

## A REVIEW ON IT STRATEGY THEMES OF ACCOUNTING FIRMS

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### ABSTRACT

Currently, the growth of information technology is rapidly evolving alongside the journey of a business entity, as seen in public accounting firms facing demands to effectively utilize technology to enhance efficiency, productivity, and service quality. Identifying several challenges that may arise in the implementation of information technology strategies, including information security issues, investment costs, complex system integration, and organizational cultural challenges, public accounting firms are advised to pay attention to specific aspects in designing and implementing information technology strategies, such as selecting appropriate technology, employee training, and periodic performance evaluation, which are also necessary. Thus, by adopting the right information technology strategy, public accounting firms can improve their operational effectiveness, enhance client satisfaction, and strengthen their competitive position in the rapidly changing and competitive market. The IT Balanced Scorecard can serve as an effective framework in creating IT strategies because the distribution of strategies is evenly spread across all parts of the company, enabling the company to develop not only from a financial perspective but also from a non-financial one. The implementation of IT strategies is expected to help accounting firms achieve the goals, vision, and mission of the company and assist companies in implementing or planning IT strategies.

**KEYWORDS** IT Strategy, Big 4, Accounting Firm, Digitalization.



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### INTRODUCTION

In the era of globalization and digital transformation, the role of Information Technology (IT) is increasingly vital, especially for organizations and companies (Purba et al., 2021). Many companies utilize Information Technology (IT) to assist in and enhance productivity, as well as to increase revenue. One of the companies that often utilize technology is the company operating in the public accounting industry, especially the four major companies that we often hear about: Deloitte, Price

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Waterhouse Coopers (PwC), Ernst & Young (EY), and KPMG. These accounting firms play a central role in providing accounting, auditing, consulting, and financial advisory services to their clients.

Accounting firms need to formulate a strategy that can assist their central role in providing their services and also open up opportunities and challenges for accounting firms. By utilizing the right IT strategy, it is expected to provide operational efficiency, improve service quality, and ensure the preservation of important data and information in business, especially data related to clients becoming the focus and top priority.

The utilization of technology resulting from IT strategic planning, such as data analysis and artificial intelligence, can assist accounting firms in managing and streamlining the audit process (Bose et al., 2023). Thus, the audit results are expected to be more accurate and comprehensive, meeting clients' expectations for the best services from accounting firms. The utilization of IT strategy enables accounting firms to address complex challenges related to data security and privacy information. By integrating the latest security solutions, it can build trust between clients and the accounting firm.

The utilization of technology or digitization is highly beneficial for accounting firms of all scales, whether they are micro, medium, or small-sized. Digitization can create numerous opportunities for accounting firms. A simple example of technology utilization includes the use of applications, artificial intelligence, big data, blockchain, and cloud computing. These technologies are interconnected and can enhance business operations. The combination of these technologies can have a positive impact on companies that implement them because they complement each other. Besides bringing positive impacts to companies, digital technology also directly benefits accountants and their clients by assisting their work and ensuring that documents and data are securely maintained and kept up-to-date.

Companies need to invest in developing human resources with the skills and understanding of the technology they intend to apply. Additionally, they must invest in the technology or systems they plan to implement (Dajoh & Wokas, 2013). Employees skilled in effectively managing and utilizing technology will become valuable assets and ensure the right foundation if aligned with good technology implementation. This will accelerate digitization not only in accounting firms but also in all accounting companies looking to adopt IT strategies and implement them in the coming years.

In addition to investing in natural resources, the financial investment of a company in the technology or systems it intends to implement also becomes a determinant factor in the success of an IT Digital Strategy and enhances the value of a company. Selecting IT solutions that align with the company's needs, along with regular maintenance and upgrades, is a crucial step to ensure that existing technology can sustainably support the company's business. By implementing an IT Strategy supplemented with the right selection of human resources, technology, and investments, companies, especially the Big 4 Accounting Firms, can swiftly undergo changes and digitalization, bringing competitive advantages and facing the continuously evolving business challenges of the current era.

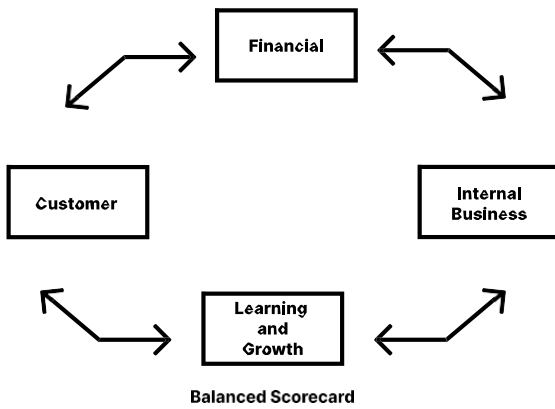


Fig. 1. BSC Visual

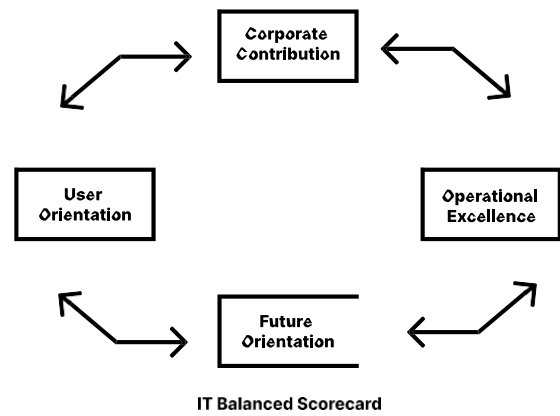


Fig. 2. IT-BSC Visual

## Literature Review

### *IT Balanced Scorecard*

Balanced Scorecard is a framework first developed by Robert Kaplan and David Norton in 1992, with their book “The Balanced Scorecard” officially published in 1996. The Balanced Scorecard (BSC) is used to implement and manage strategies by connecting the vision and mission to strategic priorities, objectives, and initiatives. As depicted in Figure 1, the Balanced Scorecard provides an overall view of performance measurements that are linked to four main perspectives: financial, customer, internal business, and learning and growth (Intrafocus, 2017).

The Balanced Scorecard is a method that not only utilizes a score but also identifies a small number of objectives from each of the four points with strategic priorities. The Balanced Scorecard approach also requires companies to think about implementation initiatives to meet company goals. The balance achieved in the Balanced Scorecard is not only for financial aspects but can also be used for non-financial aspects such as customer, internal business, learning, and growth.

The IT Balanced Scorecard is an advanced framework developed from the Balanced Scorecard created by Robert Kaplan and David Norton. In the figure 2, the IT Balanced Scorecard is divided into four different perspectives compared to the traditional Balanced Scorecard. The four perspectives in IT BSC are User Orientation, Corporate Contribution, Operational Excellence, and Future Orientation (Wahyu et al., 2021).

### *Systematic Literature Review*

Systematic Review, commonly abbreviated as SR, first began in the 18th and 19th centuries. It is a critical method, especially in the field of health sciences, where SR plays a significant role. SR became prominent in the field of health towards the end of the 20th century. By 1987, a clear methodological approach emerged, involving the identification, selection, and validation of studies. However,

less than a quarter of articles described evidence being identified and evaluated adequately.

Table I. Previous Research

No	Title	Year
1	A Systematic Literature Review of information Technology Strategy Components in Higher Education Institutions	2023
2	IT Business Allignment: A Systematic Literature Review [12]	2021

To address this issue, researchers proposed treating the review process as a scientific process in itself, which evolved into the SR Process (Lame, 2019). Systematic Literature Review (SLR) is a method used by researchers and academics to review scientific literature. The use of SLR can help avoid bias and subjective understanding in research. SLR has been proven to be an effective research method in providing an overview of trends, studies, and methodologies in previous research. The data from the literature review is typically presented in the form of figures or tables, which are then written up in paper format as a literature review.

According to the guidelines from Kitchenham and Charters, The systematic review can be divided into three main phases (Kitchenham & Brereton, 2013). The first phase is the planning phase, where the purpose and necessity of conducting an SLR are determined by identifying needs and formulating research questions and methodologies for reviewing scientific literature. The second phase involves conducting the review by identifying scientific literature or research, determining primary research, and then extracting and monitoring data. The third phase is reporting the review results, which involves dissemination mechanisms, creating and formatting a reporting template, and evaluating a report. (Hinderks et al., 2020)

### ***Previous Research***

The Table I presents previous research conducted by (Njanka et al., 2021; Siboro et al., 2023). The study by Siboro (2023) focused on conducting a systematic literature review on the components or themes of IT Strategy in universities using IT Balanced Scorecard.

This research, conducted in 2023, resulted in several themes applied as IT Strategies in universities. It is valuable for universities aiming to implement IT technology, particularly for those of medium to lower quality. The second study, conducted by Njanka (2021), is similar, utilizing a systematic literature review to gather themes on IT-Business Alignment, methods, and challenges in aligning business with IT. The findings of this research enable companies to understand the benefits and challenges of adopting a technology and linking it to a business process.

## **RESEARCH METHOD**

The method used to select IT Strategy documents in accounting firm companies is by employing Systematic Literature Review (SLR). Systematic Literature Review is a structured and systematic research approach used to gather, evaluate, and synthesize evidence available in scientific literature regarding a specific subject or topic. This phase can be observed in the Fig 3, with the following flow.

- 1) Conduct a search for 50 accounting firm companies. The accounting firms searched for come from various countries and have varying sizes, ranging from large to medium to small.
- 2) We will search for digital strategy/IT strategy documents for 50 companies using the Google search engine by typing "filetype:pdf it strategy accounting firm x", replacing x with the name of the accounting firm company.
- 3) Third, select the documents. The documents must have several keywords such as "ERP", "Artificial Intelligence", "Cyber Security", "Cloud Computing", "Blockchain", "VR/AR". In the document selection phase, the following criteria must be met:
  - a) Presentations, websites, or documents must clearly represent the accounting firm company, such as including the company name and logo.
  - b) Presentations, websites, or documents must be in English.
  - c) Presentations, websites, or documents must explain the IT Strategy for the accounting firm company.
- 4) The collected documents will then be organized into an Excel file, and each document will be carefully read to identify keywords and priority themes of the IT Strategy for accounting firms. Then, each keyword will be collected and grouped into a main IT strategy map that will be useful for other accounting firms.
- 5) The next step is to conduct qualitative analysis of the documents with the following questions:
  - a) What is the most frequently mentioned theme of IT strategy?
  - b) What is the least frequently mentioned theme of IT strategy?
  - c) What is the most common group of IT strategy themes?
  - d) What is the relationship between components of IT strategy in accounting firms and the development of the IT Balanced Scorecard?

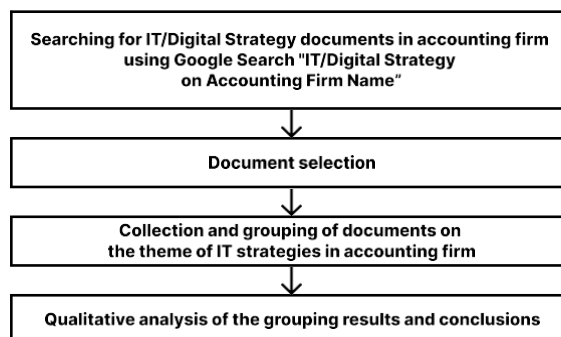


Fig. 3. Methodology

Table II. Accounting Firm IT Strategy

No	Accounting Firm	Format and Year
1	EY	PDF
2	PWC	PDF
3	Delloite	PDF
4	KPMG	PDF
5	Grant Thompton	PDF
6	RSM International	PDF
7	Cherry Bekaert	PDF
8	Marcum LLP	Web
9	Rusell Beford	PDF
10	Citrin Cooperman	Web Video

## RESULT AND DISCUSSION

Based on the literature research results from documents or websites containing information about IT Strategy or digital strategy, as shown in Table II, out of 50 companies, only 10 companies have documents or information related to IT Strategy.

After finding 10 documents from Google, we will then sort them based on several criteria mentioned in the methodology section. The criteria for document selection are as follows:

Criteria for selecting documents: 1. The presentation or document must clearly represent the accounting firm company, such as including the company name and logo. 2. The presentation or document must be in English. 3. The presentation or document must explain the IT Strategy for the accounting firm.

Conversely, documents that do not meet the criteria are as follows: 1. The presentation or document does not clearly state the name and logo of the company. 2. The presentation or document is not in English. 3. The presentation or document does not explain the use of IT Strategy.

After understanding the criteria for document selection, as shown in Table III, only 7 companies are obtained. Four companies are the well-known Big 4 firms, namely EY, PWC, Deloitte, and KPMG. The other three companies are medium to large accounting firms that are also well-known in the community. From these seven documents, the strategic themes.

Table III IT Strategy in Accounting Fir

No	Accounting Firm Name	DIDS	OPI	ADM	CEE
1	EY [14]	X	X	X	
2	PWC [15]		X	X	X
3	Delloite [16]		X	X	X
4	KPMG [17]	x		X	
5	RSM International [18]		X		X
6	Cherry Bekaert [19]		X		X
7	Marcum LLP [20]	X	X	x	
Total		3	6	5	4

Intelligence will be used to process operational, financial, and consumer data, which will then be provided to top management so that they can make decisions and devise strategies based on the analysis of AI and ML (J. Lacayo, H. Go´mez, L. Beltra´n, M. Moghaddam, 2023). The results of this analysis can boost business strategy. The use of cloud server technology will be employed to store and analyze data, ensuring data integrity and security (Deloitte, 2020). In addition to storing data in the cloud, analyzing large datasets requires on-premise DIDS = Data Quality Improvement, OPI = Operation Improvement, ADM = Analytics and Decision Making, CEE= Customer Experience Enhancement in accounting firms can be grouped into four common themes, which include:

### **Data Quality Improvement and Data Security**

This theme will utilize IT where IT will be used as a means to process data, improve data quality, organize operational data, and arrange and audit data. An example of existing strategies is using AI and machine learning as tools to tidy up data such as data cleaning, data wrangling, and others, which will then develop into SOPs for Data Governance Policy purposes. AI and ML will be used to achieve Data Governance Policy SOPs, which will be assisted by machine learning. In implementing the IT Strategy, companies will use cloud or onpremise servers, where these servers will be used to enhance data security, avoid data loss, and prevent customer data theft (Deloitte, 2020; J. Lacayo, H. Go´mez, L. Beltra´n, M. Moghaddam, 2023; LLP, 2021).

### **Operation Improvement**

This theme will utilize IT to streamline workflows and simplify operations so that business processes can be easily handled by experts in their field. The use of IT should enhance operations, such as procuring IT equipment like laptops, CCTV, or on-premise servers. Additionally, it involves making investments such as purchasing SAP or exploiting new technologies.

AI and Machine Learning can streamline operations by leveraging automation, reducing processing time. Existing technologies can be integrated and transform conventional ways of working into digital through digitization. A simple example is transitioning from using Excel to ERP.

In addition to AI and machine learning, support from outsourced external applications can also help increase operational productivity because the goods or products produced are based on the needs of a company division. Besides, good IT infrastructure such as Wi-Fi or systems also need to be considered to boost work efficiency.

### **Analytics and Decision Making**

This theme will utilize IT where AI and Machine Learning will be trained and their models formed. Subsequently, AI will use the existing data within the company to provide new insights, allowing top management to make informed decisions regarding the company. Machine Learning and Artificial server storage as well.

### Customer Experience Enhancement

This theme will utilize IT where the company will use tools or products that will enhance the experience of using their products or services. IT must support the business both internally and externally, ensuring that the company’s customers and vendors have a good experience when conducting business with the audit or accounting firm. Considering the social aspect, digital transformation should lead the company towards improvement.

Additionally, the use of AI and ML technology can help predict customer behavior and preferences, allowing the company to understand and provide the best for the customers. Moreover, according to (LLP, 2021), we can use CRM to understand customer behavior and preferences and provide the best service to those who want to do business.

### Discussion

In general, accounting firms do not typically disclose detailed IT strategies as open source. Many of them do not openly publish their IT strategies and explanations on the internet. Based on the collected documents and websites, a qualitative analysis is conducted to address the predetermined questions outlined in the methodology section.

#### *What is the most frequently mentioned theme of IT Strategy?*

From the seven companies that implement or provide information about their IT Strategy, six companies apply this IT Strategy, which is Operational Improvement. Operational Improvement is used to enhance operational quality by facilitating business operations with experts in their field. This is achieved by adopting new applications and technologies and, on one side, procuring equipment such as Wi-Fi and laptops so that operations can be carried out smoothly.

#### *What is the least frequently mentioned theme of IT Strategy?*

From the seven companies that have implemented or provided information about their IT Strategy, four companies apply this IT Strategy. This IT Strategy is DIDS, which stands for Data Quality Improvement and Data Security. This theme focuses on using IT to process data, improve data quality and operational efficiency in organizing data, as well as implementing data governance and audit. An example of using IT in this strategy is leveraging AI and machine learning for data cleaning and wrangling. AI and machine learning will be used to create data governance SOPs, and IT will utilize cloud or on-premise servers to store data, prioritizing data security.

### COMPARASION OF ACCOUNTING FIRM IT STRATEGY

■ DIDS-OPI-ADM    ■ OPI-ADM-CEE    ■ DIDS-ADM    ■ OPI-CEE

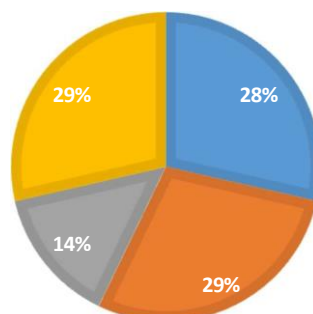




Fig. 4. Comparison of Accounting Firm IT Strategy

***What is the least common group of IT Strategy themes?***

It can be seen in Figure 4 the division of IT Strategies in accounting firms.

The themes are coded with the following meanings:

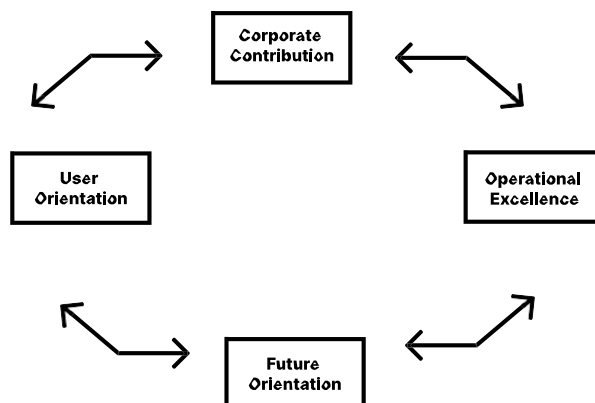
- 1) DIDS = Data Quality Improvement and Data Security
- 2) OPI = Operational Improvement
- 3) ADM = Analytics and Decision Making
- 4) CEE = Customer Experience Enhancement

Based on the calculation, the grouping with the least occurrences is (DIDS-ADM) with 1 pattern, while the other three grouping themes (DIDS-OPI-ADM), (OPI-ADM-CEE), and (OPI-CEE) have the same value for each pattern, which is 2 companies in each pattern.

***What is Relation in component of IT Strategy in accounting firm and development IT Balanced Scorecard?***

It can be seen in Figure 5 that the IT Balanced Scorecard is divided into 4 aspects: corporate contribution, user orientation, operational excellence, and future orientation. The IT BSC here has several relationships to the components of the IT Balanced Scorecard, including:

- 1. Corporate Contribution: The IT component in accounting firms refers to Data Quality Improvement, where IT will contribute to the company by enhancing data quality through data cleaning, wrangling, and the establishment of data governance SOPs.
- 2. Operational Excellence: The IT component in accounting firms refers to operational improvement. Here, the company will procure IT products and goods that will be useful in enhancing productivity and cutting IT operations. Common applications and products include ERP applications such as Odoo, SAP, and Oracle, as well as automation applications using AI to streamline operations.



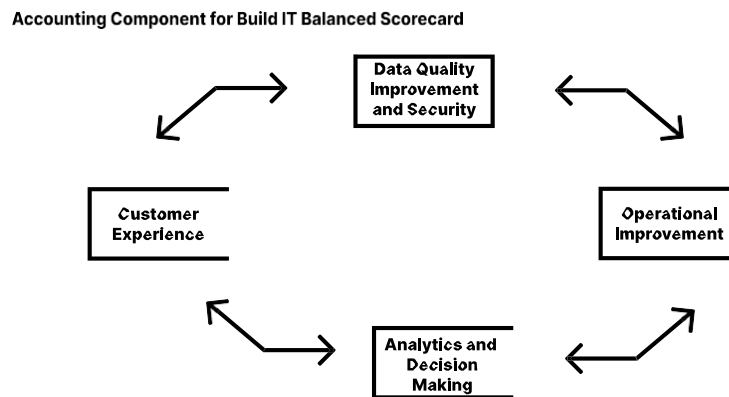


Fig. 5. IT-BSC Visual Accounting Example

3. Future Orientation: The IT component in accounting firms refers to analytics and decision making. Technology will assist users in providing insights derived from AI in the form of visualization.
4. User Orientation: The IT component in accounting firms refers to Customer Experience Enhancement. Technology here will be procured based on AI and machine learning analysis results. Machine learning will predict customer behavior and learn what they need, and IT procurement will be conducted accordingly.

## CONCLUSION

In conclusion, IT Strategy can be closely related to the balanced scorecard, especially in the context of Accounting Firms. Accounting Firms have four main themes: data quality improvement and data security, operational improvement, analytics and decision making, and customer experience. The most frequently occurring theme is operational improvement (OPI), while the least occurring theme is Data Improvement and Data Security.

The IT Balanced Scorecard has four main topics, and each of these topics is interconnected with the IT components in accounting firms. The four topics and their relationships with IT components in accounting firms are as follows: corporate contribution referring to quality improvement and data security, operational excellence referring to operational improvement, future orientation referring to analytics and decision making, and user orientation referring to customer experience enhancement.

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