

ICT auditing and required competencies

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Abstract.

This paper researches the role of IT auditors in conducting the internal audit activities (IIA) and the competencies of IT auditors and other audit staff in supporting those activities in internal audit departments. The internal audit function must be able to deliver a value for money service to management of the company. In an era when competitive advantage and cost reduction are critical, full advantage must be taken of technology. Therefore, the role of IT auditors has become very important in supporting the internal audit activities (IIA). Also, IT auditing supports many types of internal auditing in companies because today it is not possible to conduct auditing processes without IT support (e.g. CAAT tools and techniques). Research was conducted on three electrical industry companies (ESB-Electricity Supply Board from Ireland, IEC-Israel Electric Corporation and HEP-Croatian Electricity Company) in relation to roles and competencies. Also, this paper compares these same results with the ECIIA Common Body of Knowledge (CBOK) study of staffing, skills, competencies and the role of internal audit activities (IAA).

Keywords. IT Auditors, IT audit activities, Competencies, Skills, ECIIA CBOK, IIA Standards, ISACA Standards

1. Introduction

The internal audit function is a key activity in any company wishing to operate in a secure and controlled environment. It is concerned with ensuring compliance with legislation, regulatory framework and internal procedures. It objectively and independently evaluates and appraises

business processes and activities to assess if value for money is being achieved. The internal audit function must be able to deliver a value for money service to the management of a company.

Traditional methods of auditing were time consuming and tedious with high overheads as a result of time taken to carry out satisfactory audits. In an era when competitive advantage and cost reduction are critical, full advantage must be taken of technology. The extensive use of IT in business today has had a major impact on the audit profession. Keeping pace with this technology and ensuring that it exists within a secure and controlled environment is one of the key challenges facing the audit profession.

This paper research the role of IT auditors in conducting the internal audit functions and compares the competencies of IT auditors and other audit staff in internal audit departments in three electrical industry companies with ECIIA CBOK survey.

2. Research objectives

The primary objective of the research was to determine the role of IT auditors in supporting the audit activity and the competencies of IT auditors and other audit staff in internal audit departments. Research was conducted in three (3) electrical industry companies (ESB-Electricity Supply Board from Ireland, IEC-Israel Electric Corporation and HEP-Croatian Electricity Company) to identify their current practice.

Research was also conducted on the following:

- IIA Standards and Code of Ethics

- ECIIA CBOK in Internal Auditing- research in 2006
- ISACA Standards (IS Auditing Standard S4 and IS Auditing Guidelines G30)
- Profile of audit staff (including IT auditors) in internal audit functions
- Competencies (background and skills of internal auditors, including the IT auditors).

The first part of this research was to review the literature available on this subject to determine the current position within the audit profession internationally with regard to the use of IT, the changing role of audit, the challenges and issues facing the audit profession and the future role of the audit profession. The second part was to compare if the audit profession in ESB, IEC and HEP as similar companies based on the abovementioned survey of a range of organisations, were operating in a manner consistent with international practice as encountered in the literature.

3. Body of knowledge

It is appropriate to start with some information on the Institute of Internal Auditors (IIA), European Confederation of Institutes of Internal Auditing (ECIIA), ISACA and some definitions of internal auditing and IT internal auditing.

The Institute of Internal Auditing (IIA) is the professional body for internal auditors [5]. The institute is the only body that specialises in internal audit and was founded in America in 1941. There are over 60,000 members in more than 100 countries. The IIA interacts globally with the accountancy, legal and IT profession and is constantly researching and evaluating new developments in technology and related issues to ensure that it is providing up to date information and best practice to the profession. In 2009 the IIA revised and published IPPF (International Professional Practices Framework), which include The IIA's

Definition of Internal Auditing, Code of Ethics, Standards and the three strongly recommended elements Position Papers, Practice Advisories and Practice Guides. These standards and guidelines are accepted world-wide and cover such areas as honesty, conflict of interest, diligence, objectivity, competency and confidentiality. Members of the IIA must maintain high standards of conduct in order to effectively discharge their responsibility.

“European Confederation of Institutes of Internal Auditing (ECIIA) is a confederation of national associations of internal auditing which are located in countries within the wider European economic area” shown in Figure 1 [9]. This includes all of the EU, Eastern Europe, Scandinavia and the Mediterranean Basin. It has 32 member countries (as at 7/2007). There are no individual memberships, only IIA institutes or chapters. HIIR (Croatian Institute of Internal Auditors) is part of ECIIA and it is a member of IIA Global from 2008.

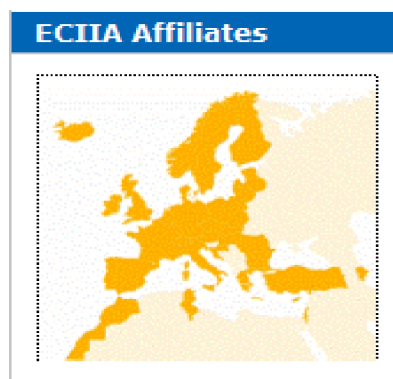


Figure 1. Area of ECIIA [9]

The study entitled the Common Body of Knowledge (CBOK) is a global research program which was released by The Institute of Internal Auditors Research Foundation. One part of the global research focuses on the European results. This part is ECIIA CBOK [7] and it will be our focus of research. CBOK has produced a rich database of information on how the internal audit profession is being practiced worldwide.

These surveys determine:

- Compliance with and adequacy of The International Standards for the Professional Practice of Internal Auditing.
- The current status of the internal audit activity within organisations.
- The activities and types of audits that are being performed.
- Tools and techniques used by internal auditors.
- **Skills and knowledge possessed by internal auditors.**

Only the skills and knowledge of internal auditors will be the focus of the research because we will compare it with the skills and knowledge of internal auditors in three electrical industry companies.

The Information Systems Audit and Control Association (ISACA) is one of the leading information technology organisations and represents over 20,000 members in over 100 countries. Membership is comprised of all levels of IT professionals - executives, management and practitioners, all of whom are dedicated to the promotion of advanced IT governance, control and assurance practices. It is in the areas of governance and control that auditors everywhere look to the ISACA for guidance in fulfilling their role. ISACA has assumed a role as one of the main sources for IT control practices and standards the world over.

Firstly we need to understand the definition of internal auditing and IT internal auditing.

“**Internal auditing** is an independent, objective assurance and consulting activity designed to add value and improve an organisation’s operations. It helps an organisation accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes” [1].

“**IT internal auditing** is collecting and assessing evidence on whether IT operates in accordance with company asset protection, data integrity maintenance,

efficient support of company's goals and efficient use of information resources with the main objective of achieving high level of business and IT alignment” [2]. Figure 2 shows the main role of IT auditing or IS auditing and what it means for each organisation.

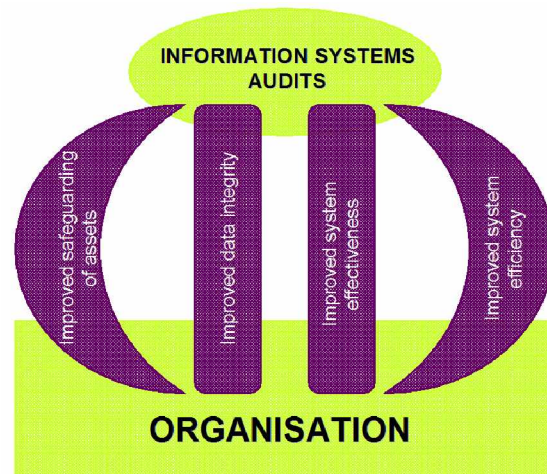


Figure 2. The main role of IT auditors

Also, IT auditing supports all types of internal auditing in various companies because today it is not possible to conduct the auditing process without IT support (e.g. CAAT tools and techniques). So that is the crucial reason why the competencies of IT auditors as well as the internal auditors have become very important for the internal audit profession.

4. Internal auditor competencies

Competence refers to the ability to perform a particular task in a competent manner. A person is competent in performing a task when that person has acquired the necessary skills and knowledge to competently perform the task. As an auditor must be able to competently perform a number of tasks, the approved standard describes the tasks required to be able to competently perform an internal audit as well as the basic skills and knowledge required to perform each task.

In determining the competencies for internal auditors (including IT auditors) research was conducted on the IIA Standards and the Code of Ethics [1], ISACA IS auditing

standard professional competence (Document S4) [3] and ISACA IS auditing guidelines (Document G30) [4].

IIA Standards and the Code of Ethics [1]:

For the purposes of this research there are two key standards that are relevant:

- **Standard 1210**, Proficiency, states, “Internal auditors should possess the knowledge, skills, and other competencies needed to perform their individual responsibilities.”
- **Standard 1230**, Continuing Professional Development, states, “Internal auditors should enhance their knowledge, skills, and other competencies through continuing professional development.” Internal auditors must continually update their competencies and knowledge to remain current.

In the **Code of Ethics of IIA**, the importance of competencies is also highlighted as one of the four principles.

ISACA IS auditing standard professional competence S4 [3]:

For the purposes of this research there are two key standards that are relevant:

- “03 The IS auditors should be professionally competent, having the skills and knowledge to conduct the audit assignment.
- 04 The IS auditors should maintain professional competence through appropriate continuing professional education and training.”

In accordance with the research on the IIA Standards and ISACA Standards the conclusion is that internal auditors as well as the IT auditors need to have three areas of competencies, which are shown in Figure 2. The internal auditor as well as the IT auditor must possess the necessary professional and technical competence, as a whole, to cover the scope of the audit. Internal auditor (including the IT auditor) should be competent with respect to understanding:

- Technical regulatory knowledge
- Auditing skills and

- Communication and interpersonal skills.

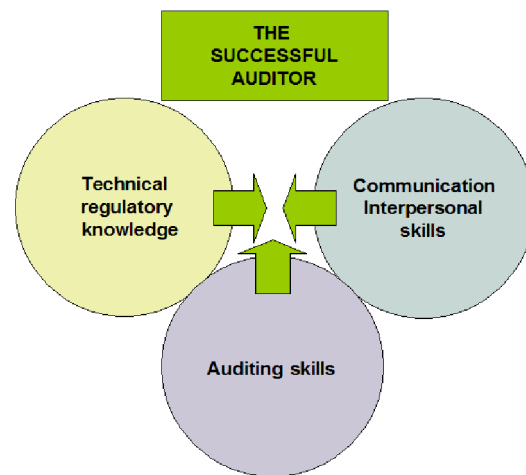


Figure 2. Three areas of competencies all auditors including the IT auditors need to have

Auditing skills include a number of specific sub skills, such as developing and executing an audit plan, preparing and using checklists, following-up, documenting findings, etc. Communication and interpersonal skills are very important for the internal audit function, because if the auditors communicate and interact well with everyone involved, the audit will more likely to be successful. Some characteristics of good interpersonal and communication skills for internal auditors are:

- a true respect for people,
- active listening (being sure you understand what is being said),
- spending more time listening than talking (a three-to-one ratio),
- oral skills,
- written skills etc.

Also, very important for the internal auditor as well as the IT auditor is basic education, different kind of skills, various training and of course the certifications. Also, recently in many articles we can find that multidisciplinary educations as well as the specializations are becoming most important to the internal audit profession. One possible conceptual way of depicting internal audit competencies is shown in Figure 3 in a form

of pyramid of internal audit competencies. Climbing the pyramid structure implies adding value to the internal auditor, to the internal audit function and to the organisation overall.

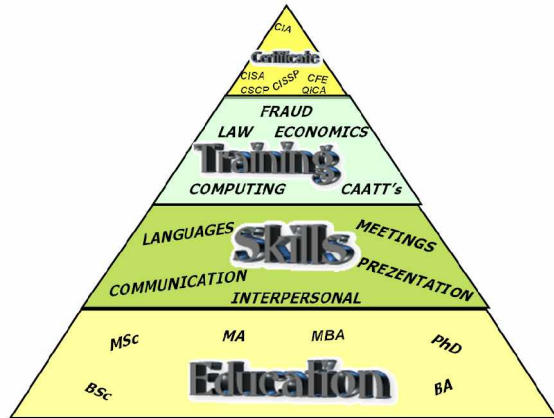


Figure 3. Internal audit competencies in pyramid form

5. Identification and comparison method

As mentioned before, in this paper we will compare the results of the ECIIACBOK survey as it relates to skills and knowledge with the skills and knowledge of internal auditors in three electrical industry companies.

The ECIIA CBOK [7] was a survey that involved 21 European countries which have the IIA affiliates (IIA Chapters). The type of organisation that responded was as follows:

- 60% of responding companies was listed and privately held companies,
- 25% was public sector and governmental organisations,
- 16,5% was consultancy organisations while
- 11% was not-for-profit organisations.

Table 1 shows the level of formal education of internal auditors (in %), Table 2 the most common audit activities (%) performed by internal audit function, Table 3 the most important behavioural skills for internal auditors (%), Table 4 the five most important technical skills for internal

auditors (%), Table 5 the five most important competencies for internal auditors (%) according the ECIIA research [7]. Each table shows the average score.

Table 1: The level of formal education of internal auditors in (%) [7]

Level of education	Internal auditors (%)
Secondary school	8.8
Bachelor Degree	35.4
Master Degree	49.9
Doctoral Degree	2.8
Other	3.1

Table 2: The most common audit activities (%) performed by internal audit function [7]

Operational audit	Internal control testing and system evaluation	Investigation of fraud and irregularities	Information technology department assessment	Security Issues	Quality/ISO Audits
79.6%	77.8%	61 %	45.1 %	34.5%	14.7%

Table 3: The most important behavioural skills for internal auditors (%) [7]

Confidentiality	Objectivity	Team player	Interpersonal skills	Working independently	Work well with all level of management
74%	74%	66% %	59 %	54%	52%

Table 4: The five most important technical skills for internal auditors (%) [7]

Data collection and analysis	Interviewing	Use of information technology	Identifying types of controls	Understanding business
76%	61%	55%	45 %	41%

Table 5: The five most important competencies for internal auditors (%) [7]

Analytical	Writing skills	Critical thinking	Communication	Problem identification and solution
63%	47%	46%	45 %	42%

ESB (Electricity Supply Board) is Ireland’s premier electricity utility [8]. Group Internal Audit is responsible for the internal audit function in ESB. Group Internal Audit is an independent appraisal function charged with reviewing company activities across all areas within ESB Group, as a service to the Board and management. It objectively examines and reports on management of risk, the

adequacy of internal control, and on the achievement of proper, efficient, effective and economic use of resources. Group Internal Audit consists of multi-disciplinary resources such as engineers, accountants, IT staff and general business managers/specialists [13].

IEC (Israel Electric Corporation) is a government-owned and publicly-traded company [11]. It was founded in 1923. The state is the primary shareholder of the company, and it is a governmental monopoly. The government owns 99.85% of the shares. IEC is the largest government company in Israel and its main activities include generation, transmission, distribution and sale of electricity. The internal audit function in IEC was established by law. It is one of the first internal audit bodies in Israel. Internal Audit department consists of a multi-disciplinary staff from different disciplines like economics, engineering, information technology, finance, business management and law. Three quarters of the internal auditors are CIA or CISA certified but some have both [10].

HEP Group (Croatian Electricity Company) is a national electricity company which has been engaged in electricity production, transmission and distribution, heat supply and gas distribution [12]. HEP Group is organized in the form of a holding company with a number of daughter companies. The parent company of the Group, HEP d.d., performs the function of HEP Group corporate management and guarantees the conditions for the secure and reliable electricity supply to customers. At the level of HEP Group there is the Internal Audit Department which consists of a multi-disciplinary staff from different disciplines like economics, electrical and mechanical engineering, information technology, finance and law.

Table 6: Internal audit functions or internal audit departments

	ESB	IEC	HEP
Workforce (No. of employees)	more than 5000	more than 10000	more than 10000
Total no. of auditors in internal audit department	19	41	8
No. of IT auditors	5		2
No. of IT auditors/Workforce	1:1000		1:5000
No. of auditors/Workforce	1:263	1:244	1:1250
IT auditors/Non IT auditors	1:4		1:4

Table 6 gives details of the composition of the internal audit department in three electrical industry companies while Table 7 and Figure 4 gives level of formal education of the auditors employed in these departments. In general, audit staff must hold as a minimum a primary degree. Table 8 analyses the professional qualifications of the audit departments in three electrical industry companies. Not surprisingly the leading discipline is Financial/Accounting. The second highest is IT auditors or IT specialists, emphasising the major role that IT is playing in business today and the challenges that this presents to audit departments everywhere, as well as in three electrical industry companies. All IT auditors in ESB and IEC hold CISA accreditation while only in HEP they did not. Table 9 and Figure 5 give the comparison of formal education of internal auditors in ESB, IEC and HEP with the results of internal auditors in ECIIA CBOK research.

Table 7: Level of formal education

	ESB	IEC	HEP
High school	-	-	-
Associates Degree	-	-	-
Bachelor Degree	63%	20%	12,5%
Master Degree	37%	80%	87,5%
Doctoral Degree	-	-	-

Figure 4. The level of formal education (ESB, IEC, HEP)

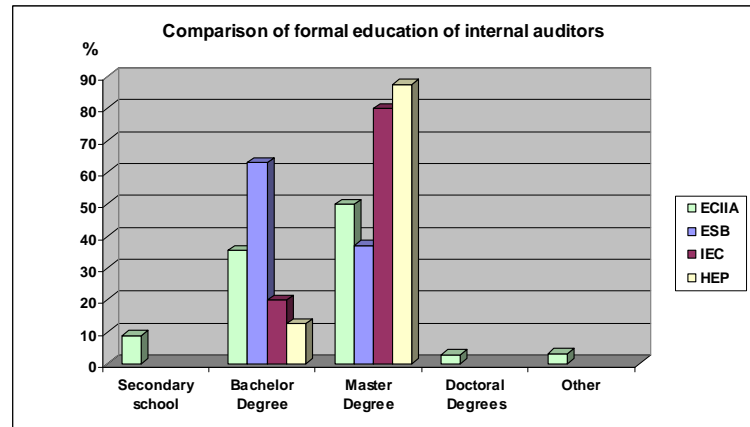
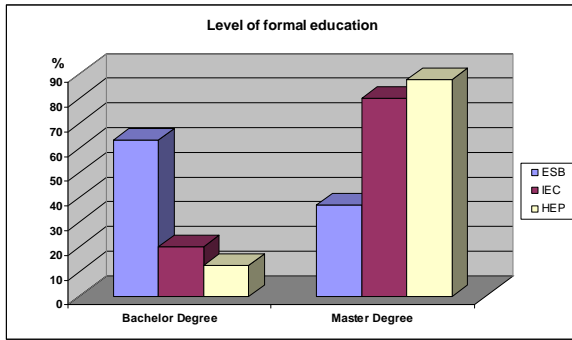


Table 8: Professional education

	ESB	IEC	HEP
Information Systems auditing (such as CISA, QICA, CISM)	21%	75%	-
Internal auditing (such as CIA, MIIA,PIIA)	-	75%	100%
Public accounting chartered accountancy (such as CA, CPA, ACCA, ACA)	16%	-	-
Management general accounting (such as CMA, CIMA, CGA)	5%	-	-

6. Conclusion

Comparing the three companies researched with the results of the ECIA CBOK survey, the research concluded that for the three companies:

- Each placed a high value on having well educated auditors - either primary or master degree level
- Each audit function was staffed with multi disciplinary members to reflect the profile of their company and audit activity
- There was a variation in the extent of various IIA accreditations in each audit function.

Table 9: Formal education of internal auditors in ESB, IEC, HEP and ECIA CBOK research

	ECIA	ESB	IEC	HEP
Secondary school	3,8			
Bachelor Degree	35,4	63	20	12,5
Master Degree	49,9	37	80	87,5
Doctoral Degrees	2,8			
Other	3,1			

Figure 5. The comparison of formal education of internal auditors in ESB, IEC, HEP with the results of internal auditors in ECIA CBOK research

The use of Information Technology has dramatically changed the auditing profession in recent years. Computer audit skills are still very much in demand and the need for IT auditors will remain with us for the foreseeable future. This is emphasized by the rapid development we are seeing today in the world of ICT Technology. These rapid changes also require that IT auditors be constantly updating their skills and technical knowledge. Also, very important for IT auditors as well as internal auditors are their competencies and skills and education in multi-disciplinary fields. Of course, very important to the internal audit and IT audit profession is to be certified in CIA, CISA, CISM or some other professional education.

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