



The British Computer Society

*casg*  
 Computer Audit  
 Specialist Group

# Journal

SPRING 1992

Volume 2, Number 4

## Members' Meetings for 1991/92

14 Apr 1992	4.00pm for 4.30pm	<b>COMPUTER AUDIT IN INSURANCE</b>	Christine Osman <i>National Provident Institution</i>	Royal Institute of Health and Hygiene 28 Portland Place, London W1
13 May 1992	9.00am  4.30pm	<b>ANNUAL CONFERENCE Disaster Recovery</b>  <b>Annual General Meeting (Admission free to members)</b>		International London Press Centre

*Meetings are free to members, with the exception of the Discussion Groups, the joint meetings with the I.I.A. District Societies and the Annual Conference. More details will be given elsewhere concerning the Discussion Groups, the Annual Conference and the January Joint Meeting, for which charges will be made.*

# Editorial

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Whether it's because academic life is a form of virtual reality, where time passes at different speeds compared to the rest of the world, or because my real-time clock needs to be replaced, I'm not sure. What I do know is that it is now Spring, and a new journal is here; but it only seems like yesterday that I was preparing the last editorial, wishing you all the compliments of the season. Already, your committee has organized a very useful programme for 1983, over a year in advance. John Mitchell alludes to this in his Corner piece, it's good to know that the Conference has struck a chord; my experience so far is that the other meetings have been well received as well.

The journal this month contains a useful mixture of the theoretical and practical sides of our profession. From Australia, we have a very thought-provoking paper by George Mickhail, an academic at Sydney University. George outlines an alternative view of audit judgment which shifts the parameters of auditing to include philosophy, operational research and logical analysis; a far cry indeed from 'tick and turn'. Our own Malcolm Lindsey has produced another 'hands on' piece, this time on the mysteries of MVS. Judging from the response to his paper on AS400, this will provoke a lot of interest in the group.

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Last February I was fortunate enough to attend the NCC IT Conference in Blackpool. Not too many auditors around, but a lot of good papers and some very useful debates. There were five concurrent streams: Communications, Electronic Documentation, Security, Systems Engineering and Management. All extremely thought provoking. It was good to see that many of the themes covered by CASG in the last year were given high priority in Blackpool: disaster recovery, EDI, structured project management, and micro-computing for example. The NCC have just launched a sort of time share operation for consultants, where for a reasonable annual fee your organization gets the services of one or more experts for specified days. Good luck to them, this looks like a very positive way of spreading the IT gospel.

• • •

George Mickhail, who I have referred to above, came to visit CUBS just before Christmas. Over a glass or two of Chardonnay we discussed our research interests and the world of EDP audit. George teaches EDP audit to economics and accountancy students at Sydney, to very large classes by UK standards. He is very interested in setting up a branch of CASG in Sydney, also an internal audit. If anyone has any work or social contacts in this region, has plans to move there, or would just like to do more to help our Australian colleagues please get in touch with me and I will put you in touch.

• • •

Finally, a cry for help. Being editor of the journal is a tremendous honour and usually great fun. Even when copy dates are looming and members still have not sent in their promised material. But to continue the progress made with the quality and usefulness started by Ginny Bryant and encouraged by John Mitchell and the rest of the committee, we are going to have to relaunch the editorial panel so that tasks can be spread. Existing members will have been contacted by the time they receive this issue, but there will never be too many volunteers. Specifically, we need to build up the production process (for example, transferring articles to diskette, reminding contributors of their deadlines, and monitoring progress generally.) Please contact me at CUBS if you are interested, 071-477-8646.

ROB MELVILLE

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# Chairman's Corner

John Mitchell

Well, we are now pretty much geared up for annual conference. We always worry when we choose the topic as to whether it is going to be relevant at the time it will be running. This is because we choose the subject about fourteen months in advance of the actual date. Once again we have been fortunate in that various surveys, the NCC one being the latest, show that disaster recovery is still pretty much neglected by many organisations. You could serve your organisation no better than by encouraging your senior IT and, more importantly, the non-IT management to come along to the conference.

The conference will be followed by our AGM, the official notice of which you will find elsewhere in the journal. The AGM is your chance to question your committee on any aspects of the CASG that you care to raise. The committee itself provides your opportunity to do something for the computer audit community as a whole. To paraphrase JFK, "ask not what your group can do for you, rather what can you do for your group?"

A great deal is now happening which is likely to affect audit in general and computer audit in particular. On one hand we have the big financial scandals of Barlow-Clowes, Atlantic Leasing, BCCI and the Maxwell Group. On the other we have public concern over the viability of computers as control mechanisms, as represented by the Docklands Light Railway crash, the recent Air-Bus disaster and so called "phantom withdrawals" from ATMs.

On this last issue you will find a call for help elsewhere in this journal. This is a new idea we are trying out; a sort of "swap shop", trying to match problems to solutions. It's a development of the IIA motto "progress through sharing" and you will notice that everything will be done on "lobby terms" (i.e. non-attributable), in order to protect everyone concerned.

I still have managers tell me that audit should only examine financial systems and I still know auditors who refuse to be involved with systems under development. I know of MSc courses in computer science where control is never taught as a subject in its own right and MSc degrees in Internal Auditing where the students consider any sort of test on their knowledge of IT to be a slight on their characters!

For some time now a few of us have been questioning our audit methodologies for dealing with large real-time/database systems, but tend to be treated with derision by people who still speak of "the stored program concept" in awed and hushed voices. Well, the world has moved on and we must surely move with it if we are to be of service to our organisations in particular and to society in general.

I hope to see many of you at the conference, which will be another small step in proving that auditors do not just bayonet the wounded after the battle, but are willing to be up with the front line troops.

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## Guidelines for Potential Authors

**In future, there will be two types of article in the Journal, refereed and invited.**

**Refereed articles should be technically oriented, and based on current or future issues related to computer audit, security or control. This type of article will be reviewed by at least one member of the editorial panel (anonymously). If published, it will be identified as a refereed paper.**

**Invited articles need not be purely technical, or overly academic (even Computer Auditors have a sense of humour!). This type of article will be reviewed only by the editor; this may lead to severe sub-editing, but submission will virtually guarantee publication.**

**We also invite members to volunteer for book, product and course reviews (anonymously if required).**

**Why not call Rob Melville at CUBS (071 477 8646) to discuss how you can get your name in print?**

# The Impact of Information Technology on Systems Re-Engineering of EDP Auditing

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## Introduction

Auditing has always been a personal craft. In the past 25 years audit organizations have developed in two distinct directions: on the one hand a substantial increase in the scale of their business, on the other, far reaching structuring of work processes. Both developments seem to deny that auditing is a craft, but this would be a superficial judgment; the work is still very individualistic. Even on the largest audit assignments the work is individualised as much as possible. There is little real team work. Tasks are broken up in order to allocate to staff the individual tasks and responsibilities that will require them to use their own judgment and individual skills in a way, largely of their own devising, but within the framework of the established audit methodology.

Auditors used to check paper based book-keeping information systems, and developed over time methods that would cater for the control of these manual systems. Most organizations depend on the use of Information technology (IT) in their day to day operations and so professional auditing has become more complex over the past decade. This is evident from the changing pace of technology and the use of computers in most aspects of our lives. There are inherent risks in this progress: the high cost of computer error; organizational costs of data loss; possibility of incorrect decisions; value of hardware, software and personnel; and the need for privacy.

Electronic Data Processing (EDP) systems in return influence the way we work. Kiesler (1986) observed three effects that follow the adoption of a new technology:

1. the intended technical effects
2. transient effects associated with assimilation
3. unintended social effects which permanently change the way social and work activities are organized and performed.

These developments prompt a critical social effect research question: how do these EDP based accounting information systems affect auditors' adoption and use of audit methodologies? Most audit firms modified their audit methodologies to cater for the audit of computer based accounting information systems (AIS); however, as pointed out by Williams *et al* (1990) the major bottleneck in EDP auditing is the large need for knowledge in a wide range of subjects at all levels of the profession. This need only increases with time. Acquisition of knowledge requires a long

period of time and is frustrated by turnover of staff during the training period. The scarcity of a key resource, knowledgeable staff, increases continuously. Coupled with the changing pace of technology and the inadequacy of time allocated to audit engagements, the need arises for changing or re-engineering (Kiesler, 1986 and Hammer, 1990) the way we work and the methods used to conduct our audits.

Being faced with such a major bottleneck contributes to the developments of problems:

- low quality audits
- impaired independence due to low quality audits, and liability as demonstrated from the number of legal cases against auditors.

Audit firms need to consider seriously the need to change the way social and work activities are organized and performed within EDP auditing.

This paper attempts to understand, not just to describe, the judgement process in EDP auditing. It will make some general criticisms of currently established EDP auditing methodologies from the viewpoint that without an adequate understanding of underlying social interactions, efforts oriented towards judgment formulation will continue to be unrewarding. It will discuss an alternative audit methodology capable of simplifying the interface between the auditor and the social system on the basis of a richer cognitive approach.

## Audit Judgment - A Major Concern

The central role of judgment in audit decision making places a premium on experience and client knowledge. However, the transfer of knowledge from the partner/manager to the less-experienced members of the audit team is difficult. The auditor is often faced with too much information to fully and completely analyze. Expert auditors deal with this problem by assuring that all the key issues of an audit assignment are identified as early in the audit process as possible. This helps to reduce the information that must be analyzed, thus controlling the ill-structured early stages of planning, information gathering, analysis and interpretation. Further, it is the expert auditor's ability to ask the right questions at the right time that leads to timely identification of risks and issues. (Graham *et al*, 1990) These questions are often asked in response to new information revealed during the assignment. The research problem in this paper rests upon the following assertions:

- audit problems tend to be unstructured, fuzzy and difficult to formulate
- audit decision making is goal directed, but include multiple objectives; these objectives may vary from time to time and from one audit assignment to another
- audit problem solving requires not only an understanding of the complex task at hand, but also takes place in a group setting; multiple experts may be involved. Communication and negotiation with other individuals takes place
- the environment is at best uncertain, and at times turbulent: competitors' strategies, political actions, economic fluctuations, and internal organizational policy changes all make for an environment where decisions require some degree of risk taking.

The concern of this paper is to find the thread that links these assertions together. This is done by focusing on the dominant activity within auditing: Audit Judgment.

Studies of audit judgment as Boritz (1986, p335) notes are a major focus of auditing research due to their potential policy implications for enhancements to professional practice in areas such as development and modifications of auditing methods, standards, and procedures, approaches to training and supervision, and creation of computer-assisted audit decision aids.

Technically, there are three areas of concern with respect to audit judgment: philosophical, statistical and methodological (Mock *et al*, 1989). The philosophical issues involve questions about introspection and the nature of the data. The statistical considerations include the difficulties associated with measurement, sampling, experimental design and inference. Methodological concerns include the effect of methods used on the judgment process and consequently on the value of the results obtained.

I will use my own interdiscipline, Systems Research, as my springboard, although it should be emphasized that my concern is not with what systems research is, but rather what we can make of it in the methodological perspective of audit judgment.

The central problem of audit methodologies is to establish the relationship between auditing methods and the world of the accounting system in which these methods are used. The accountant is concerned with the syntactic problem of making the accounting system correct and efficient in operation; not with the meaning of the accounting system itself. There is also a semantic problem: that is, expressing an opinion or judgment as their key responsibility. If audit methods and the AIS do not relate correctly, it will be the auditor's fault.

## Audit Methods: Preoccupation with Partial Understanding

Current behavioral auditing research methodologies are known to provide a partial understanding of audit judgment. The reason for this 'partial' understanding is principally the level at which current methodologies tackle the study of audit judgment. Most current behavioral auditing research considers the cognitive process of judgment as central to their methods. These methods are based on the literature of cognition, emphasizing judgment in isolation from its development within the framework of the audit methodology.

It is extremely important for the critical endeavour to specify correctly the assumptions of the different approaches. This will not be pursued in this paper because it does not strike at the core of the argument. These methodologies deal with audit judgment systems as though they were dispersed sets of components: decisions, decision-makers, decision processes etc. Insofar as they deal with these components, they are unable to say very much about what their relationships to one another refer to.

Using a payroll system as an example, we might see a concern solely with the procedural level of the system: the processes of recording, collecting, checking, approving and initialling time cards are all concerned with the bureaucracy overlaid upon it. This reflects a concern with procedures processing rather than business requirements and may fail to address the business aspect of the problem, concentrating the analysis at the procedural level of the bureaucratic system. Such an approach does not permit the substantive business problem - how to let the employee fill in their worked hours - to be expressed and tackled, except in terms of the procedural detail.

In the exchange between an employee of a company and the company itself there are a number of communication acts by which the changing state of mutual social obligations and expectations is achieved. For example:

- request (employee to fill in his own time card)
- identify (supervisor collects own departmental time cards)
- approve (supervisor initials complete and accurate time cards).

These social constructs form the backbone of a purposeful social behaviour upon which we may develop message systems (Backhouse, 1988) The forms of the messages may differ, their mode of delivery (manual or automated) may change, but the meaning of them must remain fixed, or else uncertainty and confusion will prevail. Whilst individual auditors might be aware of this problem (meaning) and try to resolve it, current methods of auditing do not handle this fundamental aspect of AIS.

The MEASUR method (Stamper *et al.*, 1988) provides an insight to this problem and has as one of its tools Conversation Analysis, which emphasizes the communication of intentions. Other tools include: Collateral Analysis; Evaluation Framing, and Financial Subsystems Analysis. The use of this methodology with its various tools aims initially at relating the formal systems (Accounting and Auditing) we intend to tackle to the informal world of social behaviour. The deployment of these will lay down the foundations of understanding their relationship to one another.

### **Audit Judgment: A Systems Engineering Perspective**

The term 'system' is used to cover a wide range of phenomena. It may include, for example, number systems, accounting systems, auditing systems, philosophical systems, control systems, educational systems, information systems and communication systems. Some of these are conceptual and others physical entities. Ackoff (1960) defines a system as 'any entity, conceptual or physical, which consists of interdependent parts'. In systems research our sole interest is in the ones that display behaviour. This leads to the conclusion that systems research is only concerned with behavioral systems which are subject to control by human beings. These systems consist of parts, each of which also displays behaviour.

Ackoff extends this and defines behavioral systems as a conceptual construct as well as a physical entity, since such a system may or may not be treated as a system depending on the way it is conceptualized by the person treating it.

I would like to consider the following proposition to explain audit judgment: an auditor establishes an understanding of the relationship between the auditing methodology and the accounting system in which it is used.

By adopting this proposition with reference to systems research as outlined earlier, audit judgment can be treated as a behavioral system where the outcome of its behaviour is conceptualized as the product of the interactions of its parts. The audit judgment system as shown in Figure 1 is composed of the following parts:

- the accounting information system being audited
- the auditing methodology
- the established relationship between the auditing methodology and the accounting information system in which it is used

The outcome of this system's behaviour - understanding of the relationship between the auditing methodology and the AIS in which it is used, audit judgment - is a product of the interactions of its parts.

We can view a business system (Figure 2) according to Backhouse's (1988) conception of an information system as a series of steps leading from the physical level towards the business level. At the business level, commitments are made and obligations entered into by the contracting parties. At the physical level, transactions are made and devices are used to account for them. Between those two levels (Stamper, 1973) a distinction is being made between the codes, their structure and usage, their meaning and their perception that influences human behaviour.

If this view is adopted to account for the dynamics of the audit judgment system, we find that

- the AIS and auditing methodology tend to focus on the lower end of the staircase, representing the codes of the business system
- the relationship between the auditing methodology and the AIS in which it is used represents the syntax and the grammar that makes use of the system codes
- the understanding of the previous relationship which is the formation of judgment provides the meaning for the use of these codes
- the pragmatic level in the staircase which is concerned with the relationship between the perception of the meaning being established in the previous level - audit judgment - and the human behaviour. That is, the auditor's report users groups that perceives the audit judgment being expressed.

It is clear from the above that in order for the auditor to establish an understanding of the relationship between the auditing methodology and the AIS in which it is used, it is necessary to treat the semantical level within the business system perspective as central to their methodology.

### **Meaning: a Central Concern to the Auditor**

Anything in this world can be regarded as a sign that holds a message of some meaning to someone. The understanding (Mikhail, 1989) of this message may invoke a certain pattern of behaviour. People behave differently where they may act or not act at all. The semantic paradigm of understanding the relationship between the auditing methodology and the AIS in which it is used is central to my proposed approach to formulating audit judgment.

Harman (1968) distinguished between three levels in the theory of meaning. Firstly, the meaning of thoughts. As we have seen earlier, most of the current approaches treat the meaning of thought as central to their methods. Secondly, the meaning of communication, which attempts to explain what it takes to communicate certain information. In other words, the meaning of a message. Finally, the meaning of speech

acts, which explains how the existence of social institutions, rituals or practices of a group of speakers can make certain acts possible: for example, how the existence of an institution of banking can make possible writing a cheque. In that example, the institution confers meaning on an act like writing ones name on a piece of paper. My concern is based on Harman's three levels of meaning, though the implementation of some of the methodology's tools demonstrates the second and third levels. The first level of meaning is beyond the scope of this paper.

Following Backhouse's analogy (1988) of a business system, I am concerned in this paper with the first three levels of the staircase, especially the meaning of the message(s). The message being the relationship between the auditing methodology and the AIS in which it is used; the meaning is merely forming an opinion or judgment upon the established relationship. As the meaning of the message corresponds to Harman's (1968) second level of meaning, I shall focus my implementation on that level only. Backhouse *et al* (1988) claim that their semantic theory is central to their methods and it assumes that there is no knowledge without a knower, and no knowledge without action. If we relate this assumption to our problem of judgment, we will find that 'establish the relationship ...' does not exist without an 'auditor' and no 'establish the relationship ...' without 'judgment'. In other words, there is no business activity without an agent and the shape of the world he believes he inhabits is a reflection of the way he wants to act, and different agents may view the world quite differently from one another (Backhouse, 1988).

In applying this view to our context (Figure 3) we shall find that there is no business (audit judgment system) without an agent (auditor) and the shape of the world (establish relationships between ...) he believes he inhabits (forms an audit judgment) is a reflection of the way (my proposed methodology) he wants to act, and different agents (auditors) may view (form an opinion or judgment) the world quite differently from one another.

### **Proposed Methodology (MEASUR) and its Tools**

Present methods of analysis assume that there is a single objective reality (Backhouse, 1988) and all agents will be dealing with that reality. In order to reflect the needs of different users, we need to enrich the analysis of the business system by taking into account the existence of different views for the same problem. Current methods of analysis focus on the procedural aspects of the system deflecting attention from the substantive. Indeed, the vocabulary available to auditors using current analytic tools makes it extremely difficult to deal directly with the substantive system. This is done in the MEASUR (Stamper *et al*, 1988) methodology using one of its tools, Semantic Analysis.

Semantic Analysis extracts the users' terminology for describing their business problems. We exclude from the terminology list the ones concerned with the activity procedures and controls. This is to narrow our focus upon the substantive problem enabling us to isolate the core of the business and construct a semantic network or ontology chart which shows how one entity or behaviour pattern exists in dependence on others. Applying semantic analysis in this way forces the auditor to consider carefully the terms employed in the discourse and strive to reveal the required substantive behaviour. This process forces the auditor to search for the real meaning of the business problem, hence performing business analysis rather than merely procedures analysis.

In MEASUR, an entity (known as 'affordances') can only exist during the co-existence of its antecedents. Each existence has a start and finish time and a beginning and ending process. Some of the problems encountered in the resolution of an ontology chart which results from semantic analysis of a payroll system may be highlighted.

- **Contract:** is here a separate contract between the company and its employees for each employee number or is there one contract upon which the various employee numbers depend ontologically?
- **Fills:** the person filling in their working hours is Unlikely to be interested in particular identifiable hours, but in filling in a given number of hours worked. If the system were to require tracking particular hours worked then we would write 'hours worked #' instead of simply 'hours worked' to denote that we are interested in the identity of particular hours. It is possible that such a requirement could be introduced as a control on the worked hours especially as the payroll is a major expense for any organization.

A closer look at these problems, from Harman's third level of meaning, Speech Acts, will find that in the first problem 'Contract', the company confers a certain meaning on the act of employment. The meaning conferred in 'contract' might be the legal 'obligatory' dimension of employment. Another meaning might be a 'promise' to perform the job as outlined in the 'contract'. As for the second problem 'fills' the intentionality of both the employer and employee towards this act are quite different. The employee's propositional attitude (Bechtel, 1988) behind the act of 'fill' in his hours worked range from filling in the correct number of hours worked to filling in an incorrect number. The company may have an intention of controlling the act 'fill' by introducing a new way of doing the act 'fill' such as filling in the specific hours of the day being worked.

There is a human factors problem in using Semantic Analysis to reveal potential instabilities in a system. This problem is that a shift of mental models has



to be made from working in terms of the procedural system to working in terms of the substantive business system where much more complex semantic problems arise.

In sketching the way in which subjective uncertainty resolution occurs - that is, by resort to sources of belief strength independent of evidence from the empirical world - the principles of the theory of meaning explains how problem situations are set up within which judgment can be exploited through the operation of audit methodologies.

### Conclusion: Further Research Areas

This paper has presented a systems interpretation of audit judgment based upon a semiotic multifaceted style of analysis. The interpretation is quite different from that provided by current methods and it is offered as an alternative to the usual way of thinking about audit judgment.

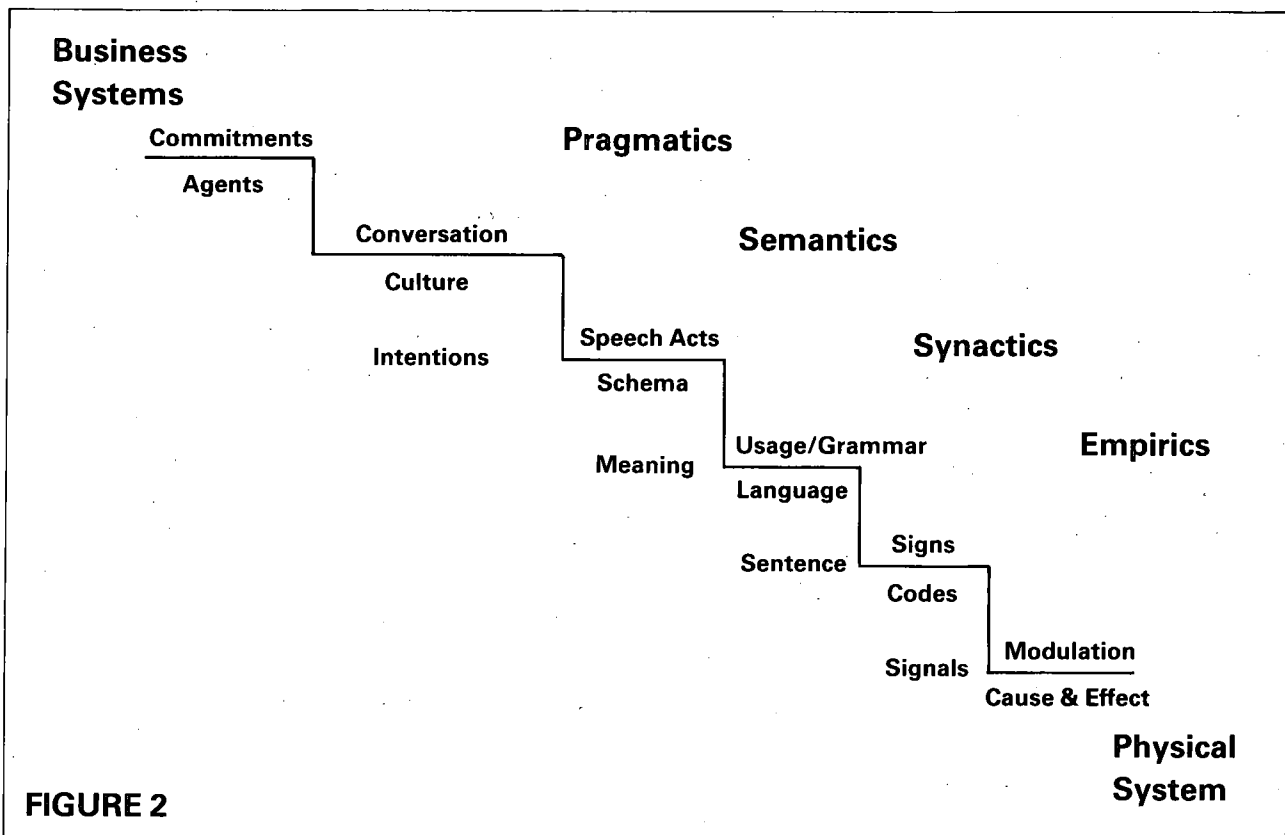
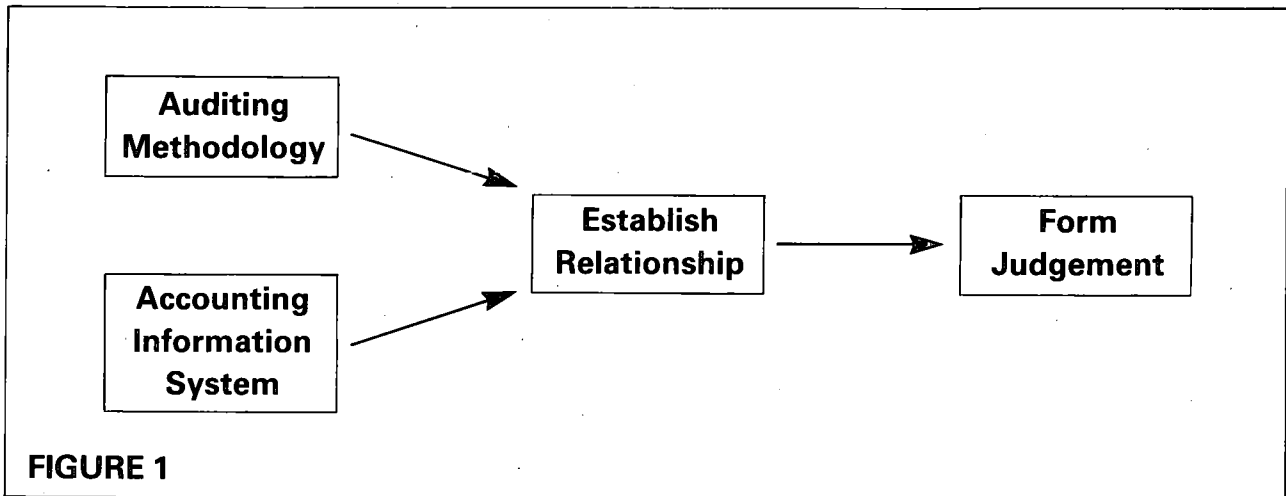
The audit judgment system is seen as a message system having three major components. The first of these is the codes that are present on the message. These codes are the auditing methodology in the world of the accounting system. The second component is the syntax or grammar of the way in which these codes are to be used. The way of usage is the formulation of the relationship between the auditing system and the world of the accounting system in which it is used. Finally, the third component is the meaning behind the usage of these codes; the meaning of the formulated relationship which is the understanding of the relationship, that is, the formation of opinion or audit judgment.

The concern of this paper was focused on the third level of analysis, the 'meaning' of the message system. In doing so I have considered methodologies other than the current ones to be able to provide a richer cognitive approach to understanding the audit judgment system. Drawing upon these conclusions, it is now possible to be more specific about the aims being demonstrated. This might be seen to have three interrelated intentions that can be regarded as future research directions:

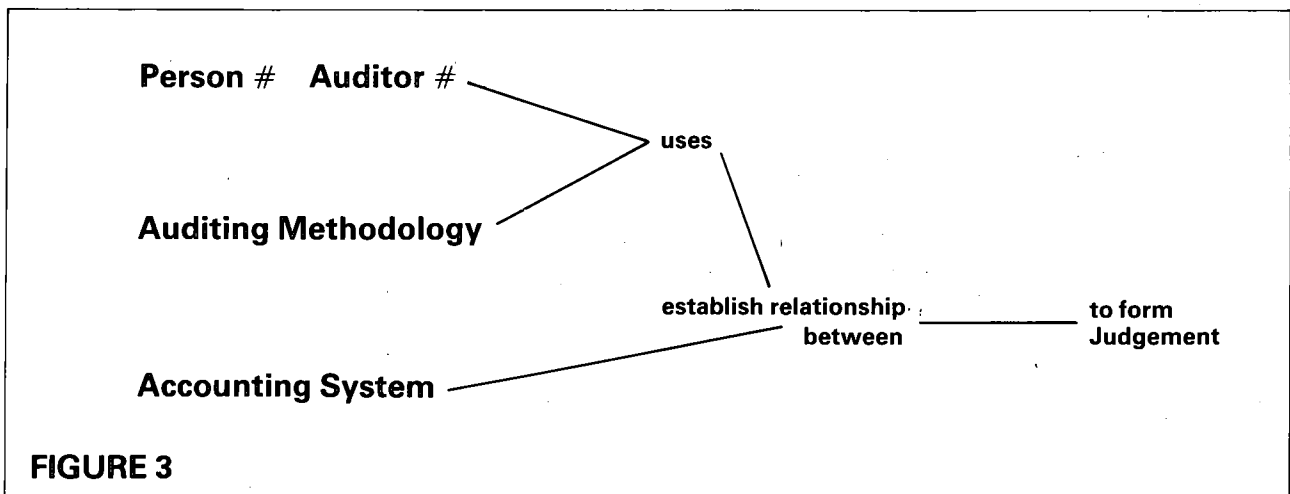
- to develop behavioral auditing research beyond its current limitations, and in particular to facilitate the emergence of new methodologies to tackle problem-situations in auditing judgment
- to reflect upon the relationship between different organizational and societal interests and the dominance of particular behavioral methods and techniques
- to provide practically useful, theoretically sound approaches to problematic 'audit judgment' situations, which will assist in the larger process of progressive social change

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**FIGURE 2**



# A Route Map to MVS/XA Audit Testing

Malcolm Lindsey  
EDP Auditor, ARGOS plc

This paper is aimed at computer auditors who are starting to audit IBM's MVS/XA operating system. It supplements the MVS guidelines published by CIPFA, and explains how to conduct audit testing on the most crucial issues.

## 1. Security of MVS Datasets

There are 250 or so system datasets (files). The names of these datasets may be viewed by using the TSO option 'UTILITIES' and then selecting the 'DSLISL' option. When the screen 'DATASET LIST UTILITY' appears, type 'SYS1.\*' against the DSNAME LEVEL prompt, and enter.

When you gain more experience you will want to know more about these datasets. In the meantime, check that access to them is restricted, even to the point where unnecessary read access may need to be disallowed. Obviously, you should agree your own access rights with your systems department where necessary.

At this stage the following datasets are of interest:

- SYS1.PARMLIB this contains the system configuration parameters
- SYS1.SMPXXX these are the logs used by the IBM system modification program
- SYS1.MANXXX the system management facility logs
- SYS1.PROCLIB this contains MVS procedures

## 2. Obtaining Information from IEASYS00

Take the TSO Utilities Option. When the Library Utility menu appears, take the cursor down to the dataset name prompt; key in 'SYS1.PARMLIB' (INCLUDING THE QUOTATION MARKS). When a list of entries appears, key the letter 'B' (Browse) alongside IEASYS00. (The last two characters are zeroes).

IEASYS00 entries will appear on the screen; the important information is against 'OPI=' If OPI=NO, this means that the operator is not allowed to choose which IEASYSXX is in use when the operator IPL's (where XX are variables). Otherwise IEASYS00 (zero zero) is used. You should try to get the recommendation agreed that OPI=NO. This might have to be left until you can speak with greater authority.

If OPI=NO, write down the values of:

APF=  
LNKAUTH=  
SMF=  
SCH=  
SVC=

You will need this information later.

## 3. Finding out which IEASYSXXX member is in use if OPI=YES

Find out when the last IPL (Input Program Load) occurred. If the installation prints "Type '00' SMF records" (SMF records show resources used by individual computer tasks) this printout will tell you when the last IPL occurred. Knowing this will make searching the system log quicker.

Search the system log by going into TSO, taking the SDSF option, then the LOG option.

The commands for searching the system log are:

- f 'XXXX' for forward search (where 'XXXX' is the information for which you are searching)
- f 'XXXX' prev for backward searches
- [function key] F5 to repeat the search command. Use until 'FOUND' appears at the top right of the screen
- [function key] F10 to view the right hand side of the data
- ENTER to bring the cursor up to the command line

Search for the IPL date. (The format of the search string is YYDD). Then search for the time. (Search string format HH:MM:)

Search for 'specify system parameters' by using:

f system

several times until you find the correct message.

If the answer to the 'specify system parameters' is 'R.00,U' the default has been taken and

IEASYS00 is in use. Otherwise the IEASYSXX member will have been chosen (XX being variable).

If IEASYS00 has been used you will have taken the important values in Step 2 above. If an option XX has been shown, (X being a variable) IRASYSXX will have been used.

In this case, browse ('b') IEASYSXX and write down the values of:

'APF='  
'LNKAUTH='  
'SMF='  
'SCH='  
'SVC='

The information is used below.

#### 4. Authorised Program Libraries

Programs residing in Authorised Program Libraries may be able to use restricted MVS functions and are potentially a security risk. Access to such libraries should therefore be controlled and restricted.

If the LNKAUTH entry (see Steps 2 or 3) is LNKLIST you should query this since it allows authorised programs in the LNKLIST. The preferred entry is 'LNKAUTH = APFTAB' which means that only programs in the IEAPFXX library are APF authorised.

The IEASYSXX member currently in use has an entry 'APF = XX' (from Step 2 or 3) This means that those libraries which the installation has designated as APF authorised are listed in the IEAAPFXX member of SYS1.PARMLIB That is, if the IEASYSXX member currently in use has an entry of 'APF=AB' the installation designated APF libraries are listed in IEAAPFAB. Browse the IEAAPFAB member of SYS1.PARMLIB.

Check the access to APF libraries.

Some texts state that you should check the existence of all APF libraries, as if one is listed and does not exist, an unauthorized user could create their own. This check is probably a good discipline but if an adequate security profile exists for each APF library, or if the access control software is set up such that a profile must exist (protect 'ALL' in RACF terms) the check seems excessive.

#### 5. Program Properties Table: User-added Programs

Of special interest are three programs which have been added by the user (i.e., not by IBM) which

can bypass password protection or have protection keys 0 to 7.

Browse the 'SCHEDXX' member of SYS1.PARMLIB (where XX is taken from Step 2 or 3). Each Program Properties Table (PPT) is headed by an entry 'PPT PGNAME (program name)' Write down the program names for those PPT's which have entries NOPASS (NOPASS means that password protection is bypassed. PASS means that password protection is not bypassed. This can be confusing at first!) Alternatively, KEY (0) through KEY (7).

Ask the system programmer in which libraries these programs reside. Check that libraries so identified have very strict access control.

#### 6. User SVC's

Browse the IEASVCXX (XX from Step 2 or 3) member of SYS1.PARMLIB This will give a list of the User SVC's in the format:

SVC Parm 215, REPLACE, TYPE (2), APF (NO)

where 215 is the SVC number

For each SVC find out in which load library the SVC resides. For those products which can be installed using SMP the SMP load will assist. For those products which do not support SMP for installation, the listings produced at the time of installation can be used.

If the load libraries in which an SVC resides are not APF authorised, the SVC cannot switch into supervisor state.

If the load library in which an SVC resides is an APF library, the SVC should have the TESTAUTH macro which will reject unauthorised attempts to use the SVC.

#### 7. Further audit tests required if OPI= YES

If OPI = YES, this is the stage where you will need to to persuade the compute department to make OPI = NO.

If you cannot persuade them to do this you will have to browse each IEASYSXX and write down the values APF =, LNKAUTH =, SMF =, SCH =, and SVC =. Then you will need to repeat all of Steps 3 to 6 for every IEASYSXX member in SYS1.PARMLIB If there are many IEASYSXX members, you might ask what they are needed for and request that any unnecessary members are eliminated, thus reducing your task.

## 8. Conclusion

There is a danger that in an MVS audit you will hold back until you understand it completely. This creates inertia, because until practical experience is gained through audit testing, the components of MVS will remain a mystery.

By doing some of these tests and then reading the CIPFA guide you will make a quicker start. To do the tests you will simply need to:

- gain access to TSO and familiarize yourself with the keyboard
- obtain read access to your access control packages

GOOD LUCK!

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## **SUBMISSION DEADLINES**

<b>Spring Edition</b>	<b>14th February</b>
<b>Summer Edition</b>	<b>14th May</b>
<b>Autumn Edition</b>	<b>14th August</b>
<b>Winter Edition</b>	<b>14th November</b>

# Systems Auditability and Control (SAC) Report

The Institute of Internal Auditors Research Foundation (IIA RF)

Firstly I should apologise for not letting you know earlier about this report, although no doubt some of you may also have heard of it, read it, been there, seen the video, got the T-shirt etc. etc. I'm apologising because I read it last August and here I am on February 12, desperately trying to meet the Journal's spring edition deadline of February 14 - I won't bore you with all my good reasons.

The authors, 'The Institute of Internal Auditors (IIA)' published the original SAC Report in 1977. That report provided a starting point for the present updated and extended report. The principal contributor to funding of the SAC project was IBM who contributed \$500,000. Price Waterhouse were the project researchers and coordinated the project. Ford Motor Company was also a sponsor along with a number of other major Companies. Over 200 researchers and volunteers from Price Waterhouse and the IIA, and over 150 volunteers from other organizations participated in the development and review of SAC. Forty leading organizations from around the world participated in interviews for the fieldwork of the research and another 190 responded to research surveys. Quite an impressive project! Well I believe so. I also believe the report is quite impressive.

The SAC report is not just a report, it's more a way of life. 'Report' is not the right word - it's more of a library; there are twelve modules, the smallest of these is the index (29 pages) and the largest module is

'Business Systems' (149 pages). Each module provides an overview of the business area it is addressing and includes; key management concerns, survey results, risks and controls, reasons for controls, audit considerations, case studies, and a summary. In many instances SAC recommends controls that should be in place and in some cases recommends methods for the review. It does not set out to provide an audit program. Also, it doesn't confuse the issue with a lot of systems jargon. A criticism is that the modules tend to be a little repetitive not only between different modules, understandable as the modules are intended to stand alone, but within the same module.

Overall, the SAC report provides very good material for Auditors (especially Systems Auditors), IT management and IT Security Staff. Whilst no single reference book can possibly cover every field of IT Controls/Systems Auditing I believe that this will be a well-thumbed set of modules.

Innis Coulter  
Ford of Europe Incorporated

Innis J. Coulter, CISA is responsible for the Systems Audit function of Ford of Europe, part of one of the largest multi-national motor manufacturers in the world. He has 30 years experience in Systems and Data Processing and for the last 14 years has specialized in EDP auditing.

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The SAC Report can be ordered from  
IIA (UK), 13 Abbeville Mews, 88 Clapham Park Road, London SW4 7BX.  
Telephone 071 498 0101.

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## THE SWAP SHOP

HELP WANTED      HELP WANTED      HELP WANTED

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### PHANTOM WITHDRAWALS

One of our members is doing some research into so called "phantom withdrawals" from ATMs. If you are a bank auditor and would be willing to discuss the matter in strictest confidence, then please contact the chairman, John Mitchell.

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**THE  
ANNUAL GENERAL MEETING  
OF THE  
COMPUTER AUDIT SPECIALIST GROUP  
OF  
THE BRITISH COMPUTER SOCIETY  
WILL BE HELD AT  
4.30 PM, WEDNESDAY, 13TH MAY 1992  
AT THE  
INTERNATIONAL LONDON PRESS CENTRE,  
76 SHOE LANE, LONDON EC4A 3JB (ENTRANCE IN PRINTER STREET)**

**AGENDA**

1. Approval of the minutes of the AGM held on 15th May 1991
2. Chairman's Report
3. Treasurer's Report
4. Election of Officers
5. Election of Auditor
6. Appointment of Committee
7. Plans for 1992/1993
8. Any Other Business

**The meeting will follow the close of the Annual Conference.  
There is no charge for attendance at the AGM which  
is open to all CASG members irrespective of whether or not they attend the conference.**

**NOMINATIONS FOR THE MANAGEMENT COMMITTEE**

As usual at this time, I am asking for nominations for the Group's Management Committee.

We hold about eight committee meetings a year at a London location. The meetings start at 5.00 pm and we try to finish them by 7.00 pm. Each committee member is allocated a specific task. The committee is definitely not 'cliquey' and we genuinely welcome new people, new ideas and lots of enthusiasm!

If you would like to discuss any of the committee posts, please contact either John Mitchell (0707 54040), Raghu Iyer (071 236 8000) or any other committee member (their telephone numbers are given on the inside back page of the Journal).

Below is a list of officers and committee members who will be standing for re-election, together with the vacancies. If you fancy a post which is already filled, (including mine!), just put yourself forward and the AGM can vote on it. No-one on the Committee will be put out by such a display of interest! A blank nomination form is printed below for your use. Please return completed forms to Raghu Iyer.

Remember, this is your group and you should use this opportunity to have your say.

John Mitchell

**THE MANAGEMENT COMMITTEE FOR 1992/93**

Chairman	John Mitchell	Little Heath Services
Secretary	Raghu Iyer	KPMG Peat Marwick McLintock
Treasurer	Fred Thomas	
Membership Secretary	Peter Martin	ED & F Man Ltd
Member's Meetings	Alison Webb	Consultant
	John Bevan	Audit and Computer Security
Annual Conference	VACANCY	
Discussion Groups	Steve Pooley	Consultant
	Chris Birt	Consultant
Marketing and PR	Jarlath Bracken	Zurich Insurance and PR
Publications	Jacqui Race	National Westminster Bank
Journal Editor	Rob Melville	City University Business School
Long Term Planning	Bill Barton	The Rank Organization



**THE BRITISH COMPUTER SOCIETY  
COMPUTER AUDIT SPECIALIST GROUP  
NOMINATIONS FOR THE 1992/93 COMMITTEE**

Position: .....

Nominee: .....

Proposer: .....

Secunder: .....

Signature of Nominee agreeing to serve on the Committee:

.....

Date: .....





## Membership Application

**PLEASE RETURN TO**  
**Mr A J Thomas**  
**Treasurer BCS CASG**  
**3 Kings Court**  
**The Maltings**  
**Great Dunmow**  
**Essex CM6 1UX**

I wish to APPLY FOR / RENEW (delete as appropriate) my membership of the Group in the following category and enclose the appropriate subscription.

CORPORATE MEMBERSHIP (Up to 5 delegates)*	£50
* Corporate members may nominate up to 4 additional recipients for direct mailing of the Journal (see over)	
INDIVIDUAL MEMBERSHIP (NOT a member of the BCS)	£15
INDIVIDUAL MEMBERSHIP (A MEMBER of the BCS)	£10
BCS membership number: _____	

Please circle the appropriate subscription amount and complete the details below.

INDIVIDUAL NAME: (Title/Initials/Surname)	
POSITION:	
ORGANISATION:	
ADDRESS:	
POST CODE:	
TELEPHONE: (STD Code/Number/Extension)	
PROFESSIONAL CATEGORY: (Please circle) 1 = Internal Audit                      4 = Academic 2 = External Audit                      5 = Other (please specify) 3 = Data Processor	
SIGNATURE:	DATE:

**PLEASE MAKE CHEQUES PAYABLE TO "BCS CASG"**  
**AND RETURN WITH THIS FORM TO THE ADDRESS SHOWN ABOVE**



**ADDITIONAL CORPORATE MEMBERS**

INDIVIDUAL NAME: (Title/Initials/Surname)
POSITION:
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POST CODE:
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## Management Committee

<b>CHAIRMAN</b>	<b>John Mitchell</b>	<b>Little Heath Services</b>	<b>0707 54040</b>
<b>SECRETARY</b>	<b>Ragu Iyer</b>	<b>KPMG Peat Marwick McLintock</b>	<b>071 236 8000</b>
<b>TREASURER</b>	<b>Fred Thomas</b>		<b>0371 875457</b>
<b>PUBLICATIONS</b>	<b>Jacqui Race</b>	<b>National Westminster Bank</b>	<b>071 860 4087</b>
<b>MONTHLY MEETINGS</b>	<b>John Bevan</b>	<b>Audit and Computer Security Services</b>	<b>0992 582439</b>
	<b>Alison Webb</b>	<b>Independent Consultant</b>	<b>0223 461316</b>
<b>CONFERENCE ORGANISER</b>	<b>Ian Longbon</b>	<b>CWB Limited</b>	<b>071 220 8495</b>
<b>DISCUSSION GROUPS</b>	<b>Chris Birt</b>	<b>Independent Consultant</b>	<b>071 790 0755</b>
	<b>Steve Pooley</b>	<b>Independent Consultant</b>	<b>0580 891036</b>
<b>MARKETING &amp; PR</b>	<b>Jarlath Bracken</b>	<b>Zurich Insurance</b>	<b>0705 822200</b>
<b>MEMBERSHIP SECRETARY</b>	<b>Peter Martin</b>	<b>E D &amp; F Man Ltd</b>	<b>071 626 8788</b>
<b>PLANNING</b>	<b>Bill Barton</b>	<b>The Rank Organisation Plc</b>	<b>071 706 1111</b>
<b>JOURNAL EDITOR</b>	<b>Rob Melville</b>	<b>City University Business School</b>	<b>071 477 8646</b>

## Venue for Members' Meetings

