

# Internal Audit Practices Using Audit Command Language (ACL): A Case of a Statutory Body in Malaysia

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## Abstract

**Purpose:** This study explores the applications of audit command language (ACL), one of the most widely used audit tools, in the internal audit practices of a statutory body in Malaysia. It examines how ACL is utilised to manage large volumes of data and expedite internal audit processes.

**Design/ Methodology/ Approach:** This study employs a single case study to gain insights into the internal audit practices using ACL. Specifically, the Organisation AHB, one of the Malaysian statutory bodies, was selected as a primary participant in the study. An in-depth interview was conducted with the Chief Internal Auditor (CIA) of the statutory body to understand how ACL was used in its existing internal audit practices.

**Findings:** The findings discovered that the internal audit process at the statutory body was relatively standard. An audit plan was prepared and reassessed every year. An audit committee then approved the audit plan. A risk-based approach was used for audits. In addition to Microsoft Excel, ACL was used as a primary audit tool at the statutory body due to its scripting capabilities, making it particularly effective for their audit processes. With ACL, an entire data population was tested instead of a small sample. The findings provide evidence that employing ACL has expedited its internal audit

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processes. While the organisation continues to pay for the licensing fees, the organisation believes that the benefits that an ACL offers far outweigh the cost. ACL helps this organisation manage its large volume of data to meet its audit objectives.

**Originality/ Value:** This study provides a unique contribution by offering an in-depth examination of how a Malaysian statutory body uses ACL in its internal audit practices. Unlike prior studies that focus on the factors influencing the use of audit tools in organisations, this study presents a case-based perspective, highlighting how statutory bodies specifically utilise these tools, especially within internal audit departments. The findings offer valuable insights for internal auditors, practitioners, and organisations considering the optimisation of ACL in their internal audit practices.

**Keywords:** Internal audit, audit tools, ACL, statutory bodies

## 1.0 Introduction

The technology and information revolution largely drives the ongoing changes in the business world. Auditing has significantly transformed, with computer-based methods increasingly replacing traditional paper-based approaches. Traditional audit practices, which often rely on manual processes and sample-based testing, are becoming less effective in addressing the risks faced by modern organisations. The modern business landscape demands real-time insights, the ability to analyse large volumes of data, and the need for continuous monitoring to gain insight and make timely decisions. The growing amount, diversity, and complexity of data require auditors to draw conclusions based on complex, real-time information (JS et al., 2024). For this reason, advanced audit tools, such as data analytics software, artificial intelligence (AI), and machine learning (ML), are used to enable auditors to conduct more comprehensive and accurate assessments. The integration of automation in these audit tools facilitates the timely detection of anomalies and risks, ensuring that organisations can respond proactively rather than reactively.

Audit tools play a crucial role in this process by streamlining various phases of the audit, from planning and risk assessment to executing audit procedures and reporting findings. Audit tools, such as computer-assisted audit techniques (CAATs), have been refined to assist auditors in carrying out their tasks more efficiently, especially within computerised accounting information systems (Jaber & Wadi, 2018). Employing CAATs in conducting an audit (Awuah et al., 2022) assists auditors in completing audit engagements (Braun & Davis, 2003). These tools enhance data collection and analysis, facilitate risk assessment, automate routine tasks, and support documentation and reporting, making audits more efficient and comprehensive. In addition, audit tools significantly enhance the capabilities of internal auditors by streamlining data collection, risk assessment, documentation and reporting. The applications of CAATs have become prevalent and essential for internal auditors seeking to maintain high audit quality standards, particularly in today's data-driven and technologically advanced business environments.

Some prominent examples are audit command language (ACL) and interactive data extraction and analysis (IDEA). However, not all auditors are well-versed in these tools. Some audit tools require specialised expertise and training to be used effectively. Mastery of these tools often involves understanding complex functionalities and advanced techniques, which are crucial for leveraging their full potential. Without adequate knowledge and experience, auditors may struggle to use these tools effectively, potentially limiting their ability to enhance audit quality and efficiency.

Many studies have extensively examined the role and impact of CAATs in enhancing audit effectiveness and efficiency (Awuah et al., 2022; JS et al., 2024; Mahzan & Lymer, 2014; Motubatse et al., 2015). A substantial body of literature was also quantitative, focusing specifically on the factors influencing the use of CAATs (Al-Hiyari et al., 2019; Purnamasari & Hartanto, 2022; Senan, 2024; Shamsuddin et al., 2015). However, there remains a lack of qualitative studies focusing on how statutory bodies specifically utilise these tools, especially within internal audit departments. This study, therefore, aims to explore the use of ACL, one of the most widely used audit tools, in the internal audit practices of a statutory body in Malaysia.

It is important to highlight that organisations adopting audit tools can result from an effort to promote the survival and legitimacy of organisational practices (Glover et al., 2014). In this context, the stakeholders considered such adoption as part of the sustainable practices appropriate for the organisation (DiMaggio & Powell, 1983). Therefore, this study employs institutional theory as its theoretical lens to explain the decision for digital transformation in a statutory body, which is often driven by various factors, such as social value, technological advancement and regulations (DiMaggio & Powell, 1983). This theory helps to understand how the practices are chosen. In this regard, Organisation AHB is willing to invest to pay for the licensing fee, even without a direct financial return.

This paper is structured as follows: The next section provides a literature review on internal auditing, audit approaches in internal auditing and existing audit tools. Following that, the research methodology is detailed in the subsequent section. Section four discusses the findings, while the final section offers the study's conclusions.

## **2.0 Literature Review**

### **2.1 Overview of Internal Auditing**

Today, the function of internal auditing has evolved. In its early stages, its main purpose was to support financial compliance and to act as an internal check alongside the external audits (Moeller, 2016). However, significant events such as the global financial crisis and the growing demand for accountability and transparency have pushed internal audit functions to become more proactive and strategic (Fülöp & Szekely, 2017; Sarens et al., 2009). Now, internal auditing has changed in response to regulatory reforms, stakeholder expectations, and technological advancements and plays an important role in governance, risk management and organisational performance (Arena & Azzone, 2009; Institute of Internal Auditors/ IIA, 2020). This change is consistent with the definition of internal auditing provided by the IIA. According to IIA (2024), internal auditing is defined as “an independent, objective assurance and advisory service designed to add value and improve an organisation’s operations where it helps an

organisation accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of governance, risk management, and control processes.”

To cope with the increasing demands, internal auditors must find effective ways to manage multiple tasks within a limited time. One key strategy is using technology, as it could assist internal auditors in executing their responsibilities more efficiently and effectively. To ensure the efficacy and efficiency of the internal audit function, the audit process must be supported by technology, and the tools and systems used by the internal auditors must be regularly assessed (IIA, 2024).

## 2.2 Audit Approaches in Internal Auditing

An internal audit approach refers to the overall strategy or mindset that shapes how internal audit activities are planned, executed and reported. It sets the direction for the audit based on the organisation’s objectives, risk landscape and operating environment (IIA, 2013; Mihret & Grant, 2017). Compared to outlining detailed procedures, the audit approach focuses on broader questions, such as what kind of audit is needed, why it matters, and where auditors should concentrate their efforts (Bailey et al., 2010; Pickett, 2010). This helps internal auditors align their work with the organisation’s situation and risk appetite, and align with the expectations of key stakeholders. This closely matches how the IIA defines internal auditing. The phrase “systematic, disciplined approach” shows that internal audit work is structured and purposeful. A well-defined audit approach ensures that audits are not carried out in an ad hoc manner; instead, they follow professional standards and are attentive to the organisation’s priorities (Mihret & Grant, 2017).

To meet the diverse organisation's needs, internal auditors may use various strategic approaches. These approaches bring unique strengths and show how internal auditors' roles have grown to meet higher risk, governance, and value creation expectations. For example, the risk-based approach directs audit attention to the areas of highest risk, allowing internal auditors to focus their resources on the important area (Arena & Azzone, 2009; IIA, 2013), which aligns with the risk management responsibilities of internal auditors. Fülöp and Szekely (2017) pointed out that internal auditors help organisations manage both operational and strategic risks by evaluating internal controls and governance structures. This role becomes more significant with the rise of digital and cybersecurity threats. On the other hand, integrated auditing merges financial, operational, information technology (IT), and compliance audits into one unified process (Daidj, 2022; IIA, 2012a). It offers a holistic view of risk and could increase efficiency, especially in large or complex organisations. The IIA (2012b) notes that this supports a more comprehensive understanding of an organisation’s risk environment, positioning internal audit as a stronger governance partner.

On the other hand, continuous auditing is another approach gaining momentum, particularly as technology transforms the audit profession. Sağlar and Kefe (2021) point out that techniques like artificial neural networks and decision trees could assist auditors in detecting fraud and assessing risks in real time. These allow auditors to go beyond traditional sampling, enabling ongoing monitoring and quicker response times (Alles et al., 2008; Sağlar & Kefe, 2021). When paired with tools like CAATs, continuous auditing gives timely insights that support real-time risk management (Li et al., 2018). Agile auditing, on the other hand, has also become a critical approach in fast-changing environments. It focuses on flexibility, collaboration and

responsiveness, enabling audit teams to adapt quickly as new risks emerge (Christ et al., 2021; Vasarhelyi et al., 2020). Agile methodologies keep internal auditors in step with organisational changes and remain relevant in the face of digital disruption and increasing complexity. Whether using a risk-based, integrated, continuous, or agile approach, internal auditors follow a structured process to evaluate risks, plan their work, and provide assurance that supports governance and performance (Arena & Azzone, 2009; Christ et al., 2021). Altogether, these approaches reflect IIA's vision of internal audit as a structured and value-driven function.

Nevertheless, putting these approaches into practice is not always easy. Smaller organisations, or those in the public sector, often face struggles with limited staff, insufficient technology, or a lack of access to specialised expertise that can hinder the adoption of more advanced approaches like continuous or agile auditing. Resistance to change and rigid systems could slow things down, making it difficult for audit functions to fully shift towards more dynamic or integrated models (Arena & Azzone, 2009; Mihret & Grant, 2017). However, when resources are in place, the solution is clear: using digital audit tools and technologies to implement these approaches more effectively. By using digital audit tools, auditors can overcome these challenges, supporting risk assessment, enabling data-driven decision-making and facilitating real-time monitoring.

### **2.3 Existing Audit Tools**

Using CAATs has revolutionised traditional audit procedures, enabling auditors to improve audit effectiveness, efficiency and accuracy. The audit tools offer automation capabilities that allow auditors to manage large volumes of data and enhance risk detection. The CAATs incorporate business intelligence audit software, database applications and electronic audit working papers (Al-Okaily et al., 2022; Siew et al., 2020), enabling auditors to deliver more comprehensive and reliable audit outcomes. According to Mahzan and Veerankutty (2011), audit tools allow internal auditors to get higher degrees of assurance in their testing procedures while promoting ongoing risk monitoring in a financially efficient manner (Hespenheide, 2006).

Along with tools like ActiveData for Excel and TeamMate Analytics, which expand Microsoft Excel with advanced data analysis capabilities, the most popular CAATs are IDEA and ACL (Dias & Marquez, 2018; Serpeninova & Makarenko, 2020). Most small audit companies use electronic spreadsheets for financial audits of less complicated systems in small businesses. Conversely, larger enterprises that provide comprehensive IT and audit services use sophisticated methods and tools, whereas smaller to medium-sized businesses with more significant resources spend money on generic audit software (Rosli et al., 2013).

CAATs are crucial for fraud detection because their automated analytical processes include integrated analysis instructions that do not require programming knowledge (Adeyanju & Adenikinju, 2023; Dimitrijević & Kalinić, 2017). In addition, it also provides scripting functions for auditors looking to construct more specialised and programmable commands (Dimitrij & Kalinic, 2017). In a recent study in Egypt, Al Natour et al. (2023) found that an auditor's self-efficacy and fraud detection are moderated by the deployment of CAATs. In this situation, auditors' ability to detect fraud may be influenced by their self-assurance and whether they employ sophisticated auditing tools like CAATs. In a similar vein, Silalahi et al. (2022), in their study on the influence of CAATs and professional ethics on auditor performance, recapitulated that CAATs could enhance the auditor's performance. Therefore, leveraging CAATs in audit

processes enables auditors to increase efficiency, accuracy, and effectiveness, thereby improving audit outcomes.

Unlike ACL, an audit software management system that integrates analytics, IDEA is largely a data analysis tool intended to help the audit process (Hall & Ziltz, 2019). IDEA is a tool that auditors use to precisely discover errors, issues, frauds, and patterns by extracting, totalling, sampling and editing data. Additionally, it provides auditors with strong instruments for organising large datasets and quickly identifying irregularities. When used in time series audits, IDEA can generate point forecasts, producing a single value for each prediction (Leite & Silva, 2018). This feature helps the auditor make more accurate and well-informed decisions throughout the audit process by improving their capacity to identify trends over time. According to Persson-Holmes and Lyngsten (2020), IDEA software is the most popular CAAT among mid-tier and small audit firms. This preference is due to IDEA being a commercially developed audit tool offering a straightforward, cost-effective solution. For mid-tier and small audit firms, which may lack the resources to develop custom audit software, IDEA provides a practical and accessible option for enhancing their audit capabilities (Persson-Holmes & Lyngsten, 2020).

While ACL and IDEA offer specialised features that streamline audit processes, improve accuracy, and enhance fraud detection capabilities, the applications of Microsoft Excel remain crucial in many auditing environments. This use is attributed to the features of Microsoft Excel, which are versatility, accessibility and lower implementation cost (Varma & Khan, 2014). Henry et al. (2023) recapitulated that Microsoft Excel remains a favourite among firms, with many using it alongside their proprietary software packages or commercially available tools. For this reason, Microsoft Excel is commonly used for extracting data, cleaning (scrubbing) and performing detailed testing (Henry et al., 2023). Nevertheless, Smidt et al., (2019) explained that employing Microsoft Excel in auditing indicates a lower level of maturity because of its limitations. The limitations include the capability of Microsoft Excel to efficiently handle large datasets, its vulnerability to errors, especially when cleaning data is done from multiple sources and the potential for human errors in determining the formula that can skew analytical results. Additionally, when using macros or multiple Pivot projects, the testing and analysis process can become time-consuming and complex (Smidt et al., 2019).

In summary, advanced audit tools like ACL and IDEA have transformed auditing by enhancing efficiency, accuracy and fraud detection. These tools enable auditors to handle large datasets and automate complex processing, reducing errors and improving audit effectiveness. While Microsoft Excel remains widely used due to its accessibility and cost-effectiveness, especially in smaller audit firms, it has limitations in handling large datasets and complex analyses. Despite this, combining Microsoft Excel and specialised audit tools like ACL and IDEA helps auditors achieve more comprehensive and reliable audit outcomes.

### **3.0 Research Methodology**

This study adopts a single case study approach to explore the internal audit practice using ACL within a statutory body in Malaysia. It is part of the qualitative research approach that explores the respondents' experience using their own terms (Smith et al., 2009). In this context, the focus is on understanding how particular phenomena (a real-world ACL application) have been understood from the perspective of a particular people in a particular context (Organisation AHB). Similarly, Yin (2009) exhibits that a single case study offers detailed insights into a

specific context. Hence, the lessons learnt are assumed to be informative about the experience of the institution (Yin, 2009). Such an approach enables an in-depth understanding of a real-world ACL application in a specific organisational context. Using a qualitative lens to understand such applications would offer detailed insights that might not be evident through a quantitative research approach.

Data were gathered via an in-depth interview with the Chief Internal Auditor (CIA) at one of the statutory bodies in Malaysia. In this context, Organisation AHB was selected due to its daily management of a large volume of data and its adherence to government regulations, procedures, and compliance policies. Such focus is crucial for understanding how ACL is used in its internal audit practice.

An in-depth interview allows the researcher to obtain comprehensive information that reveals the participant's perspective, experiences and the derived meaning of the specific topic (Rutledge & Hogg, 2020) related to using audit tools in their internal audit function. The interview transcript was analysed using thematic analysis to identify the key themes related to the application of AI in Malaysia's statutory body. The established themes were cross-checked with the interview transcript to enhance their credibility. Institutional theory serves as the underlying theoretical framework to guide the analysis.

## **4.0 Discussion of Findings**

### **4.1 About the Statutory Body**

Organisation AHB is a statutory body offering comprehensive financial services and products, such as savings and current accounts, Islamic banking and investment products. The organisation has more than 400 branches in Malaysia, including mini branches. Each state has a main branch that serves as the primary branch for that state. The internal audit department at this organisation comprises 43 staff members, led by the interviewee, who has been working at the organisation since 2017. The internal audit structure is organised under the CIA, with six (6) divisions. One division focuses solely on auditing the head office, and other divisions, such as financial risk and Shariah audits, specialise in risk management, treasury and Shariah compliance.

### **4.2 Existing Audit Practices in Organisation AHB**

According to the interviewee, the internal audit process at Organisation AHB is relatively standard. Each year, the audit team prepares an audit plan, reassesses and creates a three (3) -year plan. This plan is then presented to the audit committee for approval. Once approved, the team proceeds with the audits. The process is clear and transparent, ensuring the audit committee knows the number of off-site and on-site audits conducted. Like other financial institutions, the organisation is regulated by Bank Negara Malaysia, which conducts regular audits. This regulatory requirement makes the internal audit process more stringent than that of non-financial institutions.

The Organisation AHB used a risk-based approach for audits. Firstly, the audit team begins the audit process by identifying and reassessing auditable areas within the organisation. Next, based on the criteria determined by the team, the identified area is categorised into three

(3) main categories: high, medium or low risk. Based on the three (3) categorisations, the team determined the frequency of audits. For high-risk areas, they will be audited annually. Considering the risk-level changes, the audit team proposes a mid-year assessment (mid-year review) from the audit committee to revise any areas that need revisions or new additions to the existing audit plan. This procedure is based on the remarks by the following interviewee:

“Based on changes in the risk levels, we may need to revise certain audits we have planned or add new ones. These revisions or additions are then presented to the audit committee for their approval. For example, if we feel certain audits need to be dropped or added due to changes in risk, we must obtain the audit committee’s approval before making any adjustments.”

The interviewee further added that Organisation AHB utilises numerous back-end systems to support its operation, approximately 200 to 300, but not all of them are audited regularly:

“The organisation has many systems, approximately 200-300, each with different functionalities. There are integrated systems as well as standalone ones. For example, HR has its own system. The deposit and loan functions are combined into a single system, while the credit card system operates separately.”

Following a risk rating system, IT systems classified as low risk are not audited every year. However, all systems are audited within a three (3) - year cycle, ensuring that even the lowest-risk systems are audited at least once every three (3) years.

Further, the interviewee explained that the organisation has policies and standard operating procedures (SOPs) or audit manuals in the auditing function. These policies need Board approval, which will be reviewed every three (3) years. In contrast, SOPs do not require Board approval but need to be reviewed every two (2) years, regardless of whether there have been any changes.

As part of governing the internal audit function in Organisation AHB, the interviewee explained the following:

“We adhere to the standard where every five (5) years, we engage an external auditor to review our process. According to the international internal audit standards, at least once every five (5) years, a review must be conducted. So, every five (5) years, we call in auditors for this purpose.”

#### **4.3 The Use of ACL in Organisation AHB**

Explaining the history of ACL usage at Organisation AHB, the interviewee revealed that when he joined the organisation, the ACL was already in place, but was not utilised effectively. As part of his role, he ensured that the application was fully utilised. This is crucial as ACL requires scripting capabilities, where not everyone is able to use the features effectively. Since then, ACL has been continuously used as its audit tool alongside Microsoft Excel. ACL is the primary audit tool at Organisation AHB due to its scripting capabilities, making it particularly effective for their audit processes. Scripting capabilities enable users to automate repetitive

audit tasks and customise their analyses according to specific audit objectives. This is consistent with the description of ACL given by Lin and Wang (2011) on selecting ACL as an auditing software that has a command mode for auditors that are familiar with the programming language (scripting). With this embedded function, ACL's scripting allows the auditors to create custom scripts tailored to their specific audit needs, alongside the ability to automate repetitive data analysis functions.

Responding to the ACL, the interviewee remarked the following:

“Previously, when we started using ACL, we ensured it was fully utilised. Unlike Microsoft Excel, ACL requires scripting, which not everyone can do. Initially, we had four staff members proficient in scripting, but one has since resigned, leaving us with three. We also have one person who can conduct ACL training, and we brought in another expert from a vendor company. These individuals are adept at scripting. Each team here, when they need specific data, must go to these experts, explain their requirements, and have the necessary scripting and parameters set up in ACL to generate the required exceptions.”

When asked about the number of ACL licences the organisation currently subscribes to, the interviewee explained that previously, there were more licences. However, many were not actively used, prompting a reduction. The organisation subscribes to ACL and ACL™ Analytics Exchange (AX). ACL AX offers scheduling capabilities and is more advanced than standard ACL. The organisation currently invests approximately RM160,000 every two (2) years for ACL licences.

The interviewee was also asked about the benefits of using audit tools. He explained that:

“...and how big is the data of that company, you cannot do without tools because we are big...so imagine if there are 10 million customers, nine (9) million accounts, if you want to see how it is going, you cannot just take 30 samples, so you have to go this, you have to use tools to make sure that you are not left behind...We no longer take samples, like 30 or 20; that is a thing of the past. Nowadays, we run tests on the entire population. If there are 500,000 records, we check all 500,000.”

The interviewee mentioned that ACL is used for various digital audit processes. Auditors can use ACL during planning, analytics and reporting. ACL is not used for every issue. It is primarily for recurring or management-concern issues, especially those requiring immediate resolution rather than waiting for a scheduled audit. The audit team must communicate with the relevant personnel about the data they need. Continuous auditing is also performed using ACL, with specific data runs every month. The system includes scheduling through ACL AX and running monthly processes automatically unless changes are needed. The results are validated to ensure accuracy.

“...the ACL AX... it runs automatically... it runs every month, generates results, and if we need to make changes, we need to validate its exceptions to ensure accuracy.”

The interviewee also mentioned that the IT department manages all data. The audit department does not retrieve data from individual branches but requests it from the IT department. The internal audit department still relies on the IT department for data access rather than retrieving it themselves. This is part of the governance process in Organisation AHB.

The interviewee was further asked how the tools help find red flags. The interviewee responded:

“Red flags are something we need to determine ourselves first. The tool cannot identify the red flag on its own; we have to tell it what we want to identify. We have to determine what we consider a red flag, and then the tool will do it for us. This requires the experience of our auditors. The team needs to brainstorm and come up with what we think are the red flags. Once we come up with new parameters, the tool will generate exceptions based on the identified red flags. For example, if it generates 50 or 40 exceptions, we have to validate each one to see if it is correct or genuine... We have to verify each case. A red flag is just a red flag, but whether it's a fraud or not, we have to validate.”

In summary, ACL is considered the best practice audit tool in the context of Organisation AHB, one of the statutory bodies in Malaysia. Despite the need to pay high licensing fees (approximately RM160,000 every two years for ACL licences), the organisation believes that ACL has significantly assisted the auditors in performing their internal audit functions. This finding is consistent with Lin and Wang (2011), who found that ACL was ranked high on the priority list for users due to its data processing capabilities and system functionality. Their findings also revealed that users of ACL particularly were satisfied with the ACL command function, which was rated highly for 5.0 its effectiveness (Lin & Wang, 2011).

## 5.0 Conclusion

Numerous studies have been conducted to understand the factors influencing the use of audit tools within organisations. However, limited research has focused on how statutory bodies utilise such applications, particularly in the internal audit department. This case provides evidence that ACL helps Organisation AHB manage its large volume of data and expedites its internal audit processes.

The findings offer valuable insights for internal auditors, practitioners and organisations to learn the benefits of using audit tools in internal audits and consider the optimisation of ACL in their internal audit practices. Additionally, statutory bodies should also recognise the challenges associated with ACL implementation (high costs and appropriate training required) whereby understanding these challenges helps them address these challenges and adopt a more structured approach when implementing audit tools.

To better integrate ACL into audit workflows, statutory bodies can focus on a few strategies. First, provide ongoing training and capacity building to ensure they fully utilise the features and understand how the tools can be used to strengthen their audit process. Additionally, ACL can also be leveraged to automate repetitive audit tasks, such as data anomaly, to significantly improve audit efficiency. Moreover, a continuous monitoring and improvement process can be established using feedback from audit results to refine ACL usage and adapt to emerging risks.

The findings of this study are, however, based on a single case study. Future research should consider incorporating multiple case studies to provide richer and more comprehensive data.

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