining and storing accounting data in every aspect except for the Balance Book, which should be kept in printed form. In 2000 the Accounting Board issued more detailed guidelines for how to use electronic and technical possibilities in today's accounting.

Briefly defined paperless accounting is an accounting, where transactions, accounting entries and data is received, transferred and stored electronically. Some of these technological and electronic solutions in financial accounting could be summarized as electronic ordering, invoicing, payment and archives. When data can be transferred electronically between business partners the need for printed documents will decrease. However, in the accounting department of a company the consequences might be more extensive. According to the Accounting Board the use of automation will create a more efficient and reliable accounting as well as reduce the costs of accounting. Greater efficiency can be achieved by altering working methods and attitudes. The internal control may be handled by the computer and this may change the manual routines for those working with book-keeping.

In spite of the technological possibilities available and the new regulations in the Accounting Act, the practical achievements have been modest so far. Why? What do the accountants and the auditors think of the new electronic possibilities in accounting and what do they expect of the paperless accounting? There is little research to be found on this subject. This could be explained by the fact, that the technological possibilities have not been allowed very long and that the practical use is about to begin.

The first two objectives of the study are to provide a framework of how paperless accounting is regulated in Finland and to outline the existing technological possibilities in today's accounting as well as the present situation. The objectives of the empirical part is to study accountants' and auditors' attitudes towards paperless accounting. Based on the institutional theory the general hypothesis of this study is that there is a resistance to paperless accounting. It may seem fair to believe, that auditors might have a more positive belief of paperless accounting, as the technical possibilities may make their work easier and the accounting more reliable. Considering the fact that paperless accounting will bring changes in the accountants'

manual routines and that their need for technological know-how will increase, the accountants might have a rather negative attitude towards paperless accounting. Resistance towards paperless accounting may be a critical factor affecting the implementation and the use of electronic and technological methods in the accounting. Any results of the empirical study are not yet available, as this study is in its initial stages. This article is a brief summary of the theoretical framework and the main hypotheses of the study.

## **INTRODUCTION**

Modern information technology offers possibilities to effectively coordinate business processes. Electronic Commerce can be considered a process, where electronic connections facilitate economic transactions between various parties in the value chain (Tuunainen 1999, p. 8). These movements of information electronically can be utilized in accounting. Hansen & Hill did in 1989 research on EDI (Electronic Data Interchange) and discussed the benefits of EDI as "reduced paperwork, elimination of data entry overheads, improved accuracy, timely information receipt, accelerated cash flow and reduced inventories". In Finland the ideas of the paperless accounting have been brought forward by authorized auditors, mainly Pauli Vahtera (Vahtera - Salmi 1998) during the last decade.

During the 1990's some research have been done on the use of EDI in accounting (see for example Jones-Beatty 1998, Cox-Ghoneim 1996). Earlier research can be found in the research area concerning computer use and acceptance (see for example Lucas 1975, Davis et. al. 1989, Ferguson-Nevell, 1996). In 1996 Tallberg pointed out the possible new directions of accounting information systems and recently Granlund (2001b) presented thoughts about future cash flow-based accounting based on an on-line accounting system. Internationally some recent research can be found on financial reporting on the Internet (Lymer 1999, Debreceeny & Gray 1999), on the value and productivity in the internet economy (Barua et.al. 2000) and on the organizational change related to the use of Enterprise Resource Planning Systems (Saccol et.al. 2001, Granlund-Malmi 1999, Granlund 2001a).

## **FORMAL AND INFORMAL INSTITUTIONS OF ACCOUNTING**

This study approaches accounting from an institutional perspective. The institutional theories used in the study are the normative isomorphism theory (Powell -DiMaggio 1991) and the old institutional economics (Scapens 1994, Burns-Scapens 2000). These institutional perspectives differ in several aspects, but the objective of this study is not to identify the best institutional theory for studying accounting change. However, the insights of these theories will be used to try to understand and explain accounting change. Using the normative isomorphism perspective it suggests that the development of the paperless accounting may be influenced by professionals. These professionals tend to introduce new professional practices into the structure and

practice of the company. In this study the auditor is considered to be this professional, as new accounting standards and regulations mostly are issued by organizations consisting of auditors. The old institutional economics theory emphasizes the importance of power, rules and routines in the development and implementation of accounting change. Rules may be imposed and become implemented through the establishment of routines, or routines can emerge out of established routines. If the existing routines become widely accepted they are said to be institutionalized. In this study the practical accounting work is regarded to be an institution, which will be challenged by working in a paperless surrounding. According to Burns & Scapens (2000) it is likely that an emerging routine that conforms to the existing routine may be easier to implement than one challenging it. Burns & Scapens (2000) also suggest:

”To understand these micro-processes it is necessary to recognize the institutional context, both within the organisations (rules, routines and institutions) and outside (broader social, economic, and political institutions of the organisational field).”

Financial accounting which concerns corporate reporting to external parties is more or less regulated by the government and other institutions in every country by means of laws, rules, standards and instructions and these regulations will be considered as the formal institutions of book-keeping. In Finland regulations can be found in accounting legislation (Accounting Act, Accounting Ordinance), in corporate legislation (Companies Act, General and Limited Partnerships Act, Cooperative Society Act) and in tax legislation. The Accounting Board (a special legislative body of the Ministry of Trade and Industry, which consists of members representing different interest groups) interprets accounting legislation and issues statements and recommendations. The Association of Authorized Public Accountants has also published a number of proposals and recommendations.

In financial accounting the recording of a transaction must be based on a dated and numbered voucher, which verifies the transaction. According to the Accounting Act the source document can be a paper document or data kept on a data medium, provided that this information can be converted into a clear written form by the reporting entity when necessary (AA 2:5§, 2:8§). This applies to all accounting material, with the exception of the Balance Book mentioned earlier. This means, that vouchers might not longer exist on paper and that the handling of the transaction is done on the computer screen or automatically by the computer. All vouchers and book-keeping entries can be kept in electronic archives.

Old institutional economist theory highlights both formal and informal institutions. Formal institutions are settled patterns of thoughts and actions that are grounded in formally documented rules and regulations whereas informal ones describe actions taken consciously or unconsciously ”because things have just always been done that way” (Scapens 1994). Informal institutions are less likely to be grounded in formal rules, they describe when a person does something consciously or unconsciously ”because this is the way we do things here”. Informal institutions could be described as a culture, a pattern of shared beliefs and values that give the members of a group

meaning and provide them with rules of behaviour in their organization. The paperless accounting will change the way people do their work and the nature of the work. There may be a need to develop new procedures and working routines, and new skills and technological know-how may be needed.

## **TECHNOLOGICAL CAPABILITIES IN ACCOUNTING**

The accounting information system is defined as the infrastructure that supports the production and delivery of accounting's delivery product (Hollander et.al.1996). The objective of the accounting information systems is to collect and store data about business processes that can be used to generate a meaningful output for decision makers. Technologies have evolved over the years from manual resources (such as paper and ink) to the advanced information technologies available today. This evolution could be summarized in the following five technological generations of accounting information systems according to Tallberg (1996):

- Generation 1: Manual systems
- Generation 2: Computer-based batch-processing systems
- Generation 3: Register Systems
- Generation 4: Database Systems
- Generation 5: Internet-Based Systems

A computerized accounting system performs the same functions as a manual system but the advantages are the speed and the possibility to cope with a large volume of data. Traditionally there are two reasons for advocating the use of the computer in accounting: the costs, which may be reduced for a given volume of transactions and the improved information, as computers allow more timely, relevant and accurate information (Hollander et.al.1996).

The accounting information systems that are deployed today are client-server systems that are built around a relational database management system (Tallberg 1996). During the 1990's the integrated accounting information systems, called ERP systems (Enterprise Resource Planning systems), developed. These systems promised a possibility to share basic business information across all units over public global networks (Bancroft et.al. 1998). Centralized ERP databases contain information about orders, deliveries and payments keyed in from all units of the enterprise as well as basic business data about customers, product structures, inventory levels, personnel and financial accounts. Technically however, they are still largely based on the 4th generation client server technology developed in the 1980's (Bancroft et.al. 1998). The primary strategic reason why companies are implementing integrated information platforms is related to the possibilities to search new integrated business models and thus improve operative efficiency and/or competitiveness (Davenport 1998). Generation 5, the www-technology and its business applications, is still in the early stages of its life cycle (Granlund-Salmela 2000).

The use of technology in the different stages of the accounting process may not only result in a paperless accounting, but also in a paperless auditing. Paperless auditing includes EDI, imaging systems and similar technologies where source documents are in electronic form (Helms-Mancino 1998, p. 48).

## **EFFECTS AND RISKS OF USING TECHNOLOGY IN ACCOUNTING**

Information technology is being developed by many organizations in an attempt to improve organizational effectiveness and efficiency. According to the Accounting Board the use of automation will create a more efficient and reliable accounting as well as reduce the costs of accounting. Greater efficiency can be achieved by altering working methods and attitudes. The internal control may be handled by the computer and this may change the manual routines for those working with accounting and auditing (Sutton 2000).

Present accounting systems, both manual and computer-based, are usually slow in dealing with business transactions, for example issuing an invoice and mailing it (seller) and processing and paying the invoice (buyer) will take at least one week. In a small company the accounting is often kept by an accountant company that processes vouchers once a month in which case the information derived from the accounting files is seldom up-to-date. By using electronic possibilities in the accounting process the transaction is produced automatically as the business process takes place. When the delivery of the goods is confirmed, the invoice is processed and transferred to the accountants of both the buyer and the seller as well as to a bank for automatic payment. This will speed up the accounting process as well as the reporting.

Security issues have been discussed along with the development of the commercial use of Internet and other technologies. The truth is probably, that one hundred percent security on technology never will be reached (Vahtera-Salmi 1998). But there are other risks as well. The accounting system may be down due to a problem with the service provider, a problem with the equipment, the software or the fact that the company providing outsourced applications has gone out of business.

Electronic evidence is not a new issue for auditors. It has existed in some form since the first computerized accounting systems were implemented. What will be new in paperless accounting is the degree to which documentation for business transactions may exist solely in electronic format (Davis 2001). The reliance of electronic evidence affects audit risk levels. Auditors may not be able to adequately reduce detection risk by performing substantive testing. The auditors may have to conduct additional tests to reduce overall audit risk to an acceptable level (Davis 2001). Auditors must consider the ease of altering electronic evidence. Alterations to paper documents are often easy to detect, but alterations to electronic evidence may be more difficult. Risks of unauthorized evidence alteration may be mitigated by

examining the electronic transaction audit trail that identifies the date, time, original terminal and originating user of each transaction (Davis 2001). Availability of electronic evidence may also be a concern. Since the content of the electronic files are constantly altered through processing, evidence may exist only at certain point of time and backup files may not exist. To compensate for the temporal nature of electronic evidence, it may be necessary to conduct substantive testing throughout the year rather than waiting until year-end (Davis 2001).

## **FACTORS INFLUENCING THE ATTITUDES OF ACCOUNTANTS AND AUDITORS**

Finland is said to be one of the leading countries in the field of electronic banking. The use of EDI between banks and companies is very high in Finland. According to statistics over 90 % of all payments and 96 % of payments made from one company to another are electronic (Statistics Finland 2000). With the use of reference codes throughout the invoicing and payment the sales ledger can be updated automatically by the computer software application and there is no need for a paper print. Electronic account statements are accepted as a legal receipt.

Since 1997 paperless vouchers and accounting entries are allowed in Finland. The development towards a paperless accounting has, however, not been very fast. It is generally said, that the first steps towards a paperless accounting will be through the use of electronic invoicing (Lätti 2000, Liiketoiminta...2001). A survey to find out the present state of the art of the paperless accounting will be done in spring 2002.

Robert Elliot, in his 1992 "Third Wave" article noted:

"Information technology (IT) is changing everything. It represents a new, post-industrial paradigm of wealth creation that is replacing the industrial paradigm and is profoundly changing the way business is done.... If the purpose of accounting information is to support the business decision-making, and management's decision types are changing, then it is natural to expect accounting to change - both internal and external accounting."

But information technology alone cannot change organizational behavior. Elliot points out, that the capabilities must be managed effectively and that behavioral changes among personnel that harness the technologies are needed in order to achieve competitive advantage of the technology.

The use of information technology is expected to be dependent on attitudes and perceptions about systems in general (Lucas 1975). An attitude represents "a person's general feeling of favorableness or unfavorableness toward some stimulus object" (Fishbein & Ajzen, 1975, p. 216). It is therefore important to understand how people decide whether they will use a particular technology. The factors contributing

to the acceptance of the new technology are likely to vary with the technology, the individuals and the context.

Two models have been used by researchers as a theoretical foundation for research on the factors affecting the user acceptance of computer technology: Fishbein & Ajzen's (1975) theory of reasoned action (TRA) and Davis et.al.'s (1989) technology acceptance model (TAM). The TRA model, based on the consumer behavior theory, suggests that beliefs are to form attitudes (Fishbein & Ajzen 1975). The TAM model adapted the generic TRA model but replaced the TRA's attitudinal determinants with two variables (perceived ease of use and perceived usefulness). There is a lot of research to be found based on the TRA and TAM models. This study will not discuss previous research but utilize those studies for developing some external factors regarded in the hypotheses. The external factors used in this study can be summarized as institutional, individual, technological and organizational.

Accounting is one of the oldest professions on record. A review of accounting over the ages indicates, that accountants have not always done the same work, but that they have performed similar functions (Hollander et.al.1996). Regarding the criticism that have been brought forward during the 1990's concerning management accounting practice and its failing to respond to changes in manufacturing and business technology, Scapens (1994) find it reasonable to say that accounting practices generally are rather slow to change. There are even speculations, that accountants and accounting systems have failed to keep pace with the evolution of strategic management and that they are ill suited for the digital age (Phillips 2000).

As already said, Burns & Scapens state that it is much easier to introduce changes which do not challenge existing routines and institutions, i.e. where the change can be accommodated within existing ways of thinking and norms of behaviour. However, change which conflicts with existing routines and institutions is likely to be much more difficult to implement (Burns-Scapens 2000). Burns & Scapens divide resistance to change into three separate elements:

1. formal and overt resistance due to competing interest,
2. resistance due to the lack of capability to cope with the change and
3. resistance due to a "mental allegiance" to established ways of thinking and doing, embodied in existing routines and institutions.

The more widely and deeply the institution is accepted, the more likely it is to influence action and to resist change (Burns-Scapens 2000). We state, that the change to a paperless accounting, even if it is formally accepted in the Accounting Act, may be considered a major step for the accountants and auditors, who are used to handle and find assurance in paper-based data material. This "threat" against existing accounting and auditing practices and routines can be reflected in a negative attitude to paperless accounting. The general hypothesis of this study is that there is a resistance towards paperless accounting among the accountants and auditors.

H0 Resistance towards paperless accounting exists

According to normative isomorphism the implementation of new professional practices might be influenced by professionals. As auditors themselves are developing the legal accounting standards and principles it may seem fair to believe that fellow auditors may adopt the new standards faster than other accounting professionals. Thus we state, that auditors in general have a more positive attitude towards paperless accounting than accountants working in accounting agencies.

H1 Auditors are more in favor of paperless accounting than accountants

Individual differences among the users and technological skills should also be considered, as these factors may affect the attitude. Some individual factors included in this study will be: age, level of education, tenure in workforce with the same task or similar tasks. The technological factors studied will be prior, similar experiences and use of technology as well as beliefs about the usefulness and ease of use of the new technology.

A questionnaire will be carried out among auditors and accountants of accounting agencies in order to provide evidence for the hypotheses. The questions will, if possible, be designed in cooperation with auditors and accountants of accounting agencies to ensure that the questions are clear and precise. The questionnaires should also be designed to ensure comparability of responses across both groups of survey participants. Individuals are asked to rate the statements according to how they feel about paperless accounting on a 5-point Likert-type scale, ranging from (1) strongly disagree to (5) strongly agree. Statistical tools will be used for analyses. This part of the study is to be concluded in spring 2002.

The contribution of the study will be twofold. Firstly, the contribution of the study lies in the empirical analysis of the attitudes towards paperless accounting. The results of the study may give some evidence on the intentions of the users and thus predict future use (Fishbein- Ajzen 1975). Secondly, this study makes a contribution to the accounting research field by examining institutional factors and their role in the accounting change process.

The contribution and the results of this study are subject to some limitations. Considering the time perspective it is important to conclude this study in a rather short time. As the technology and the use of it is changing all the time, the results of the empirical part of the study will be true only for the time when the study was carried out. This fact will limit the usefulness of the results. It has also been taken for granted, that informal institutions exist and to the same extent in all organizations which are included in this study.

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