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Impact of accounting software application skills on operational efficiency: Evidence from private company accountants in Thailand

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Abstract

This study examines the relationship between accounting software application skills and the operational efficiency of accountants working in private companies in Thailand. The research aims to understand how proficiency in using accounting software affects performance outcomes in modern business environments. A quantitative method was applied using a structured questionnaire, collecting data from 312 accountants across different private organizations. The analysis employed multiple regression techniques to assess the direct impact of various skill dimensions, including core software usage, data analysis and application, data connectivity and system updates, technological adaptability, and security and troubleshooting. The results reveal that all dimensions of accounting software skills positively and significantly influence operational efficiency. Accountants who demonstrate stronger competencies in software usage tend to produce higher-quality work, complete tasks faster, and make better-informed decisions. This study suggests ways that companies, accounting trainers, and related policymakers can help accountants improve their skills to meet the increasing need for technology in the accounting field.

Keywords: Accounting software application skills, Operational efficiency, Private company accountants.

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1. Introduction

Businesses now rely heavily on accounting technology to improve how they manage financial reports and daily work processes [1]. Accounting software helps reduce human errors, enhance reporting speed, and strengthen decision-making quality across organizations. In private companies, the use of accounting software has shifted from being a supportive tool to becoming a core component of daily financial operations [2].

Thailand's push for digital transformation, particularly under the Thailand 4.0 initiative, has increased the demand for strong accounting software skills among professionals [3]. Many private companies now expect accountants to not only understand accounting principles but also to apply digital solutions in their work. This trend is reinforced by the growing complexity of financial transactions and stricter reporting standards [4]. Nevertheless, there is still limited research focusing directly on how accounting software application skills affect the operational efficiency of accountants in Thailand's private sector [5].

Research by Baiod and Hussain [6] and Wickramsainghe et al. [7] points out that information technology plays a key role in helping businesses perform better. However, scholarly inquiry into the effects of individual accountants' technological proficiency on their occupational effectiveness remains significantly underfunded. Given that digital accounting applications such as QuickBooks, SAP, and Xero have become essential tools in accountants' routine responsibilities, it is imperative to elucidate the correlation between their utilization and subsequent job performance [8]. Moreover, the ability to adapt to technological changes, maintain system updates, and manage data security is becoming increasingly crucial for accounting professionals [9, 10].

Operational efficiency in accounting involves not only producing accurate reports but also completing tasks on time, supporting financial planning, and enabling sound business decisions [11]. Organizations that invest in building these digital capabilities among their accountants can potentially improve their competitiveness and lower operational risks [12]. However, without precise knowledge of which software skills contribute most to efficiency, training programs and hiring practices may fall short of expectations [13].

To address the gap in current knowledge, this study explores how accounting software skills influence the operational efficiency of accountants working in Thailand's private sector. Data connectivity and system enhancements, comprehensive data analysis and application, utilization of fundamental software, adaptability to technological innovations, as well as security measures and troubleshooting techniques constitute the five skill domains that are the focal point of this investigation. The outcomes are designed to furnish pragmatic insights to corporations, accounting educators, and governmental bodies endeavoring to elevate professional accounting standards amidst the rapid evolution of technological advancements.

2. Literature Review

2.1. Accounting Software Application Skills (ASA)

At present, the utilization of accounting software constitutes a fundamental competency for accountants employed within contemporary enterprises. Accounting software mitigates inaccuracies, enhances operational efficiency, and fosters improved financial decision-making [1]. Empirical investigations suggest that specific software-related proficiencies are pivotal in augmenting the overall efficacy of accountants [2]. The use of accounting software is a vital competency for accountants engaged by modern organizations. Accounting software mitigates inaccuracies, enhances operational efficiency, and facilitates improved financial decision-making. Research findings indicate that Thottoli and Ahmed [14].

2.1.1. Core Software Functions (CFU)

Core functions involve basic operations such as recording transactions, generating financial reports, and managing accounts payable and receivable. Proficiency in these functions ensures accuracy and timeliness in financial reporting [15]. Accountants who are skilled in daily software operations can complete routine tasks more efficiently and with fewer errors, contributing to the organization's operational reliability [11].

2.1.2. Accounting Data Analysis and Application (AAI)

The ability to interpret and apply accounting data is essential for providing insights that support business decisions. Modern accounting systems include analytical tools that enable users to evaluate financial trends, cash flows, and profitability [16]. Effective use of these features helps accountants transform raw data into valuable business intelligence [17].

2.1.3. Data Connectivity and System Updates (DCS)

Accounting software increasingly requires integration with other systems such as inventory management, customer relations, and banking platforms. The ability to manage data connectivity and updates is vital for ensuring smooth operations and real-time data accuracy [18]. Failure to update systems or synchronize data across platforms can lead to inconsistencies and financial reporting errors [19].

2.1.4. Technological Adaptability (TEA)

Technological adaptability refers to an accountant's ability to learn and apply new tools, software updates, and cloud-based systems. Rapid technological changes require continuous learning to maintain efficiency and accuracy [20]. Organizations prefer accountants who demonstrate flexibility in adopting new technologies to meet the dynamic needs of business environments [21] and digital competence has a significant impact on accountants' performance.

2.1.5. Security and Troubleshooting (SCT)

Maintaining the security of financial data and resolving technical issues are increasingly important skills for accountants. Threats such as data breaches and cyberattacks require a thorough understanding of security protocols within accounting systems [22]. Furthermore, basic troubleshooting abilities can minimize downtime and ensure the integrity of accounting information systems [23].

2.2. Operational Efficiency (OEF)

Operational efficiency refers to the ability to complete work processes effectively, with minimal waste of resources and time. In the context of accounting, operational efficiency ensures the production of accurate, timely, and relevant financial reports that support organizational decision-making [10, 11].

2.2.1. Quality of Work

Quality of work involves the accuracy, completeness, and compliance of accounting outputs. High-quality work reduces the risk of errors that could affect management decisions and financial reporting credibility [4]. Accountants with strong software skills tend to produce reports that meet regulatory and organizational standards [5].

2.2.2. Volume of Work

Volume of work refers to the quantity of tasks an accountant can complete within a given timeframe. Efficient use of accounting software allows accountants to handle larger volumes of work without sacrificing quality [24]. Automation features such as batch processing and template generation increase productivity [25].

2.2.3. Speed and Punctuality

Speed and punctuality involve the timely completion of financial reports, audits, and tax filings. In dynamic business environments, fast reporting is crucial for decision-making and compliance [17]. The automation and data processing capabilities of accounting software help accountants meet tight deadlines more consistently [26].

2.2.4. Decision Making

Decision-making in accounting refers to using financial information to guide organizational strategies. Accountants who can quickly generate, analyze, and interpret data contribute significantly to managerial decision processes [27]. Well-organized, real-time financial reports empower managers to make timely and informed decisions [24].

2.3. Summary of Literature and Research Gap

Previous studies have highlighted the importance of accounting software for improving business performance [6, 28]. Nevertheless, instead of exploring the specific influence of distinct accounting software competencies on the operational efficacy of individual accountants, the predominant emphasis of the research is on organizational outcomes in a more general context. Furthermore, there exists a notable deficiency of empirical evidence from emerging economies such as Thailand, where efforts to undertake digital transformation remain in their nascent phases [29]. By investigating the correlation between the operational efficacy of accountants in the private sector and their proficiency with accounting software applications across five pivotal dimensions, this study aims to bridge the gap in existing knowledge. Through this methodological approach, it seeks to provide a more comprehensive understanding of the direct relationship between technological competencies and the resulting performance metrics in accounting.

3. Hypotheses Development

Based on prior scholarly investigations, proficiency in accounting software significantly improves organizational performance outcomes [14, 15]. Nevertheless, a limited number of studies have examined the specific ways in which various components of such competencies influence operational efficacy, particularly concerning accountants within Thai private enterprises. This study posits the following hypothesis in accordance with the reviewed literature.

3.1. Core Functions in Accounting Software Usage (CFU) and Operational Efficiency

According to Olufemi et al. [11] an understanding of the essential features of accounting software, including financial reporting, account management, and transaction recording, has been demonstrated to enhance precision in work and accelerate accounting processes. Accountants who exhibit proficient fundamental software skills are more inclined to perform tasks with greater speed and reduced errors, thereby directly augmenting operational efficiency [30].

H₁: CFU positively impacts the operational efficiency.

3.2. Application of Accounting Information (AAI) and Operational Efficiency

Accountants are able to produce analytical insights to support informed corporate decision-making through the utilization of software applications. It helps assess and implement accounting information and make informed economic decisions by stakeholders. As evidenced by the studies conducted by Dmytrenko et al. [16] and Ramaj and Pjero [17] in their findings, they state that accountants who effectively employ the analytical functionalities of software enhance organizational flexibility and financial strategizing..

H₂: AAI has a positive impact on Operational Efficiency.

3.3. Data Connectivity and System Updates (DCS) and Operational Efficiency

The integration of accounting frameworks with other organizational processes, including payroll management and inventory control, is essential for streamlining operational functionality. Msomi and Vilakazi [19] and Marushchak et al. [18] note that, while insufficient management and failure in facilitating operational continuity and instantaneous reporting, a lack of data connectivity can also contribute to operational inefficiencies.

H₃: DCS has a positive impact on Operational Efficiency.

3.4. Technological Adaptability (TEA) and Operational Efficiency

Awdes and Surya [20] as well as Sakhno et al. [21] have demonstrated that accountants possessing the capability to rapidly adjust to technological advancements, such as software upgrades and cloud-based systems, exhibit a higher propensity for effective performance in dynamic contexts. The presence of technological adaptability mitigates interruptions, facilitates the advancement of accounting methodologies, and enhances the pace of the learning trajectory.

H₄: TEA has a positive impact on operational Efficiency.

3.5. Security and Troubleshooting (SCT) and Operational Efficiency

In contemporary digitalized accounting environments, there exists an augmented emphasis on the critical importance of information security and the proficiency to adeptly address technological challenges. Furthermore, Seun et al. [22] and Salim et al. [23] underscore the imperative of swiftly rectifying software-related issues and safeguarding accounting information to ensure that operational processes remain dependable and are not subject to disruption.

H₅: SCT has a positive impact on operational Efficiency.

The following regression model is developed to account for the hypotheses that have been proposed:

$$OEF = \beta_0 + \beta_1(CFU) + \beta_2(AAI) + \beta_3(DCS) + \beta_4(TEA) + \beta_5(SCT) + \varepsilon$$

3.6. Conceptual Framework

This study examines the impact of accounting software application skills on operational efficiency. The conceptual framework of the research is shown in Figure 1.



Figure 1.
Conceptual Framework.

4. Methods

4.1. Research Design

The method referred to as a quantitative cross-sectional survey technique was used for this inquiry. A rigorously constructed questionnaire was employed to collect relevant data from accountants working in the private sector within Thailand. The main objective was to examine the relationship between competence in accounting software and operational efficiency, as well as the effect that proficiency has on efficiency. This study focused on five primary aspects of accounting software capabilities: Core Software Functions (CFU), Accounting Data Analysis and Application (AAI), Data Connectivity and System Updates (DCS), Technological Adaptability (TEA), and Security and Troubleshooting (SCT), with Operational Efficiency (OEF) designated as the dependent variable.

4.2. Population and Sample

The target demographic encompassed 72,134 accountants engaged in private enterprises throughout Thailand [31]. Using Yamane [32] we calculated the sample size at a 95% confidence level with a 5% margin of error, ultimately setting a goal of 400 respondents. Using a convenience sampling method, accountants who met the established criteria and were easily accessible during the data collection period were selected. Ultimately, 312 valid responses were obtained, reflecting a response rate of 78%, which exceeded the minimum threshold of 20% as recommended by Aaker et al. [33].

4.3. Research Instrument

The research instrument consisted of a structured questionnaire segmented into three distinct sections. The first section focused on gathering demographic insights, highlighting elements such as gender, age, marital status, educational qualifications, professional experience, monthly income, and place of residence. The five elements evaluated in accordance with the capabilities of accounting software applications in Section 2 include CFU, AAI, DCS, TEA, and SCT. In Section 3, an evaluation of OEF was conducted across four distinct dimensions: the quality of output, the volume of work

produced, the velocity and timeliness of task completion, and the decision-making framework. A five-point Likert scale was used to assess each participant. This measurement scale allows individuals to select from 1 (Strongly Disagree) to 5 (Strongly Agree). The validity of the content was established through an expert review conducted by a panel of three academic scholars, yielding an Item-Objective Congruence (IOC) score that ranged from 0.75 to 1.00 [34].

The investigation utilized item-total correlation analysis, a technique frequently employed to determine discriminative strength, in order to evaluate the internal consistency and quality of the items. The Accounting Software Application Skills items displayed correlation values from 0.596 to 0.772, and the OEF items showed values between 0.630 and 0.686, reflecting strong item-level reliability [35]. To add, internal consistency was evaluated with Cronbach's Alpha coefficients, producing scores between 0.866 and 0.895 for ASA and 0.845 for OEF. These coefficients indicate that the constructs under investigation are reliably measured, as they surpass the widely accepted threshold of 0.70 within the domain of social science research [36].

The assessment included the Kaiser-Meyer-Olkin (KMO) measure paired with Bartlett's Test of Sphericity to undertake a comprehensive review of construct validity. The KMO coefficients for ASA ranged from 0.840 to 0.877, and 0.847 for OEF. Hair et al. [35] assert that these coefficients exceed the acceptable threshold of 0.50, indicating that the dataset is suitable for multivariate analysis and that the sample adequacy meets expectations. Collectively, the instrument demonstrated conceptual clarity and statistical robustness, making it appropriate for investigating the objectives of the study. As shown in the table:

Table 1.
Item-Total Correlation and Cronbach's Alpha.

Variables	Item-Total Correlation	Cronbach's Alpha
CFU	0.699 - 0.753	0.887
AAI	0.679 - 0.760	0.880
DCS	0.618 - 0.756	0.867
TED	0.596 - 0.758	0.866
SCT	0.704 - 0.772	0.895
OEF	0.630 - 0.686	0.845

Table 2.
Correlation analysis of accounting software dimensions and operational efficiency.

Variables	OEF	CFU	AAI	DCS	TEA	SCT	Tolerance	VIFs
\bar{x}	4.47	4.56	4.44	4.47	4.44	4.44		
S.D.	0.43	0.47	0.53	0.48	0.50	0.50		
OEF	-	.811*	.862*	0.854*	0.710*	0.818*		
CFU		-	.696*	0.702*	0.789*	0.657*	0.375	2.669
AAI			-	0.800*	0.842*	0.829*	0.180	5.541
DCS				-	0.857*	0.720*	0.255	3.926
TEA					-	0.814*	0.123	7.123
SCT						-	0.281	3.555

Note: * Significant at the 0.05 level.

4.4. Data Collection Procedure

An online questionnaire conducted via Google Forms was used to collect data. A QR code was employed to distribute the survey link, which was also shared on various social media platforms, including a Facebook group specifically aimed at accounting professionals. Participants were informed that their comments would be kept confidential and that participation was voluntary. The data collection process was completed within thirty days, with careful attention to ensuring the accuracy and completeness of all responses.

4.5. Data Analysis Techniques

A thorough statistical examination was conducted on the dataset utilizing the software that was made available. To investigate the interrelationships among CFU, AAI, DCS, TEA, SCT, and OEF, multiple correlation analysis was employed. Furthermore, we incorporated tolerance and variance inflation factor (VIF) assessments to ascertain the presence of multicollinearity, as advocated by Black [36]. Subsequently, an extensive analysis was performed using multiple regression analysis to evaluate the extent to which the independent variables influenced OEF. To measure the model's effectiveness, we utilized the R^2 and adjusted R^2 metrics, establishing a significance threshold of 0.05 to determine the statistical importance of the findings.

5. Results

This research assesses the impact of accounting software application competencies (CFU, AAI, DCS, TEA, and SCT) of accountants from private sector organizations in Thailand on operational efficiency. The results of multiple correlation and regression analyses test the hypotheses defined above.

5.1. Correlation Analysis

From Table 2, the findings of the multiple correlation analysis demonstrated a significant relationship between operational efficiency and all five dimensions of accounting software competencies at the 0.05 significance level. According to the results of the correlation analysis, a range of moderate to strong positive connections, within the range from 0.657 to 0.862, were observed. Additionally, the results of the test for multicollinearity demonstrated that the figures are within an acceptable range, with a variance inflation factor (VIF) between 2.669 and 7.123 and tolerance readings from 0.180 to 0.375. All these values are consistent with the recommended criteria defined by Black [36].

5.2. Regression Analysis

Multiple regression analysis was performed to assess the effects of the five dimensions of accounting software application skills on operational efficiency. The overall model was significant ($F = 168.99$, $p < 0.05$), with an R^2 value of 0.802 and an adjusted R^2 of 0.807, indicating that approximately 80.7% of the variance in operational efficiency could be explained by the five independent variables.

Specifically, CFU had a statistically significant positive effect on Operational Efficiency ($\beta = 1.092$, $p < 0.05$). Analysis and AAI also showed a significant positive effect ($\beta = 1.425$, $p < 0.05$). DCS demonstrated a significant positive effect ($\beta = 0.966$, $p < 0.05$). The aspects linked to TEA and SCT revealed advantageous results that were statistically notable ($\beta = 1.047$ and $\beta = 0.477$, respectively, $p < 0.05$). The findings substantiate all five hypotheses of the study (H1–H5), indicating that each dimension of proficiency in the utilization of accounting software exerts a considerable impact on the enhancement of operational efficiency among accountants employed in private sector enterprises, as shown in Table 3. The multiple regression analysis yielded the following estimated regression equation:

$$OEF = \beta_0 + 0.42(CFU) + 0.02(AAI) + 0.32(DCS) + 0.03(TEA) + 0.03(SCT)$$

Table 3.

Regression coefficient analysis of accounting software dimensions and operational efficiency.

Accounting Software Application Skills (ASA)	Operational Efficiency (OEF)		t	Sig
	Regression coefficient	Std. Error		
Constant (a)	-0.095	0.457	-0.209	0.835
Core Software Functions (CFU)	1.092	0.164	6.670	0.000*
Accounting Data Analysis and Application (AAI)	1.425	0.228	6.246	0.000*
Data Connectivity and System Updates (DCS)	0.966	0.203	4.760	0.010*
Technological Adaptability (TEA)	1.047	0.314	3.339	0.001*
Security and Troubleshooting (SCT)	0.477	0.180	2.651	0.009*

$F = 168.99$ $p = 0.00$ $R^2 = 0.802$ $R \text{ Adj } R^2 = 0.807$

Note: * Significant at the 0.05 level.

6. Discussion

The research demonstrates that proficiency in accounting software, including CFU, AAI, DCS, TEA, and SCT, is essential for enhancing the performance of accountants in private firms. The conclusions drawn from the study corroborate the broader hypothesis that technical expertise is increasingly vital in the practice of accounting [14, 15]. The outcomes of the investigation, which commenced with CFU, revealed that accountants proficient in utilizing the fundamental functionalities of accounting software, such as recording transactions and producing reports, could execute their responsibilities more efficiently and with fewer errors. The results of this analysis align with those presented by Olufemi, et al. [11] who identified that enhanced financial reporting quality resulted from the effective utilization of basic software functionalities. It has been established that a comprehensive understanding of fundamental software operations can lead to improved efficiency in routine accounting procedures. Regarding artificial intelligence (AI), the study highlighted that accountants' ability to employ software for the analysis and application of financial data has a substantial impact on their performance of duties. Furthermore, Dmytrenko et al. [16] and Ramaj and Pjero [17] have emphasized that the capability to engage with accounting data through technological means facilitates superior decision-making processes within organizations. The findings of this research indicated that accountants who adeptly utilized analytical tools were capable of delivering deeper insights, which likely aided the organization in making swifter and more precise decisions.

Within the framework of DCS, the evidence implies that the fusion of accounting software with auxiliary systems, such as inventory management or payroll processing, along with the periodic application of software updates, embodies two approaches through which accountants can determine the reliability and timeliness of the data they manage. This agrees with the work of Marushchak et al. [18] and Msomi and Vilakazi [19] who emphasized that strong data integration skills help reduce errors and support smooth operations. If accountants are careful about data connectivity and system maintenance, they are better equipped to handle day-to-day financial processes without unnecessary delays.

In terms of TEA, the study results suggest that accountants who are open to learning new technologies and adapting to software updates tend to manage their work more smoothly. This observation is similar to what Awdes and Surya [20] and Sakhno et al. [21] found, where adaptability was important for keeping up with digital changes in the workplace. Marei et al. [37] also noted that those who stay current with IT knowledge are better at using cloud-based accounting and related innovations. In this study, Thai accountants who adapted quickly to new tools were able to maintain steady performance even as systems evolved.

For SCT, the results indicate that being able to manage system security and solve technical problems when they arise is valuable for accountants. This matches findings from Seun et al. [22] and Salim et al. [23] who highlighted that handling cybersecurity and troubleshooting issues promptly helps protect data and avoid work disruptions. When accountants understand how to keep systems secure and fix minor issues themselves, it supports operational continuity.

Looking at the overall findings, they align with the general view that accounting software skills are now a core part of an accountant's role, not an optional skill set [24, 27]. Companies that invest in training programs to strengthen these skills are likely to see improvements in both individual and organizational performance [1, 10].

Moreover, the study addresses a gap in the literature regarding accountants in emerging economies. Most past research, such as Baiod and Hussain [6] and Wickramsainghe et al. [7] focused on broader organizational outcomes rather than the skills of individual accountants. The results of this study provide more evidence that the personal capabilities of accountants, particularly in the area of software applications, play a significant role in enhancing operational efficiency within private enterprises headquartered in Thailand.

Furthermore, the findings underscore the imperative for continuous professional development. As articulated by Sabuncu [38] and Olufemi et al. [11] it is essential for accountants to continually enhance their competencies to maintain their relevance within the accounting discipline, which is undergoing constant transformation due to rapid advancements in digital technologies. Organizations should support their accounting personnel through ongoing training in essential functions, analytics, system integration, adaptability, and cybersecurity to preserve their competitive edge.

In conclusion, the results indicate that when accountants exhibit superior technical proficiency in the utilization of accounting software, they are capable of executing their responsibilities with heightened accuracy, efficiency, and value for their respective organizations. Both educators and practitioners aiming to prepare accountants for the exigencies of a technology-centric work environment may derive significant insights from these findings, which build upon previous research and offer practical implications.

7. Conclusion and Implications

This study examined the correlation between accountants' expertise in the application of accounting software and their operational efficacy in Thailand's private sector. The findings demonstrated that all five competency dimensions (CFU, AAI, DCS, TEA, and SCT) are essential for enabling accountants to complete tasks and duties with improved precision, swiftness, and effectiveness. The research suggests that accounting software skills have evolved from being just a supplementary qualification to becoming a fundamental component of accounting professional practice. The amalgamation of accounting information systems (AIS) with inventory management practices has demonstrated a significant reduction in the frequency of manual transactions and deliveries, thereby enhancing data precision and operational efficiency. A comprehensive methodology for the integration of diverse business functions is imperative as it transcends mere automation to optimize the entire operational process [38]. While previous research by Baiod and Hussain [6] and Wickramsainghe et al. [7] explored the general advantages of accounting information systems, the current study concentrated on critical competencies accountants need to enhance their performance. These results support Vo et al. [24] assertion that individual digital competencies, beyond merely the organizational technology infrastructure, are crucial in enhancing workplace performance.

The research findings highly support the comprehensive proposed advice for businesses to focus more on the competencies that their accountants can bring to the business, since businesses that invest in improving basic software skills, analytical thinking, systems integration skills, technology adaptability, and security knowledge are likely to operate with improved efficiency. Thus, institutions that encourage continued skill attainment through workshops or guided practice could potentially minimize errors and expedite reporting timelines. It is also recommended that higher education institutions carefully consider these findings, as engaging students in experiential learning situations featuring relevant instruments and accounting applications could better prepare them for post-graduation employment. Moreover, combining traditional accounting education with digital skills training may help new accountants adjust more quickly to the demands of today's professional settings. Given current economic circumstances, providing digital skills courses to small and medium-sized enterprises might strengthen the overall accounting industry by helping SMEs enhance their proficiency with accounting software. Additionally, these improvements would support broader economic growth, particularly in regions like Thailand where small and medium enterprises contribute significantly to GDP. Overall, it is essential for accountants to continue developing their technical skills, as ongoing technological progress continues to transform the accounting landscape. To adequately equip accountants for these transitions, effective collaboration among stakeholders, including organizations, educators, and policymakers, is crucial. Proficiency in accounting software will not only boost individual productivity but also accelerate an organization's decision-making processes while improving overall operational efficiency.

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