

Perceptions of Internal Halal Auditors Toward Digital Halal Audit App in Malaysia

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Abstract

Integrating digital technology into internal halal audits through the Digital Halal Audit App (DHAA) can enhance efficiency and value. DHAA assists Internal Halal Auditors (IHAs) in various audit tasks, fostering compliance and automation. This transformation of halal audits introduces automation, policy adherence, and operational assurance to management. However, discussions around DHAA acceptance within internal audits have been limited, particularly regarding factors influencing IHAs' acceptance. To bridge this gap, the research instrument for this study integrates the Task-Technology Fit (TTF), Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), and religiosity factors. The study gathered perceptions from 30 Internal Halal Auditors representing companies listed in Malaysia's halal directory. Quantitative analysis using SPSS tools validated and supported the proposed model. This confirmatory study systematically achieved its objectives. It evaluated survey question clarity, assessed instrument validity and reliability, and refined the questionnaire. Through thorough analysis and participant feedback, this study aimed to validate the suitability of the proposed framework for evaluating DHAA acceptance among IHAs, contributing to a deeper understanding of technology integration within the context of internal halal audits.

Keywords: Digital Halal Audit App, Internal Halal Auditor, Task Technology Fit, UTAUT2

Introduction

The Digital Halal Audit App (DHAA) signifies a significant leap forward in internal halal auditing, leveraging digital technology to enhance efficiency and value. This mobile app simplifies the tasks of Internal Halal Auditors (IHAs) by assisting in audit preparation, conduct, and report generation, promoting compliance, and automating various processes. DHAA revolutionises Halal audits by introducing automation, ensuring policy adherence, and offering operational assurance to management.

Prominent scholars, such as Noordin et al (2014), have advocated for technology modernisation in Halal auditing. Othman et al (2015) proposed a standardised audit checklist

for Shariah practice, while Reed et al. (2016) put forth innovative strategies for successful Halal audits, supported by Nordin et al. (2022), who emphasised the benefits of the automation application system.

Nevertheless, the acceptance of DHAA in internal halal audits remains underexplored, especially concerning the factors influencing IHAs' acceptance. Considerations such as process implementation, management, technical aspects, and human factors play pivotal roles. While organisations may fulfil technical requirements, user suitability is crucial for optimal performance. Prior research underscores the significance of user validation (Berlak et al., 2021; Hewavitharana et al., 2021).

This confirmatory study aims to address these gaps in the literature by integrating the Task-Technology Fit (TTF) and Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) models, taking into account religious aspects, to comprehensively assess DHAA acceptance among Internal Halal Auditors (IHAs). Rigorous statistical analysis, including Cronbach's alpha and factor analysis using SPSS, ensures the clarity, validity, and reliability of the survey instrument for the preliminary study. The refinement and integration of these factors enhance the main study's precision and confirm the proposed model's suitability for evaluating DHAA acceptance.

Literature Review

The Digital Halal Audit App (DHAA)

The Digital Halal Audit App (DHAA) is a mobile software application designed for use on smartphones and tablet computers. This software incorporates a comprehensive Halal requirements checklist developed by domain experts. It offers visual aids to assist Internal Halal Auditors (IHAs) and managers in various aspects of auditing. DHAA supports the entire auditing process, from preparation and planning to compliance audits and report generation. Moreover, it enables auditors to manage their Halal requirement checklist reports efficiently. The adoption of DHAA in Halal auditing has been demonstrated to enhance efficiency, provide added value to companies, and increase the credibility of Halal auditing. It guides Halal Auditors in their audit planning and control, significantly increasing automation, ensuring compliance with organisational policies, and providing high operational assurance.

Overview of Theoretical Background in Technology Acceptance

In research studies focused on technology acceptance, various models and theories play a pivotal role by providing frameworks to investigate technology behaviour intention (BI). These models delve into the motivations underlying the choices made by individuals and organisations when engaging with specific technologies, especially in the context of accepting information and communication technology (ICT). Some notable models and theories in this domain include:

- The Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1977).
- The Theory of Planned Behaviour (TPB) (Ajzen, 1991; Venkatesh et al., 2003).
- The Technology Acceptance Model (TAM) (Davis et al., 1989).
- DeLone and McLean's Information Systems Model (IS) (DeLone & McLean, 1992, 2003)
- Task-Technology Fit (TTF) (Goodhue & Thompson, 1995).
- The Unified Theory of Acceptance and Use of Technology (UTAUT and UTAUT2) (Venkatesh et al., 2012).

These models and theories provide valuable frameworks for designing and analysing research on behaviour intention in technology acceptance.

Research Constructs Related to Acceptance Technology

In the context of internal halal auditing, this study conducted a comprehensive analysis of the acceptance of the Digital Halal Audit Application (DHAA). It integrated elements from the Task-Technology Fit (TTF) and Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) frameworks. These elements encompass TTF's task-tech compatibility, performance and effort expectancy, social influence, facilitating conditions, hedonic motivation, and the religiosity construct. After careful consideration, this approach was deemed the most suitable for achieving the research objectives. The proposed model aims to explore the relationships among these dimensions. Table 1 represents one of the initial attempts to create an integrated theoretical model for assessing DHAA acceptance by Internal Halal Auditors in Malaysia.

Table 1

The Identified Constructs from the Literature Review

No	Models & Theories	Constructs for DHAA Acceptance	References
1	The Task Technology Fit (TTF)	Task Characteristics (TaskC) Technology Characteristics (TechC) Task-Technology Fit (TTF)	(Goodhue & Thompson, 1995)
2	The extended Unified Theory of Acceptance and Use of Technology (UTAUT2)	Performance Expectancy (PE) Effort Expectancy (EE) Facilitating Conditions (FC) Price Value (PV) Hedonic Motivation (HM) Social Influence (SI) Behaviour Intention (BI)	(Fishbein & Ajzen, 1977; Venkatesh et al., 2003, 2012; Venkatesh & Davis, 2000)
3	Religiosity (RE)	Religiosity (RE)	(Fewkes, 2019; Holdcroft, 2006; Johnstone, 1975; Mokhlis, 2009; Musgrave & McFarlane, 2004; Soomro, 2019; Usman, 2016; Yousaf & Malik, 2013).

Research Methodology

Questionnaire Design

A web-based survey was developed, guided by literature from the Task-Technology Fit (TTF) and the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), to assess the proposed model for DHAA acceptance among Internal Halal Auditors (IHAs). Constructs from previous research studies (Goodhue & Thompson, 1995; Janvrin et al., 2008; Mansour, 2016; Venkatesh et al., 2003, 2012; Venkatesh & Davis, 2000; Zhou et al., 2010) informed the content of the questionnaire.

The survey employed a five-point Likert scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree) to capture quantifiable responses for subsequent analysis (Likert, 1932). The questionnaire underwent refinement through review by lecturers from the University of Technology Malaysia (UTM) and an internal halal auditor. The

questionnaire comprised 44 items, with "DHAA" representing the Digital Halal Audit App. The detailed survey questionnaire is illustrated in Table 2.

Table 2

The Survey Questionnaire Items Adapted from TTF and UTAUT2

Construct	Items	References
Task Characteristics (TaskC)	<p>The DHAA assists in the checklist preparation process.</p> <p>DHAA helps identify checklists based on Islamic authorities' manual procedures (MPPHM, MHMS, and MS).</p> <p>The DHAA facilitates the evidence collection (photo) in the auditing process.</p> <p>The DHAA could manage my Halal auditing anytime, anywhere.</p>	(Goodhue & Thompson, 1995; Oliveira et al., 2014; Zhou et al., 2010)
Technology Characteristics (TechC)	<p>The DHAA Assists the Halal audit report generation.</p> <p>The DHAA provides ubiquitous services.</p> <p>The DHAA provides secure services from any vulnerability.</p> <p>The DHAA speeds up the Halal audit process.</p>	
Task-Technology Fit (TTF)	<p>The DHAA assists the non-compliance detection on conducting Halal audits.</p> <p>Real-time DHAA service is easily accessible.</p> <p>The DHAA provides a database for data storage.</p> <p>The DHAA provides reliable technical support services.</p>	
Performance Expectancy (PE)	<p>The DHAA assists in the Halal audit process.</p> <p>The DHAA Improves my productivity in conducting the audit.</p> <p>The DHAA improve My efficiency in the organisation.</p> <p>Overall, I find DHAA would be highly effective in the auditing process.</p>	(Venkatesh et al., 2003, 2012; Venkatesh & Davis, 2000)
Effort Expectancy (EE)	<p>The DHAA contents are easy to learn.</p> <p>The DHAA is easy to use.</p> <p>The DHAA is easy to understand.</p> <p>The DHAA provides a clear menu.</p>	(Venkatesh et al., 2003, 2012; Venkatesh & Davis, 2000)

Facilitating Conditions (FC)	<p>Halal authorities have supported the use of DHAA.</p> <p>With DHAA, I could complete most tasks with just the instructions provided.</p> <p>With DHAA, I could complete most tasks without help from others.</p> <p>I have the secured and trusted resources necessary to use DHAA.</p>	<p>(Dwivedi et al., 2016; Mansour, 2016; Venkatesh et al., 2003, 2012; Venkatesh & Davis, 2000)</p>
Price Value (PV)	<p>DHAA reduces the Halal auditing time.</p> <p>DHAA reduces the Halal auditing cost.</p> <p>DHAA is reasonably priced.</p> <p>At the current price, DHAA gives good value.</p>	<p>(Cabrera-Sánchez et al., 2021; Venkatesh et al., 2003, 2012; Venkatesh & Davis, 2000)</p>
Hedonic Motivation (HM)	<p>I like using DHAA.</p> <p>Using DHAA makes managing Halal audits more interesting.</p> <p>I enjoy using DHAA.</p> <p>Using DHAA is convenient.</p>	<p>(Nguyen et al., 2020; Venkatesh et al., 2003, 2012; Venkatesh & Davis, 2000)</p>
Social Influence (SI)	<p>People who influence my behaviour think I should use DHAA.</p> <p>People who are important to me think I should use DHAA.</p> <p>Senior managers of my firm influenced me to use DHAA.</p> <p>Our company has supported the use of DHAA.</p>	<p>(Janvrin et al., 2008; Venkatesh et al., 2003, 2012; Venkatesh & Davis, 2000)</p>
Religiosity (RE)	<p>I need to ensure the DHAA follows Manual procedures by the Islamic authority.</p> <p>I tried to understand and find out the Islamic view of the Halal auditing process using DHAA from various sources.</p> <p>I believe that conducting Halal audits using DHAA is legal and does not reduce the value of worship.</p> <p>I will choose any DHAA to disseminate in the Halal auditing concept.</p>	<p>(Fewkes, 2019; Holdcroft, 2006; Johnstone, 1975; Mokhlis, 2009; Musgrave & McFarlane, 2004; Soomro, 2019; Usman, 2016; Yousaf & Malik, 2013).</p>
Behavioural Intention (BI)	<p>I intent to use DHAA in the near future.</p> <p>I intent to use DHAA to comply with the Malaysia Halal certification procedure.</p> <p>I intent to use DHAA to assist my job.</p> <p>I intent to use DHAA to replace the existing method.</p>	<p>(Handoko & Chu, 2021; Venkatesh et al., 2003, 2012; Venkatesh & Davis, 2000)</p>

Survey Administration

Purposive sampling was employed to ensure representative samples. In purposive sampling, the researcher selects research elements or subjects based on specific characteristics relevant to the study (Dolores & Tongco, 2007; Saunders et al., 2019). Emails were sent to companies listed in the Halal Malaysia directory, focusing on those employing IHAs, aiming to achieve diversity and relevance. Careful participant selection was undertaken to enhance the validity and reliability of the study. Ultimately, 30 experienced auditors met the confirmatory test requirements (Saunders et al., 2019, p. 540).

Data Analysis

The survey responses were analysed using SPSS to assess the validity and reliability of the questionnaire. Validity assessment ensures accurate constructs measurement, while reliability checks for response consistency. The achievement of both validity and reliability solidified the questionnaire as a dependable tool for assessing DHAA acceptance. Statistical analyses included examining factor loadings, calculating Cronbach's alpha, and determining composite reliability, ensuring a robust evaluation of the questionnaire's psychometric properties.

Results and Discussions

Demographics

The study encompassed 30 internal halal auditors, and their demographics are summarised in Table 3. The majority of participants were from Selangor (26.7%), followed by Johor (16.7%) and Negeri Sembilan (13.3%). Concerning business size, 73.3% represented small and medium-sized businesses (SMB), while 16.7% came from large enterprises, and 10.0% from medium-sized enterprises (SME). Notably, DHAA adoption was relatively low, with only 10.0% of participants adopting it. These demographic details provide valuable context for interpreting the study's results, shedding light on the backgrounds of the participants that may influence the outcome.

Table 3

Demographics of Respondents

Demographics		Frequency	Percent
Administrative region	Johor	5	16.7
	Kedah	2	6.7
	Kelantan	1	3.3
	Malacca	2	6.7
	Negeri Sembilan	4	13.3
	Pahang	2	6.7
	Penang	2	6.7
	Sarawak	2	6.7
	Selangor	8	26.7
	W.P Kuala Lumpur	2	6.7
	Total	30	100.0
Company Classifications	Large enterprise	5	16.7
	Small and Medium Enterprises (SME)	3	10.0
	Small and Medium-Sized Businesses (SMB)	22	73.3
	Total	30	100.0
DHAA adoption	No	27	90.0
	Yes	3	10.0
	Total	30	100.0

Descriptive Analysis

Descriptive analysis is a vital first step in data analysis, helping researchers understand the dataset and gather insights, which can inform further analysis and make findings more accessible to a broader audience (Malhotra, 1999). Table 4 presents the survey results, evaluating various aspects using four items, each on a 5-point Likert scale. These constructs encompass Task Characteristics, Technology Characteristics, Task-Technology Fit, Performance Expectancy, Effort Expectancy, Facilitating Conditions, Price Value, Hedonic Motivation, Social Influence, Religiosity, and Behavioural Intention.

The sample size for each construct was 30 respondents. The table also provides information on standard errors and deviations. Smaller standard errors indicate more precise mean estimates, while larger deviations suggest score variability (Pallant, 2011). Mean scores across these constructs range from 4.23 to 4.70, indicating generally positive attitudes among the participants. The scores vary, with standard deviations (SD) ranging from 0.466 to 0.898. Standard errors (SE) fall within the range of 0.085 to 0.157, indicating reasonably precise mean estimates (Jung & Lee, 2011; Thomas, 2021).

Table 4

The Construct Validity Significant of the Factor Loadings

Constructs	Items	N	Mean	Std. Error	Std. Deviation
Task Characteristics	TaskC1	30	4.47	0.104	0.571
	TaskC2	30	4.57	0.092	0.504
	TaskC3	30	4.63	0.102	0.556
	TaskC4	30	4.70	0.085	0.466
Technology Characteristics	TechC1	30	4.70	0.085	0.466
	TechC2	30	4.57	0.092	0.504
	TechC3	30	4.53	0.115	0.629
	TechC4	30	4.67	0.088	0.479
Task-Technology Fit	TTF1	30	4.63	0.089	0.490
	TTF2	30	4.63	0.089	0.490
	TTF3	30	4.63	0.102	0.556
	TTF4	30	4.60	0.091	0.498
Performance Expectancy	PE1	30	4.63	0.089	0.490
	PE2	30	4.60	0.103	0.563
	PE3	30	4.60	0.091	0.498
	PE4	30	4.50	0.093	0.509
Effort Expectancy	EE1	30	4.57	0.104	0.568
	EE2	30	4.53	0.104	0.571
	EE3	30	4.57	0.092	0.504
	EE4	30	4.53	0.104	0.571
Facilitating Conditions	FC1	30	4.60	0.113	0.621
	FC2	30	4.57	0.104	0.568
	FC3	30	4.50	0.115	0.630
	FC4	30	4.53	0.104	0.571
Price Value	PV1	30	4.57	0.104	0.568
	PV2	30	4.57	0.104	0.568
	PV3	30	4.43	0.133	0.728
	PV4	30	4.50	0.115	0.630
Hedonic Motivation	HM1	30	4.50	0.157	0.861
	HM2	30	4.47	0.124	0.681
	HM3	30	4.43	0.124	0.679
	HM4	30	4.50	0.115	0.630
Social Influence	SI1	30	4.37	0.112	0.615
	SI2	30	4.33	0.111	0.606
	SI3	30	4.57	0.092	0.504
	SI4	30	4.40	0.113	0.621
Religiosity	RE1	30	4.50	0.104	0.572
	RE2	30	4.50	0.093	0.509
	RE3	30	4.53	0.093	0.507
	RE4	30	4.53	0.104	0.571
Behavioural Intention	BI1	30	4.23	0.157	0.858
	BI2	30	4.40	0.103	0.563
	BI3	30	4.43	0.104	0.568
	BI4	30	4.23	0.164	0.898

Reliability Analysis

Before proceeding with the final data analysis, assessing the reliability of the questionnaire is crucial to ensure the consistency of items measuring each construct. In social science studies, a 70% or higher reliability coefficient is often considered acceptable (Samuels, 2015). The measures employed in this study comfortably meet this criterion, ensuring the accuracy of construct evaluation. Table 5 presents evidence of strong internal consistency, with Cronbach's alpha values ranging from 0.796 to 0.962. Additionally, composite reliability values are observed in the range of 0.813 to 0.983, indicating highly favourable reliability across the constructs. Furthermore, average variance extracted (AVE) values are within the range of 0.625 to 0.898, affirming convergent validity. All constructs surpass the AVE > 0.5 criterion, signifying satisfactory convergent validity (Pallant, 2011).

Table 5

The Reliability Analysis for All Items

Constructs	Items	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Task Characteristics	4	0.836	0.872	0.671
Technology Characteristics	4	0.822	0.828	0.653
Task-Technology Fit	4	0.823	0.820	0.659
Performance Expectancy	4	0.796	0.824	0.625
Effort Expectancy	4	0.805	0.813	0.638
Facilitating Conditions	4	0.917	0.944	0.800
Price Value	4	0.962	0.965	0.898
Hedonic Motivation	4	0.889	0.983	0.745
Social Influence	4	0.811	0.846	0.636
Religiosity	4	0.849	0.951	0.632
Behavioural Intention	4	0.856	0.869	0.677

Conclusions

This confirmatory study has successfully achieved its objectives of refining the questionnaire's clarity and relevance within the UTAUT2 and TTF models, resulting in a reliable and valid survey instrument. It has validated the questionnaire's reliability and identified no significant issues, enabling the accurate measurement and analysis of DHAA acceptance intention constructs. The study's findings confirm the questionnaire's favourable internal consistency, reliability, and constructs validity, highlighting its accuracy in assessing the constructs of DHAA acceptance.

However, limitations, such as the relatively small sample size and untested hypotheses, should guide future research. Expanding the sample size, exploring additional hypotheses, and examining diverse contexts will enhance the generalizability of findings and deepen our understanding of DHAA acceptance among Internal Halal Auditors. These steps are crucial for

advancing research in DHAA acceptance and its implications for internal halal auditing practices.

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