

## Accountants' Use of Critical Information and Communication Technology (ICT) Skills in Contemporary Fijian Businesses

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### Abstract

*ICT has significant impact on the work carried out by accountants. There have been urgent calls on accountants to utilize ICT skills to enhance the accounting information system in businesses. This paper utilizes a comprehensive list of critical ICT skills identified by Wessels (2005) to gauge accountants' awareness of these skills in Fiji. Findings suggest that accountants in Fiji possess critical ICT skills in performing their core function in an automated environment.*

### Introduction

Businesses all over the world recognize information and communication technology (ICT) as an integral part of their day-to-day management, efficiency and productivity (Islam, 2016; Susanto, 2016; Alves, 2010; Banker et.al, 2002). According to *The Fiji Times* (2016), 'There is a strong and exciting future for information and communications technology industry in Fiji because of excellent infrastructure, a highly competitive cost model, robust resilience and an abundance of skilled employees with a wonderful work ethic'. Investment Fiji Chief Executive, Godo Muller-Tuet, asserts that, 'Australian companies have shown strong interest in Government projects which reflects Australian investors' confidence in the Fijian business environment' Fiji Sun Online (2016).

Both, the private and public sectors, appreciate the value of ICT services. While most businesses have their own separate ICT department professionals, there is still a persisting need for accountants to have critical ICT skills.

The regulatory professional body for accountants in Fiji, the Fiji In-

stitute of Accountants (FIA) defines chartered accountants as 'business leaders with broad financial, commercial and managerial skills – persons whose experience is central to the success of a business' (FIA, 2011). As business leaders, accountants are obliged to recognize the need for inculcating ICT skills for business management and efficiency. The FIA recognizes the undergraduate accounting degrees from the three universities in Fiji, namely, The University of Fiji, The University of the South Pacific, and The Fiji National University; their graduates become provisional members of the accounting professional body. ICT skills are necessary skills that the employers demand from their employees as professional accountants. Hence universities in Fiji have aligned their curricula to incorporate ICT skills.

Technological advancement is evident in all the businesses in order to retain competitive edges and to enhance service or production. As technology advances, accountants are also required to advance their knowledge in relation to technology. One of the key requirements for graduates is to complete an ICT related unit in their undergraduate programme of study. Such a requirement advocates the need of accounting professionals to have ICT knowledge and skills. To what extent the units of these universities covers the ICT skills relevant to the profession is left to the FIA's discretion. Emphasis is on the comprehensive list of critical ICT skills compiled by Wessels (2005: 87) where 'ICT skills are divided into various categories that depict the specific skills that are required by an accountant to perform his/her job'. It is uncertain whether accountants in Fiji are well-versed with such ICT skills. This paper carries the results of a survey of Fijian accountants' awareness of these comprehensive critical ICT skills to gauge the impact of ICT on accounting professionals' work in businesses in Fiji.

### Literature Review

Businesses across many countries have invested significantly in information and communication technology that is perceived to open doors to business success (Koen et.al, 2016; Loukis & Pazalos, 2008; Manuelli et.al, 2008). This is possible through the effective use of ICT skills in business innovation and operation. In today's modern world, countries with advanced technology are purely knowledge based where it is necessary to have good ICT in order to remain competitive and economical.

Governments in many countries provide incentives in regards to ICT adoption. This is to encourage the business sector as the use of ICT will boost the economy. Koen et.al (2016) noted ICT as a critical enabler

for local government in their effective service delivery. Due to advancements in technologies, however, some businesses face challenges in adapting to ICT services, particularly given that their employees are not well versed with pertinent ICT skills, or they face resource constraints in funding costly IT investments. Lobaziewicz (2016) acknowledged that a number of innovative ICT systems, application and tools have come in light to support business performances. Any business which uses ICT will always notice that their business is growing; this is so because ICT speedens work, raises production and reduces cost of production (Ako-mea & Sampong, 2012; Ghasemi et.al, 2011). In this regard, there is a focus on accountants as employees and business leaders to be versed with ICT skills and knowledge to realise the benefits of ICT.

In order to survive in an accounting profession, the professional accountants are required to possess significant ICT knowledge and skills due to changes in technological business environment (Amiri & Amiri, 2014; Mgya & Kitindi, 2008). When recruiting new graduate accountants, Tanaka & Sithole (2015) identified one of the entry requirements as graduate accountant possessing essential ICT skills. In order to provide competent and professional services for the organisation in which the accountant is working he or she needs to be well versed with ICT skills. Widespread use of ICT by organisations for record keeping purposes has also forced key personnel such as accountants to be proficient in ICT skills.

Accountants play an integral role in the success or failure of businesses (Khoury et.al, 2014). The function of accounting is to record, analyse and monitor the financial performance of the business, provide reports about the performance of the business, prepare financial statements for, amongst others, tax purposes (Lim, 2013). Most of these functions were conducted manually in the past; this involved use of books, calculators and typewriters. Now, all these functions can be, and mostly are, performed through computers (Moghaddam et.al, 2012; Ghasemi et.al, 2011). All the information and data is recorded in computers and analysed through softwares and packages. Technological advancement and new innovation are reshaping the professional field in which the accountants are working (Amiri & Amiri, 2014).

Consequently, 'the role of an accountant is moving from a normal financial accountant to a financial analyst and management accountant, requiring a broader set of knowledge, professional attitude, critical thinking skills and decision making capabilities than prior generations' (Ak-pokiniovo & Oyovwe, 2015: 146). To perform these activities accountants need to possess good ICT skills. Traditional modes will not be

workable or viable in today's times. The International Federation of Accountants (IFAC), a global professional accounting body having members from over 130 countries (FIA is a member), has dedicated, through its education committee board, the International Education Standards (IES) for professional accountants, IES 1–7. This requires accountants to have Information Technology (IT) knowledge and competences. The following subject areas and skills are mentioned in IES 2: 'general knowledge of IT, IT control knowledge; IT control competences; IT user competences, and one or a mixture of the competences of the roles of manager; evaluator or designer of information systems' (IFAC, 2003 in Wessels, 2005: 94-95).

Wessels (2005) tabulated a comprehensive list of critical ICT skills by reviewing the extant literature of ICT skills required by accountants by various researchers and professional accounting bodies internationally; these are:

- \* *The accountant as a user of IT: Business Automation Skill.* 7 ICT skills are identified; these are: operating systems, word processing, spreadsheets, presentation software, internet tools, research tools, and image processing software;
- \* *The accountant as a user of IT: Office Management Skill.* 6 ICT skills are identified; these are: database software, database search and retrieval, accounting software, tax return preparation software, time management and billing systems, knowledge work systems;
- \* *The accountant as a user and evaluator of IT: Audit Automation Skills.* 6 ICT skills are identified; these are: electronic working papers, audit software, test data, simulation software, flowcharting/data modelling and audit modules; and
- \* *The accountant as a manager, designer and evaluator of IT.* Under this, 15 ICT skills are identified. These are: computer-aided systems engineering tools, client/server environment, electronic data interchange, digital communications, network configurations, application service providers, anti-virus software, encryption software, firewall software/hardware, user authentication, intrusion detection and monitoring, back-up and recovery, agent technologies, data warehousing and data mining.

### **Fijian Accountant Survey**

A Fijian accountant survey was carried out using mix-method approach utilizing quantitative and qualitative techniques for data collection. Data was gathered through questionnaires, soliciting responses from accountants in Fiji. A total of 120 questionnaires were distributed out of

which 108 were returned. 104 respondents had fully completed the questionnaire pertaining to critical ICT skills. Thus,  $n = 104$  is taken for the quantitative descriptive analysis using central limit theorem.

The central limit theorem holds that for sample size ( $n$ ) greater than 30, the distribution of sample mean becomes closer and closer to normal. This 'remarkable result implies that under virtually all circumstances it is possible to make probabilistic inferences about the values of population parameters based on sample statistics' (Simonoff, 2010: 2). Therefore, whatever inferences we draw from the sample of accountants who participated in the survey, can be generalized for the entire population of accountants in Fiji. Furthermore, responses for open ended questions were analyzed and coded by the respective themes: use of ICT skills, issues encountered, and issues overcome.

## Results and Findings

Table 1 provides the data on the findings from the survey and Table 2 gives the statistical analysis for the four sets of traits under consideration. Central Limit Theorem was used to calculate the probability that the mean will lie outside the standard deviation and make conclusions of awareness of the accountants of the various trait sets.

**Table 1: Survey Results**

	<i>Agreed (X)</i>	<i>Percentage (%)</i>
<b>The Accountant as User of IT: Business Automation Skills</b>		
Operating Systems: Apply operating systems and utility software in a business/accounting context. (V1)	100	96.2
Word Processing: Apply word processing software in a relevant accounting/business context (V2)	103	99.0
Spreadsheets: Apply spreadsheet software in a relevant accounting/business context (V3)	103	99.0
Presentation Software: Apply presentation software in a relevant accounting/business context (V4)	100	96.2
Internet tools: Apply internet tools in a relevant accounting/business context (V5)	100	96.2
Research tools: Apply professional research tools in a relevant accounting / business context (V6)	99	95.2
Image processing software: Apply image processing software in a relevant accounting/business context (V7)	75	72.1

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<b>The Accountant as a User and Evaluator of IT: Audit Automation Skills</b>	<i>Agreed</i>	<i>Percentage (%)</i>
Electronic working papers: Ability to use software that can generate trial balances and lead schedules for the recording of evidence in the audit. (V14)	97	93.3
Audit software: Ability to use audit software to access client computer files, extract relevant data and perform audit functions. (V15)	77	74.0
Test data: Ability to generate and use test data to test a computer application. (V16)	76	73.1
Simulation software: Ability to create simulation modules in order to evaluate the logic of a computer application. (V17)	59	56.7
Flowcharting/ data modelling: Ability to use software that uses the source code version of an application to produce flowcharts of the program logic. (V18)	68	65.4
Audit modules: Ability to use embedded audit modules (including real-time audit modules) that are incorporated into an application program. (V19)	60	57.7
<b>The accountant as a manager, designer and evaluator of IT</b>		
Computer-aided systems engineering tools: Ability to use computer-aided systems engineering tools in designing new accounting systems or spreadsheet models. (V20)	62	59.6
Client/server environment: Ability to function in a cooperative client/server environment using local area networks. (V21)	67	64.4
Electronic data interchange: Ability to perform EDI (traditional and web-based) transactions. (V22)	67	64.4
Digital communications: Ability to understand digital communications (including wireless communications). (V23)	80	76.9
Network configurations: Ability to understand various network configurations (internal & external). (V24)	72	69.2
Application service providers: Ability to understand the issues around the management of application service providers. (V25)	66	63.5
Internet service providers: Ability to understand the issues around the management of internet service providers. (V26)	72	69.2
Anti-virus software: Ability to understand the use of antivirus software to protect computer systems from infection. (V27)	85	81.7
Encryption software: Ability to understand the use of encryption software to change data, using some type of encoding/decoding algorithm. (V28)	64	61.5

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	Agreed	Percentage (%)
Firewall software/hardware: Ability to understand the use security technology to enforce an access control policy between networks. (V29)	77	74.0
User authentication: Ability to understand the use software and devices to identify system users. (V30)	74	71.2
Intrusion detection and monitoring: Ability to understand the use security technology to identify unauthorized requests for services. (V31)	69	66.3
Back-up and recovery: Ability to understand the use of technology for back-up and recovery procedures to ensure continuity of IT services. (V32)	85	81.7
Agent technologies: Ability to understand the use programmed modules that are given certain levels of authority and autonomy to act on behalf of a supervisor. (V33)	69	66.3
Data warehousing and data mining: Ability to understand the use of data warehousing and extracting trends and patterns using data mining techniques. (V34)	66	63.5

**Table 2: Statistical Analysis**

The Accountant as a:	Mean	Standard Deviation	Sample Variance	Count
User of IT: Business Automation Skills	97.1	9.9	97.8	7/0
User of IT: Office Management Skills	84.5	8.8	76.7	6.0
User and Evaluator of IT: Audit Automation Skills	72.8	14.1	198.2	6
Manager, Designer and Evaluator of IT	71.7	7.2	52.4	15.0

On the basis of the statistical analysis, the following are the results:

*The accountant as a user of IT: Business Automation Skill:* The probability that the mean will lie outside the standard deviation is 0.2 (1-0.7559537). Thus we conclude that there is 80% probability that accountants in Fiji are aware of the critical ICT skills relevant to their work (identified as Variables 1 to 7 in Table 1). Most accountants

have identified having basic automation skills such as operating systems, word processing, spreadsheets, presentation software, internet and research tools as these are common needs for today's accounting duties and function performed. However, only 72.1% identified having image processing software skill which recorded the lowest percentage in comparison with other variables.

*The accountant as a user of IT: Office Management Skill :* The probability that the mean will lie outside the standard deviation is 0.013 (1-0.9870121). Thus, it can be concluded that there is 99% probability that accountants in Fiji are aware of the critical ICT skills relevant to their work identified as Variables 8 to 13 in Table 1. Moreover, 97.1 percent identified having accounting software skills which verifies the reliance of accounting personnel on automated accounting system due to ICT superseding manual accounting systems.

*The accountant as a user and evaluator of IT: Audit Automation Skills:* The probability that the mean will lie outside the standard deviation is 0.013 (1- 0.9865852). Thus, it can be inferred that there is 99% probability that accountants in Fiji are aware of these critical ICT skills relevant to their work identified as Variables 14 to 19 in Table 1. Most accountants (93.3%) identified electronic working papers skills as pertinent to their daily functions while simulation software recorded as the lowest having 56.7%.

*The accountant as a manager, designer and evaluator of IT:* The probability that the mean will lie outside the standard deviation is 0.000004 (1- 0.999996). Thus, we conclude that there is 99% probability that accountants in Fiji are aware of these critical ICT skills relevant to their work identified as Variables 20 to 34 in Table 1. Antivirus software and back-up recovering skills have recorded highest percentage of 81.7 while all other variables have percentages greater than 50%.

Further analysis of the questionnaire revealed ICT having tremendous positive impact on accountants in Fiji. ICT aids accountants in enabling them to perform in the modern era where it is a challenge to do manual record keeping. Through the use of ICT it makes accountants' work very easy and effective; all transactions are recorded in a computerized system and through the use of software all the reports are generated automatically on a timely basis. There is minimal need for accountants to

prepare manual reports. Through the use of specialized accounting software, accountants are able to perform various tasks such as auditing, data analysis and making decisions. Use of ICT skills has enabled the accountants to be efficient, and have a higher degree of accuracy. They are, thus, able to achieve client satisfaction more rapidly. ICT assists accountants to process massive volume of data in a shorter span of time. The work environment has also changed through the use of ICT; it facilitates effective communication and sharing of resources. ICT has greater security for confidential information enabling restriction access and protection of documents using passwords.

Accountants in Fiji, however, face challenges associated with ICT. Concerns highlighted regarding ICT were that some of the softwares are difficult or complicated to use. Some software packages are not user friendly, hence require greater investment in software specialists. Most of the accountants stated that they seek assistance from in-house ICT technicians on issues regarding ICT. For small organizations, however, this poses a major challenge, since often they do not have separate ICT division; this may require the accountants to learn more IT skills to solve issues themselves. Second, Fiji suffers from irregular power supply; in case of sudden power failure or shut down, accountants may lose certain data or the devices could get damaged. This necessitates investment in backup power systems and associated data backup facilities, thus again raising business costs. Another issue identified was network glitches, particularly unreliable and/or low internet speeds. These are seen as deterrents to accountants' work.

## Conclusion

Like other developed nations, Fiji has seen a transcendent change in business environments as a result of innovations in ICT. Today it is impractical for businesses to carry out their core functions focusing solely on manual systems. Accountants are well-positioned to provide services demanded by contemporary businesses in their growth and expansion for which they must have knowledge of manual systems but now increasingly also have knowledge of computerized systems.

This paper examined the awareness of Fijian accountants of the critical ICT skills for the profession. A list of comprehensive list tabulated by Wessels (2005) was utilized to gather responses from Fijian accountants. The research leading to this paper solicited responses in respect to four sets of ICT skills which accounting practitioners are required to have as identified by Wessels, that is, the accountant as a user of IT -

business automation skills; the accountant as a user of IT - office management skills; the accountant as a user and evaluator of IT - audit automation skills; and the accountant as a manager, designer and evaluator of IT. Results show that Fiji is well-positioned with accountants; they possess the ICT skills demanded by their profession to function effectively in the modern era. This assists them play a vital role in helping achieve growth in businesses, and thus, the economy.

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