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# INVESTIGATING THE BENEFITS OF ELECTRONIC ACCOUNTING APPLICATIONS FOR ACCOUNTING PROFESSIONALS WITH ANALYTICAL HIERARCHY PROCESS

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**ABSTRACT**

*Electronic accounting applications occupy a pivotal position in the professional accounting landscape, largely due to the technological advancements they facilitate. Electronic accounting applications facilitate the work of professional accountants, create standards in the transactions made, save professional accountants in terms of time and manpower, and increase the reliability of the data created. This study aims to investigate the benefits of electronic accounting applications for professional accountants. To this end, multi-criteria decision-making methods are applied in the study, and it is analysed in which aspects electronic accounting applications offer more benefits. The analytical hierarchy process (AHP) was selected as the preferred method for this study, as it is one of the most widely used multi-criteria decision-making methods. The data used in the study was obtained from interviews with professional accountants who are experts in their field. The advantages of electronic accounting applications for professional accountants are examined under five main headings. The criteria expressed as the benefits offered by electronic accounting applications are as follows: ease of auditing, time savings, reduction in labour, ease of accessibility and increased safety. As a result of the application of the analytical hierarchy process method, it has been concluded that electronic accounting applications provide the most benefit to professional accountants in terms of saving time and then saving on the labour force used.*

**Keywords:** *Electronic accounting applications, Accounting professionals, Multi-criteria decision-making, Analytical hierarchy process.*

## 1. INTRODUCTION

Technological developments have altered the methodologies employed in the execution of accounting-related tasks, with an increasing number of transactions now being conducted electronically. The exponential growth and development of information technologies on a daily basis has precipitated a digital revolution across a range of economic, social and cultural domains. The contemporary era is the information age. When we acknowledge that accounting is an information system, we can see how the way businesses operate and their processes have been transformed by the use of information technologies in businesses. This has had a profound impact on accounting (Güney, 2014).

In light of these developments, it is imperative that accounting adopt and utilise the latest methodologies in order to provide services and fulfil obligations in an efficient and effective manner. E-accounting represents a novel concept in the field of accounting. In essence, in order to define this, one must first define the internet application and internet technologies. In other words, the entire spectrum of work and transactions, including websites and weblogs, can be recorded in an online service or database. Nevertheless, a username and password are required to perform operations and transactions. In this case, the user can readily access the database by selecting the relevant option. E-accounting provides a comprehensive range of data processing and operational applications via the Internet, encompassing

recording, storage, business activity, production management, purchasing and distribution, goods transfer and after-sales service, among other aspects (Vakilifard & Khorramin, 2015).

The utilisation of electronic accounting applications confers a plethora of advantages upon professional accountants, who represent the most pivotal practitioners. The utilisation of electronic accounting applications affords professional accountants a number of significant conveniences in the transactions they undertake. The present study examines the significance of electronic accounting applications for professional accountants. The study commenced with an examination of the existing literature on the subject, after which the application section was initiated. In the subsequent analysis, the significance of the advantages conferred by electronic accounting applications on professional accountants was evaluated. The analytical process method was employed to determine the relative importance of the benefits provided by electronic accounting applications for professional accountants. This involved ranking the benefits from the most to the least important, with the most important benefit being identified.

## 2. LITERATURE REVIEW

Some studies on electronic accounting applications are presented below:

In the study conducted by Bursalı (2023), a survey was conducted with independent freelance accountants and financial advisors operating in Istanbul. It is thought that eliminating and improving the systemic problems experienced by professionals in an important position in terms of public interest in the performance of their professional activities will contribute positively to achieving the goals expected from e-accounting regulations.

In the study implemented by Öner (2022), the interaction of e-accounting applications with the accounting information system and tax audit and the effectiveness of the VEDAS audit program were investigated through a survey for tax inspectors and assistant tax inspectors who are responsible for tax inspection. It has been concluded that the effectiveness of the participants' e-accounting applications, accounting information system and VEDAS audit program are quite positive and that these applications make positive contributions to commercial life for both the private sector and the public authority.

In the study of Bozkurt (2020), it was aimed to provide evidence about the attitudes of professional accountants operating in Yozgat towards e-invoice and e-ledger applications and whether these attitudes differ in terms of their professional title and professional experience. The results suggest that the use of e-applications is beneficial for both businesses and the government. However, they expressed the opinion that the current conditions cause some problems and that these problems will decrease over time and the actual desired and expected performance from e-applications will be exhibited.

In the study conducted by Yıldırım (2020), it is aimed to evaluate the knowledge levels of professional accountants in Kırıkkale province regarding electronic accounting applications, their performance expectations, trust expectations, intentions to use and professional experiences by survey method. In line with the answers given by the participants, it was concluded that e-accounting applications are easy to learn, but updates must be followed, they make positive contributions to the accounting information system, reduce transaction costs, are compatible with the legislation and are generally satisfactory.

In the study of Kulak (2019), a survey was conducted by face-to-face interview method to determine the opinions of professional accountants operating in Malatya province about e-accounting. Professional accountants are generally satisfied with e-accounting applications.

In the study implemented by Varlı (2016), the effect of electronic accounting applications of independent accountants and financial advisors on tax audit in Konya province is examined. In general, there is a positive and high level of relationship between the perceptions of independent accountants and financial advisors regarding electronic invoices, electronic ledgers and electronic declarations and notifications.

## 3. APPLICATION

The objective of this study is to examine the advantages and benefits offered by electronic accounting applications for professional accountants. The analytical hierarchy process (AHP) method, one of the multi-criteria decision-making methods, was employed as a method.

The data utilized in the subsequent analysis were obtained through interviews with professional accountants who are recognized experts in their respective fields.

A synthesis of the findings from the literature review and the interviews with professional accountants revealed five main categories of benefits associated with electronic accounting applications for this professional group. The five key benefits identified were convenience in terms of inspection, time savings, reduction in workforce, ease of accessibility and increase in security. The aforementioned criteria, which have been collated under five main headings, are presented in Table 1.

Table 1. Benefits Provided by Electronic Accounting Applications

| |
|---|
| Audit |
| Time |
| Labour |
| Accessibility |
| Safety |

The steps employed in the analytical hierarchy process (AHP) methodology, which was selected for use in the empirical investigation, are outlined below.

Table 2. Pairwise Comparison of Benefits

| **Benefits** | | | | | | | | | | **Benefits** |
|---|---|---|---|---|---|---|---|---|---|---|
| Audit | 9 | 7 | 5 | 3 | 1 | 3 | 5 | 7 | 9 | Time |
| Audit | 9 | 7 | 5 | 3 | 1 | 3 | 5 | 7 | 9 | Labour |
| Audit | 9 | 7 | 5 | 3 | 1 | 3 | 5 | 7 | 9 | Accessibility |
| Audit | 9 | 7 | 5 | 3 | 1 | 3 | 5 | 7 | 9 | Safety |
| Time | 9 | 7 | 5 | 3 | 1 | 3 | 5 | 7 | 9 | Labour |
| Time | 9 | 7 | 5 | 3 | 1 | 3 | 5 | 7 | 9 | Accessibility |
| Time | 9 | 7 | 5 | 3 | 1 | 3 | 5 | 7 | 9 | Safety |
| Labour | 9 | 7 | 5 | 3 | 1 | 3 | 5 | 7 | 9 | Accessibility |
| Labour | 9 | 7 | 5 | 3 | 1 | 3 | 5 | 7 | 9 | Safety |
| Accessibility | 9 | 7 | 5 | 3 | 1 | 3 | 5 | 7 | 9 | Safety |

The results of the interviews with professional accountants were used to compare the importance of the benefits provided by electronic accounting applications in pairs. The data obtained from the pairwise comparison is presented in Table 2.

A matrix was constructed from the data obtained through a pairwise comparison of the benefits provided by electronic accounting applications. The resulting pairwise comparison matrix is presented in Table 3.

Table 3. Pairwise Comparison Matrix

| | Audit | Time | Labour | Accessibility | Safety |
|---|---|---|---|---|---|
| Audit | 1 | 1/7 | 1/5 | 1/3 | 3 |
| Time | 7 | 1 | 3 | 5 | 9 |
| Labour | 5 | 1/3 | 1 | 3 | 5 |
| Accessibility | 3 | 1/5 | 1/3 | 1 | 3 |
| Safety | 1/3 | 1/9 | 1/5 | 1/3 | 1 |

The data presented in the resulting pairwise comparison matrix are expressed in numerical form. The numerical representation of the binary comparison matrix is presented in Table 4.

Table 4. Pairwise Comparison Matrix

| | Audit | Time | Labour | Accessibility | Safety |
|---|---|---|---|---|---|
| Audit | 1 | 0,142857 | 0,2 | 0,3333333 | 3 |
| Time | 7 | 1 | 3 | 5 | 9 |
| Labour | 5 | 0,3333333 | 1 | 3 | 5 |
| Accessibility | 3 | 0,2 | 0,3333333 | 1 | 3 |
| Safety | 0,3333333 | 0,111111 | 0,2 | 0,3333333 | 1 |

Table 5. Sum of Columns

| | Audit | Time | Labour | Accessibility | Safety |
|---|---|---|---|---|---|
| Audit | 1 | 0,142857 | 0,2 | 0,3333333 | 3 |
| Time | 7 | 1 | 3 | 5 | 9 |
| Labour | 5 | 0,3333333 | 1 | 3 | 5 |
| Accessibility | 3 | 0,2 | 0,3333333 | 1 | 3 |
| Safety | 0,3333333 | 0,111111 | 0,2 | 0,3333333 | 1 |
| Total | 16,33333 | 1,787302 | 4,733333 | 9,666667 | 21 |

The data in the resulting pairwise comparison matrix must be normalised. In order to normalise the data, it is first necessary to add together the numbers in each column. The data obtained from the column totals are presented in Table 5.

Subsequently, the figures presented in Table 4 were divided by the total column values displayed in Table 5. The resulting figures from the aforementioned section constituted the normalized matrix. The resulting normalized matrix is presented in Table 6.

Table 6. Normalized Matrix

| | Audit | Time | Labour | Accessibility | Safety |
|---|---|---|---|---|---|
| Audit | 0,061224 | 0,079929 | 0,042254 | 0,034483 | 0,142857 |
| Time | 0,428571 | 0,559503 | 0,633803 | 0,517241 | 0,428571 |
| Labour | 0,306122 | 0,186501 | 0,211268 | 0,310345 | 0,238095 |
| Accessibility | 0,183673 | 0,111901 | 0,070423 | 0,103448 | 0,142857 |
| Safety | 0,020408 | 0,062167 | 0,042254 | 0,034483 | 0,047619 |

Once the normalised matrix had been obtained, the row totals were calculated by adding together the numbers in each row of the normalised matrix. The matrix from which the row totals are derived is provided in Table 7

Table 7. Row Totals in Normalized Matrix

| | Audit | Time | Labour | Accessibility | Safety | Total |
|---|---|---|---|---|---|---|
| Audit | 0,061224 | 0,079929 | 0,042254 | 0,034483 | 0,142857 | 0,360747 |
| Time | 0,428571 | 0,559503 | 0,633803 | 0,517241 | 0,428571 | 2,56769 |
| Labour | 0,306122 | 0,186501 | 0,211268 | 0,310345 | 0,238095 | 1,252331 |
| Accessibility | 0,183673 | 0,111901 | 0,070423 | 0,103448 | 0,142857 | 0,612302 |
| Safety | 0,020408 | 0,062167 | 0,042254 | 0,034483 | 0,047619 | 0,20693 |

Table 8. Determination of Intensity of Importance of Criteria

| | Audit | Time | Labour | Accessibility | Safety | Total | **Averages** |
|---|---|---|---|---|---|---|---|
| Audit | 0,061 | 0,080 | 0,042 | 0,034 | 0,143 | 0,361 | **0,072149** |
| Time | 0,429 | 0,560 | 0,634 | 0,517 | 0,429 | 2,568 | **0,513538** |
| Labour | 0,306 | 0,187 | 0,211 | 0,310 | 0,238 | 1,252 | **0,250466** |
| Accessibility | 0,184 | 0,112 | 0,070 | 0,103 | 0,143 | 0,612 | **0,12246** |
| Safety | 0,020 | 0,062 | 0,042 | 0,034 | 0,048 | 0,207 | **0,041386** |

Once the row totals had been obtained, the average of each row was calculated. In order to achieve this, the row totals were divided by five, thus obtaining the averages. The row averages are presented in Table 8.

The data presented in Table 8 illustrates the significance of the advantages offered by electronic accounting applications. Table 9 presents a summary of the importance levels

of the benefits provided by electronic accounting applications.

Table 9. Intensity of Importance of Benefits

| | |
|---|---|
| Audit | **0,072149** |
| Time | **0,513538** |
| Labour | **0,250466** |
| Accessibility | **0,12246** |
| Safety | **0,041386** |

The relative importance levels provided by electronic accounting applications are presented in tabular form. The benefits are presented in descending order of importance in Table 10.

Table 10. Priorities of Benefits

| **Rank** | **Benefits** | **Values** |
|---|---|---|
| **1.** | Time | **0,513538** |
| **2.** | Labour | **0,250466** |
| **3.** | Accessibility | **0,12246** |
| **4.** | Audit | **0,072149** |
| **5.** | Safety | **0,041386** |

## 4. CONCLUSION

Electronic accounting applications play a crucial role in the landscape of professional accounting, primarily driven by the technological advancements they enable. These applications streamline the work of professional accountants, establish transactional standards, economize time and manpower, and enhance data reliability. This study aims to investigate the advantages of electronic accounting applications for professional accountants. To achieve this goal, multi-criteria decision-making methods were employed, specifically analyzing the dimensions where electronic accounting applications offer maximal benefits. The Analytical Hierarchy Process (AHP) was chosen as the preferred methodology due to its widespread use in such contexts. Data for the study were derived from interviews conducted with expert professional accountants.

A synthesis of findings from both the literature review and interviews with professional accountants identified five primary categories of benefits linked to electronic accounting applications for this professional accountants. These key benefits include enhanced audit convenience, time savings, reduced labor requirements, improved accessibility, and heightened security measures.

In the realm of professional accounting, electronic accounting applications offer several notable advantages. According to the Analytical Hierarchy Process method results, foremost among these is the substantial reduction in task completion time for professional accountants. Following closely, the second most significant benefit is the decreased need for personnel to execute equivalent tasks. Thirdly, these applications enhance accessibility to data, facilitating easier retrieval and management. Additionally, they contribute significantly to the audit process, bolstering its efficiency and effectiveness. Lastly, while still advantageous, the least prioritized benefit is the improvement in data security.

Upon evaluation of the results of the study, it becomes evident that the most significant advantage offered by electronic accounting applications to professional accountants is the saving of time. When evaluated in terms of time savings, it can be observed that electronic accounting applications facilitate the processing of data obtained from accounting processes at a faster rate. Manual applications are replaced by automatic transactions, transactions are conducted in the digital environment, and accounting records are recorded with greater efficiency. Consequently, all accounting processes can be conducted via automation. Furthermore, professional accountants and other information users are able to access accounting data with immediate effect, thereby enhancing the efficiency of

decision-making processes. The time savings achieved through digitalisation, remote connection, accessibility and various other factors contribute significantly to professional accountants.

## REFERENCES

Bozkurt, E., (2020). Muhasebede E-Fatura, E-Defter: Yozgat'ta Faaliyet Gösteren Muhasebe Meslek Mensuplarının E-Fatura ve E-Defter Uygulamalarına Karşı Tutumları, Yozgat Bozok Üniversitesi Sosyal Bilimler Enstitüsü, Yozgat.

Bursalı, H., (2023). E-Muhasebe Uygulamaları ve Meslek Mensuplarının Konu ile İlgili Görüşlerinin Değerlendirilmesi: İstanbul İli Örneği, İstanbul Gelişim Üniversitesi Lisansüstü Eğitim Enstitüsü, İstanbul.

Güney, A. (2014). Role of technology in accounting and e-accounting. *Social and Behavioral Sciences*, 152, 852-855.

Kulak, A., (2019). Muhasebe'de E-Dönüşüm, İnönü Üniversitesi Sosyal Bilimler Üniversitesi, Malatya.

Öner, F., (2022). E-Muhasebe Uygulamalarının Muhasebe Bilgi Sistemi ve Vergi Denetimi Etkileşimi Üzerine Bir Araştırma, Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü, İzmir.

Vakilifard, H. R., & Khorramin, M. (2015). A review of e-accounting. *Indian Journal of Fundamental and Applied Life Sciences*, 5(1), 1824-1829.

Varlı, Y., (2016). Türkiye'de E-Muhasebe Uygulamaları ve Vergi Denetimine Etkisi, Selçuk Üniversitesi Sosyal Bilimler Enstitüsü, Konya.

Yıldırım, A., (2020). E-Dönüşüm Sürecinde E-Muhasebe Uygulamaları: Muhasebe Meslek Mensupları Üzerine Bir Araştırma: Kırıkkale, Kırıkkale Üniversitesi Sosyal Bilimler Enstitüsü, Kırıkkale.