

Mohd Nor Hakim Yusoff *Editor*

# Industry Forward and Technology Transformation in Business and Entrepreneurship

Proceedings of the International  
Conference on Entrepreneurship,  
Business and Technology (InCEBT) 2022

 Springer

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# **Entrepreneurship and Business Transformation for Forward Industry**

# Customer Requirements for Effective Packaging in the Food Supply Chain



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**Abstract** Food items are one of the things that the modern consumer demands to satisfy their needs for a diverse lifestyle. The requirement for effective packaging has risen since many of these goods require sales packaging to preserve and confine them. Customer demands have arisen as a result of rising damages and the need for items to be packaged in such a way that their contents are not destroyed before they reach their final destination. This study was conducted to understand the types of customer requirements and the important tools for effective packaging in the food supply chain. The main objective was to examine the relationship between the types of customer requirements and the important tools for effective packaging. Simple random sampling was used for data collection using questionnaires distributed through social media platforms such as WhatsApp and Facebook. A total of 108 respondents participated in this study, which consisted of fourth-year logistic students at Universiti Malaysia Kelantan. Descriptive analysis, reliability test, normality test, Spearman's correlation analysis, and multiple regression analysis were performed using SPSS version 25. The study found a positive relationship between the independent variable and the dependent variable.

**Keywords** Customer requirements · Customer satisfaction · Effective packaging · Food items · Food supply chain

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# 1 Introduction

A product's packaging is the first thing a buyer sees before making their pick at a supermarket [1]. The packaging must protect the product during transportation from the manufacturing site to the store and while it is on the shelf. As a result, product packaging must be long-lasting and reliable [2]. It is vital to consider consumers' wants and requirements when assessing the importance of product packaging.

Growing globalisation has placed pressure on the food business to cut prices throughout the food supply chain. With a focus on regional and local outreach, the logistics system is fractured [3]. The usual purchasing organisations are big, vertically integrated multinational corporations with a wide range of products and an emphasis on low cost and efficiency. Globalisation has contributed to the development of new supply chain models in the food industry.

The primary function of packaging is to protect the food item from physical damage during transit (e.g., shock, vibration, and temperature). Suitable packaging can also be developed for each particular home with written instructions or labels that inform the customer on how to use, recycle, or dispose of the product and its packaging. Various security measures may also be included in the packaging (e.g., anti-theft devices such as Radio-Frequency Identification tags or seals to identify counterfeits). Prospective clients can be persuaded to acquire goods at the point of sale via packaging design and marketing.

A packaging's primary purpose is to keep the substance from losing its intended purpose. Whether it is a food item that needs to stay fresh and flavourful or a consumer product like toothpaste, the container should be able to protect the contents. Protecting a product from shock and vibration, maintaining product stability from temperature fluctuations during transportation, or maintaining product cleanliness and sterility are all examples of a packaging's protective function.

An important aim of packaging is to clarify and advertise its contents on the container to a specific market. This requires a consideration of the packaging's resource requirements, logistic purpose, and transit conditions throughout its supply chain journey. The choice of materials will be influenced by the length and duration of the distribution.

## 2 Literature Review

### 2.1 *Types of Customer Requirements*

Customers' needs differ depending on the products or services offered by a company. The food supply chain can combine different requirements to meet as many customers' needs or desires as possible. The first type of customer requirement for packaging is sustainability and environmental friendliness. Some clients are looking for products that do not have a harmful influence on the environment. Recycling or

reusing packaging materials has become a priority for all levels of management [4]. The ability of management to identify external trends and employ its resources efficiently is critical to a company's marketing activities. The second type of customer requirement is functionality. The functionality of packaging has grown increasingly crucial as customers seek convenience in the shopping process and at home. In the supply chain, product packaging must be acceptable for shipping and storage. At the same time, the package must be appropriate for a household's size.

Creating exposure is insufficient to evoke purchasing decisions, and the packaging must have a compelling message to attract consumers' attention. Attention-grabbing messages include the introduction of a new or upgraded product concept, a change in product content, or the fact that the firm is selling at a cheaper price. A favourable response from the customer is more likely to elicit a desire to engage with the product concept. Lastly, quality and safety are part of customers' requirements for packaging. Quality can be described in a variety of ways, but it is most commonly associated with its long-term viability. A customer considers high-quality food packaging to be one that lasts and does not break easily. Customers are also concerned about product safety and they seek guarantees that the product will not hurt them or the people around them.

$H_0$ : There is no significant relationship between the types of customer requirements and the tools for effective packaging in the food supply chain.

$H_1$ : There is a significant relationship between the types of customer requirements and the tools for effective packaging in the food supply chain.

## ***2.2 Important Tools for Effective Packaging***

A packaging's ability to impact shopping behaviour is important to maximise its potential and optimise every part of it. Before a customer has the opportunity to test a product, its packaging is sometimes evaluated, just like how books are first judged by their cover. After all, packaging is crucial to assist in increasing sales. The first important tool for effective packaging is the material. New pulp development has enhanced possibilities for creating packaging boards of varying qualities depending on their end-use. Light, oxygen, dampness, grease, and heat can be dispelled using coating substances. The correct material and coating can reduce waste, increase printability, improve sealing, improve conversion, and save costs.

The second important tool for effective packaging is shape. The shape of the package is an essential tool for any designer or marketer. The package's design can draw customers' attention and affect how it will be transported in secondary packing. Choosing the right material, shape, and size of the packaging can save a lot of money in logistics. Another important tool for effective packaging is colour. The most potent tool for influencing consumers' thoughts lies in the colour of the packaging. Colour is a significant tool for recognising a brand or learning more about a product's origin. Colour can trigger emotional reactions and cultural connotations [5]. Thus, marketers

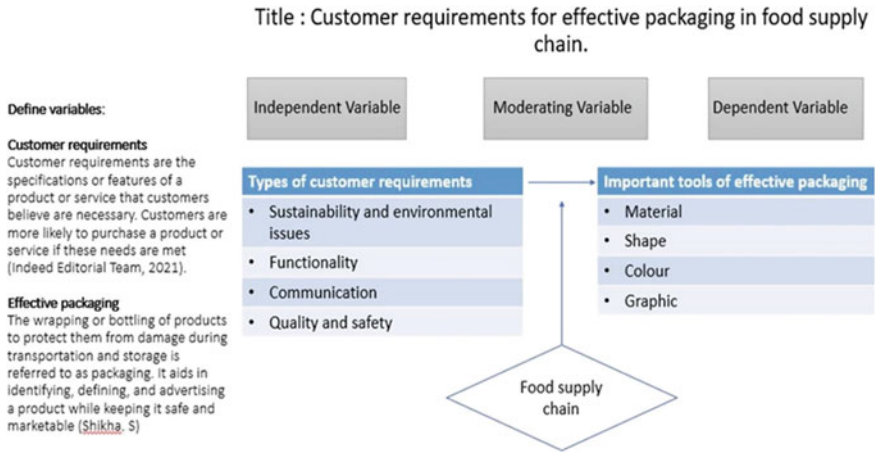
use colour to represent product categories and create emotional associations [6]. Lastly, graphic is another important tool for effective packaging. A packaging's graphic design involves a complicated process that requires a wide range of skills, creativity, and technical understanding. To visualise and translate the design onto the space of the packaging, a combination of shapes, colours, typography, and printing technology need to be utilised. The purpose of establishing design studios within a corporation is to bring clients closer to the design process, while simultaneously speeding it up.

### ***2.3 Relationship Between Customer Requirements and Effective Packaging***

Delivering packaging elements that customers value is one of the most effective marketing methods. With so many products seeking customers' attention, firms must find a way to set themselves apart from the competition. Product packaging has the capacity to leave a lasting impression on customers and can help increase brand loyalty [7]. A freshness seal is necessary to extend the shelf life of food packaging. The fundamental reason is that it secures the goods from spoilage, infection, breakage, or any other type of loss. Vacuum-sealed bags with resealable mechanisms are a great way to improve protection and packaging usability.

As a manufacturer, you will want to ensure that customers have a great experience with the product. Printed guidelines or directions on the product's packaging are a must for consumers. Customers are instructed on how to utilise the product correctly for best results using thoughtful packaging design. Depending on the type of product, manufacturers may want to include some guidelines on the packaging. Intelligent packaging provides customers with important health and nutritional information. Packaging, in addition to the ingredient list, can help customers make healthier choices by providing easy access to caloric and nutritional info. By declaring products as being free from specific ingredients or substances, retailers make it easy for health-conscious customers to choose one brand over another.

Food packaging is one of the most important aspects of good packaging as buyers prefer to appraise it first. Retailers can create a relationship with consumers and convert them into lifelong customers by interacting with them through the product's packaging. An alternative to helping your customers get the health and nutritional details they need is to place a Quick Response (QR) code on the food packaging that will lead to a website. This site can feature information about the ingredients used by the manufacturer and why they are used.



**Fig. 1** The conceptual framework on types of customer requirements and important tools for effective packaging in the food supply chain [8, 9]

## 2.4 Conceptual Framework

(See Fig. 1).

## 3 Methodology

### 3.1 Research Design

The quantitative approach was used to acquire data. Quantitative data is described as large amounts of data being collected and turned into a discrete number that can be statistically analysed. Since the main aim and purpose of this study is to determine the relationship between the types of customer requirements and the important tools for effective packaging, the researcher chose descriptive correlation as the appropriate design for this study.

### 3.2 Sample Size

According to Zamboni [10], sample size is the count of each sample or observation in any statistical context such as a scientific experiment or a public opinion study. The study population comprised of students from the Faculty of Entrepreneurship and Business at Universiti Malaysia Kelantan.



### **3.3 Instrument**

The questionnaire consists of four sections, namely Section A, Section B, Section C, and Section D. Section A collects the respondents' personal details such as gender, age, ethnicity, and others. Section B is about the independent variable, namely the types of customer requirements. Section C is about the dependent variable, namely important tools for effective packaging. Section D is about the relationship between the types of customer requirements and the important tools for effective packaging. All of the responses supplied by respondents for Sections B, C, and D will be on a 5-point Likert Scale.

### **3.4 Plan for Data Collection**

The use of an online survey questionnaire is the primary method for data collection. An online questionnaire is used to collect information from fourth-year logistics students at Universiti Malaysia Kelantan. Secondary data is data that has already been gathered and made publicly available for researchers to use for their own study. It is the kind of information that has already been gathered from the past.

### **3.5 Plan for Data Analysis**

The researchers used the Statistical Package for Social Sciences (SPSS) version 25 to analyse the data. The statistical analyses used in this study include descriptive analysis, reliability test, normality test, Spearman's correlation analysis, and multiple regression analysis.

## **4 Result and Data Analysis**

### **4.1 Demographic Profile**

Table 1 shows the demographic profile of the respondents and their responses to the screening question. There were 108 respondents consisting of fourth-year logistic students at Universiti Malaysia Kelantan.

**Table 1** Respondents' demographic profile

No	Category	Details	Frequency (108)	Percentage (%)
1	Gender	Male	65	60.2
		Female	43	39.8
2	Age	18–19 years old	0	0
		20–21 years old	0	0
		22–23 years old	102	94.4
		24–25 years old	6	5.6
3	Ethnicity	Malay	72	66.7
		Chinese	19	17.6
		Indian	15	13.9
		Others	2	1.9
4	Do you think packaging plays an important role in food products?	Yes	106	98.1
		No	2	1.9

## 4.2 Descriptive Analysis

Table 2 shows the mean and standard deviation of the dependent variable, the independent variable, and the relationship between the two. The mean for types of customer requirements, which is the independent variable, was 4.718 with a standard deviation of 0.244. The mean for important tools for effective packaging, which is the dependent variable, was 4.738 with a standard deviation of 0.313. The mean for the relationship between the types of customer requirements and the tools for effective packaging was 4.782 and the standard deviation was 0.3128.

**Table 2** Descriptive statistics

Variable	N	Mean	Std. Deviation
Types of customer requirements	108	4.718	0.244
Important tools of effective packaging	108	4.738	0.312
Relationship between customer requirements and effective packaging	108	4.782	0.313
Valid N (listwise)	108		

**Table 3** Reliability analysis

Variable	Number of items	Cronbach's alpha	Internal consistency
Types of customer requirements	7	0.867	Good
Important tools for effective packaging	7	0.820	Good
Relationship between types of customer requirements and tools for effective packaging	6	0.813	Good

**Table 4** Normality test

	Kolmogorov–Smirnov			Shapiro–Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Types of customer requirements	0.252	108	0.000	0.862	108	0.000
Important tools for effective packaging	0.287	108	0.000	0.792	108	0.000

### 4.3 Reliability Analysis

Table 3 indicates that Cronbach's Alpha coefficient for types of customer requirements was 0.867 with good internal consistency. The coefficient for important tools for effective packaging was 0.820, which also showed good internal consistency. The coefficient for the relationship was 0.813 with good internal consistency. Therefore, the reliability coefficients obtained in this study are dependable and can be considered reliable for further analysis and interpretation.

### 4.4 Normality Analysis

Based on Table 4, the outcomes of each test showed that the level of significance or  $p$ -values were less than 0.05 (0.000). Thus, the data was considered abnormal because it did not follow a normal distribution. To define the relationship between the two study variables, Spearman's correlation analysis will be applied for hypothesis testing instead of Pearson correlation analysis [11].

### 4.5 Correlation

Yu and Hutson [12] had described Spearman's coefficient as a measure of non-parametric correlation and it was defined as the Pearson correlation coefficient between sample levels. Spearman's correlation is a measure of non-parametric

**Table 5** Spearman’s correlation analysis

			Types of customer requirements	Important tools for effective packaging
Spearman’s rho	Types of customer requirements	Correlation coefficient	1.000	0.756
		Sig. (2-tailed)		0.000
		N	108	108

rating correlation (i.e., statistical dependence between two variables). Table 5 shows Spearman’s correlation for coefficients and the significance values. The significance level or *p*-value for this analysis was 0.000, which was lower than the alpha value (0.01). The results showed a positive relationship between the types of customer requirements and the tools for effective packaging. The correlation coefficient for types of customer requirements and tools for effective packaging was 0.756. According to [13], the correlation between the two variables can be considered strong.

### 4.6 Multiple Regression

The higher the *t*-value, the greater the impact of the independent variable on the dependent variable. According to Table 6, the types of customer requirements influenced the important tools for effective packaging in the food supply chain. This is because the *t*-value for types of customer requirements was 11.378, which was higher than the *t*-value for important tools for effective packaging (0.680).

**Table 6** Multiple regression analysis

Model		Unstandardised coefficients		Standardised coefficients	<i>t</i>	Sig.
		B	Std. Error	Beta		
1	Important tools for effective packaging	0.267	0.393		0.680	0.498
	Types of customer requirements	0.948	0.083	0.741	11.378	0.000

## 5 Discussion

### 5.1 Key Finding

Descriptive analysis was conducted to analyse the results related to the demographic profile of respondents and to determine how respondents answered each question in the questionnaire. A reliability test was conducted to determine whether the questionnaire was reliable. Tests of normality (i.e., Kolmogorov–Smirnov and Shapiro–Wilk) were used to test all the independent and dependent variables. The significance level or  $p$ -value would indicate data normality. Spearman's correlation was also used in the study to determine the relationship between the dependent and independent variables. The correlation coefficient is an important indicator of whether the relationship between the independent and dependent variables was strong or weak and had a negative or positive association. Multiple regressions were derived from the extension of simple linear regressions.

### 5.2 Hypothesis

H<sub>1</sub>: There is a significant relationship between the types of customer requirements and the tools for effective packaging in the food supply chain.

Based on Table 5, the relationship between the types of customer requirements and the tools for effective packaging in the food supply chain was significant since the  $p$ -value was .000, which was lower than the alpha root (0.01). The results demonstrated respondents' general agreement that the types of customer requirements influenced the tools for effective packaging in the food supply chain. Moreover, its correlation coefficient (0.756) showed that the relationship between the two variables was strong.

## 6 Recommendations and Conclusion

Future researchers can increase the sample size of the study to achieve higher degrees of accuracy and lower the margin of error. The current study's sample size has a 0.05 margin of error with a 95% confidence interval. The sample size needs to be chosen wisely because sampling will affect the usefulness of the data [14]. Future studies could be based on larger samples over a longer period of time in order to get more respondents to answer the questionnaire on this topic.

In addition, future research can focus on a few data collection methods with the use of various assessment devices. For example, researchers can arrange central gatherings, organise top-to-bottom meetings, and use open-ended questions. Researchers can discover more information from direct interviews and open-ended questionnaires

instead of relying on one method. By using various estimation strategies, the results will be more grounded than the use of a single methodology.

Lastly, future researchers require a deep understanding of the data analysis process. Future researchers should know how to use the SPSS software. Once the data collection process is completed, it should be analysed for results. For example, future researchers should know how to perform pilot testing, descriptive analyses, reliability testing, hypothesis testing, and multiple regression analyses. Researchers can have a clearer perspective on the flow of research through an in-depth knowledge of these analyses.

This research was conducted to determine the types of customer requirements for effective packaging in the food supply chain and to identify the relationship between the independent and dependent variables of the study, which are the types of customer requirements and the important tools for effective packaging. In this study, the hypothesis was developed and tested to determine the relationship between the dependent and independent variables. Data was collected using simple random sampling so that every member of the study population has an equal chance of being selected.

The descriptive analysis, reliability test, normality test, Spearman's correlation analysis, and multiple regression analysis were executed using IBM SPSS version 25. The results from Spearman's correlation analysis showed a positive relationship between the types of customer requirements and the important tools for effective packaging.

## References

1. Ampuero, O., Vila, N.: Consumer perceptions of product packaging. *Journal of Consumer Marketing* **23**, 100–112 (2006). <https://doi.org/10.1108/07363760610655032>.
2. White, J.: The Importance of Product Packaging, <https://www.ptpackaging.com/blog/the-importance-of-product-packaging/>, last accessed 2022/11/04.
3. Lee, J., Gereffi, G., Beauvais, J.: Global value chains and agrifood standards: Challenges and possibilities for smallholders in developing countries. *PNAS* **109**(31), 12326–12331 (2010). <https://doi.org/10.1073/pnas.0913714108>.
4. Rundh, B.: The role of packaging within marketing and value creation. *British Food Journal* **118**(10), 2491–2511 (2016). <https://doi.org/10.1108/BFJ-10-2015-0390>.
5. Madden, T.J., Hewett, K., Roth, M.S.: Managing images in different cultures: across national study of color meaning and preferences. *Journal of International Marketing* **8**(4), 90–107 (2000). <https://doi.org/10.1509/jimk.8.4.90.19795>.
6. Aslam, M.M.: Are you selling the right colour? A cross-cultural review of colour as a marketing cue. *Journal of Marketing Communications* **12**(1), 15–30 (2006). <https://doi.org/10.1080/13527260500247827>.
7. Phase1.: Packaging Features That Are Important to Consumers, <https://phase1proto-types.com/packaging-features-that-are-important-to-consumers/>, last accessed 2022/11/04.
8. Zeithaml, V. A., Parasuraman, A., Berry, L. L., & Berry, L. L.: Delivering quality service: Balancing customer perceptions and expectations. Simon and Schuster (1990).
9. Hise, R. T., & McNeal, J. U.: Effective packaging management. *Business Horizons*, **31**(1), 47–51 (1988).

10. Zamboni, J.: What Is the Meaning of Sample Size? <https://sciencing.com/meaning-sample-size-5988804.html>, last accessed 2022/11/04.
11. Newson, R.: Parameters behind “nonparametric” statistics: Kendall’s tau, Somers’ D and median differences. *The Stata Journal* 2(1), 45–64. (2002). <https://doi.org/10.1177/1536867X0200200103>.
12. Yu, H., & Hutson, A.D.: A Robust Spearman Correlation Coefficient Permutation Test. *Communications in Statistics–Theory and Methods*, 1–13 (2022). <https://doi.org/10.1080/03610926.2022.2121144>.
13. Hinkle, D. E., Wiersma, W., Jurs, S. G.: *Applied statistics for the behavioral sciences*, Vol. 663. Boston (2003).
14. Salkind, N. J.: *Exploring Research*. 5th edn. Pearson Education International Edition, London (2003).

# Exploring the Digital Transformation Governance Model for Industrial Eco-Innovation Post-COVID-19



Zhao Na and Li Han

**Abstract** The great complexity and the unpredictability of the industrial innovation ecosystem's digital transformation present a governance challenge. The newly developed provisional governance theory offers a fresh viewpoint to support digital transformation. It creates a provisional governance model that includes the following three key components: (1) a multi-centre governance structure made up of a variety of agents; (2) a governance mechanism that combines policies, contracts, and relationships; and (3) a governance niche combination made up of resource distribution, market formation, search guidance, and legitimacy. A system should gradually incorporate these components through a governance approach. Positive theoretical ramifications for the digital transformation of innovation development and its governance are provided by the research findings.

**Keywords** Digital transformation · Governance models · COVID-19

## 1 Introduction

In the context of the new crown pneumonia epidemic that severely impacts the global economy, more and more industries are gaining new development momentum by accelerating digital transformation and promoting the deep integration of digital technology and the real economy. Data has become a key production factor, and it has economic values that can improve resource utilisation efficiency and directly bring economic benefits. The essence of industrial digitalisation is the “new combination” of digital technology and existing products, processes, and business processes, and it is a transformation development mode with digital innovation as the inner driving force. However, the digital transformation of the industrial innovation ecosystem is highly complex and uncertain, as highlighted by many relevant interest subjects, strong heterogeneity of technology direction, and rapid iteration of technology

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updates. Therefore, exploring an effective digital transformation governance mechanism to promote the innovation of the industrial ecosystem has become a theoretical and practical problem that enterprises need to solve urgently.

Based on an in-depth analysis of the connotation characteristics and governance dilemma of digital transformation of the industrial innovation ecosystem, this paper constructs a governance model of digital transformation of the industrial innovation ecosystem based on the concept of exploratory governance, key components, and governance process and mechanism [1]. This paper brings forward several theoretical ideas. Firstly, it stresses the significance of digital transformation in the innovation ecosystem as a critical aspect of industry-wide digital transformation. Furthermore, it clarifies and underscores the interdependence and logical coherence between “digital transformation” and “digital innovation”. This provides not just a theoretical foundation for comprehending and evaluating digital transformation in industry but also a practical plan for governments and companies to encourage the change. This bridges the gap in present research, which usually lacks practical advice for executing digital transformation in the industry.

## **2 Literature Review**

### ***2.1 Industrial Innovation Ecosystems***

An innovation ecosystem is defined as “an evolving set of actors, behaviors, products, institutions, and relationships that are critical to the innovative performance of an actor or group of actors” [2]. An industrial innovation ecosystem can be defined as a techno-economic system consisting of industrial innovation agents and their supporting environment in a certain time and space scale.

### ***2.2 Digital Transformation of Industrial Innovation Ecosystems***

For enterprises, digital transformation is a major change in strategy, organisational structure, product operation, and business model brought about by digital technology, which is characterised by convergence, leapfrogging, and strong environmental dependence [3]. The digital transformation of the industrial innovation ecosystem is based on the digital transformation of enterprises [4]. However, it is not a simple accumulation of enterprises’ digital transformation behaviours, but the changes in the structure, function, and operation mechanism of the whole system caused by the interrelated micro transformation behaviours, focusing on two aspects of innovation behaviour and innovation organisation [5].

On the one hand, the digital transformation of the industrial innovation ecosystem is fundamentally realised through a series of digital innovations [6]. As a result, data becomes an important resource and innovation output in the process of digital transformation of the industrial innovation ecosystem [7]. On the other hand, innovation organisation is characterised by a combination of online and offline innovation. Online innovation is dominated by information, coding knowledge, data, and other resource allocation [8], while offline innovation is dominated by silent knowledge interaction, material resources, and product production and transportation activities. This is the result of the change in communication and efficiency brought about by a digital technology and the result of the increasing distribution and democratisation of innovation agents [9]. The digital platform provides space for online and offline interactions of innovation subjects, and the reconstruction of innovation organisations by means of the digital platform has become a significant feature of the digital transformation of the industrial innovation ecosystem [10].

### ***2.3 Governance Dilemma***

Existing research on innovation ecosystem governance suggests that all levels and types of innovation ecosystems are subject to “market failure” or “system failure” and need to be governed [11]. However, the digital transformation of industry innovation ecosystems faces governance dilemma arising from a high degree of complexity and uncertainty.

Governance is fundamentally about the identification of goals and the choice of ways to achieve them [6]. Although the fundamental objectives of digital transformation of industrial innovation ecosystems have been determined, the operational governance objectives are difficult to be predetermined and are dynamic due to the uncertainty. The complexity also makes the governance objectives diverse and full of multi-objective governance problems. Accordingly, the design and selection of governance mechanisms and the implementation of governance need to meet the dynamic multi-objective governance needs [4]. Therefore, the governance of digital transformation of industrial innovation ecosystems requires new theoretical perspectives and methodological tools to deal with complexity and uncertainty in a more rational and effective way.

### ***2.4 Experimental Governance***

Experimental governance for emerging science and technology has positive implications for solving the dilemma of digital transformation governance in industrial innovation ecosystems. Experimental governance is a governance model that manages complexity and uncertainty through a cyclical and iterative approach [4], and its governance approach is ad hoc, flexible, modifiable, and dynamically open [12].

### 3 Methods

Based on the basic concept of tentative governance, HOPKINS offers a specific analytical framework that includes seven dimensions: governance niche, governance object, governance process, resource commitment, support time, governance goal, and relevant stakeholders. This framework lays the foundation for moving from conceptual to empirical analysis of experimental governance.

Based on the HOPKINS model, this paper constructs a tentative governance model for the digital transformation of the industrial innovation ecosystem based on the characteristics and governance dilemma faced by the industrial innovation ecosystem, combined with the theoretical points of tentative governance (see Fig. 1).

The governance model constructed in this paper includes three key elements: governance subject, governance mechanism, and governance niche. Among them, the governance subject is associated with the dimension of relevant interest subjects in the HOPKINS framework. The governance niche is already included in the HOPKINS framework. In addition, the analytical framework of HOPKINS takes a policy as the object of analysis, thus decomposing the dimensions of resource commitment, support time, and governance objectives. However, in the process of digital transformation of industrial innovation ecosystems, the governance means and methods involved are more complex. Therefore, this paper treats governance mechanism as a

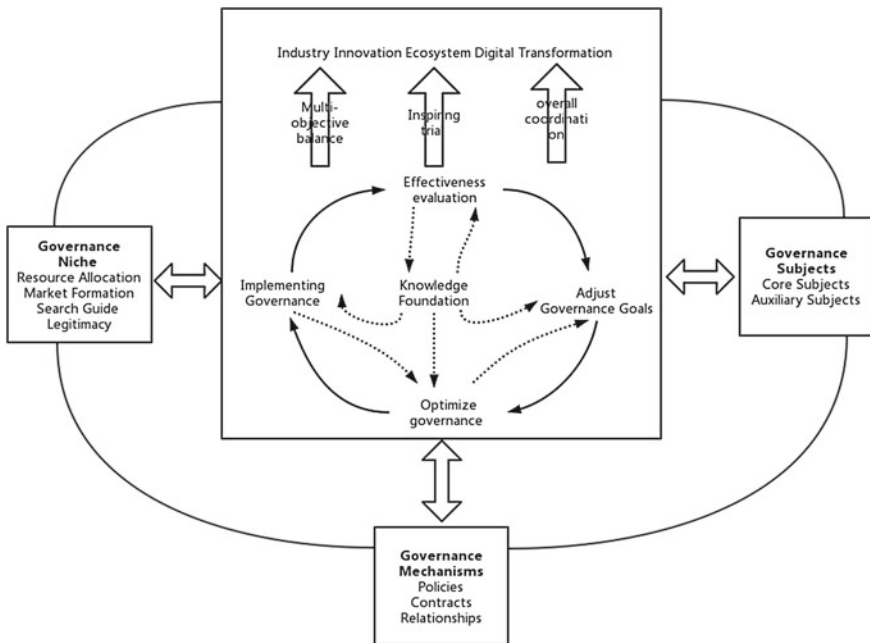


Fig. 1 Governance model for the digital transformation of the industrial innovation ecosystem

constituent element of the pilot governance model. The model includes the components of tentative governance from a static perspective and the governance process and its mechanism of action from a dynamic perspective. The context of the tentative governance model constructed in this paper is mainly the traditional manufacturing industry where the “digital divide” is obvious.

## 4 Discussion

### 4.1 *Interpretation of the Components of Digital Transformation Governance Model*

The digital transformation of the industrial innovation ecosystem involves many relevant interest subjects and requires a multicentre collaborative governance structure so that various governance subjects can form a governance network with cooperation and constraints, and then achieve collective goals. The governance subjects of digital transformation of the industrial innovation ecosystem can be divided into two categories: core subjects and auxiliary subjects [13]. Core subjects are dominant in the governance structure and usually include the government, transformation enterprises, digital enterprises, etc. Auxiliary governance subjects refer to those who indirectly or partially participate in the governance of digital transformation of the industrial innovation ecosystem, such as suppliers, consumers, universities, research institutions, intermediaries, expert groups, etc.

Governance mechanisms are the main instruments and methods of governance. The tentative governance of digital transformation of the industrial innovation ecosystem requires the comprehensive use of three types of governance mechanisms: policy, contract, and relationship. Both policy and contract are formal governance mechanisms. A policy mechanism takes the government as the implementation body and guides and regulates other relevant interest subjects through planning, administrative instructions, guidance, and other means, or directly invests resources. Contracts are a common governance mechanism for cooperative transactions among various market players. Contractual governance mechanisms are also used in market-based cooperation between the government and other entities, such as government procurement of digital products or technologies and joint establishment of investment funds. Relationships are an important informal governance mechanism. It is rooted in the long-term interactions of social actors and focuses on long-term interests and is a useful complement to formal governance mechanisms such as contracts.

The three types of governance mechanisms—policy, contract, and relationship—have their own scope of application and should be combined in a complementary way. Digital transformation is fundamentally an economic act of market players and needs to be led by contractual governance mechanisms to give full play to the market’s resource allocation role. However, the uncertainty and the complexity make it difficult

to make and enforce contracts, and policy and relationship governance mechanisms are needed to complement them.

This paper focuses on four governance niches: resource allocation, market formation, search guide, and legitimacy. Theoretically, these four niches correspond to the basic processes of resource input, subject collaboration, and leading design formation. In practice, these four niches reflect the pain points of the current digital transformation of the industry.

The following is an analysis of the four types of governance niches that are the focus of this paper. First, resource allocation as a governance niche is to break the barriers of insufficient resources to promote digital transformation. Second, market formation as a governance niche aims to enable new technology solutions to develop sufficient market spaces as soon as possible. Third, the search guide aims to realise the choice, cooperation, and interaction among relevant stakeholders through effective information exchange. Last, using legitimacy as a governance niche aims to make a transformation solution the dominant design and thus truly realises the digital transformation of the industrial innovation ecosystem.

#### ***4.2 Progressive Governance Process of “Subject-Mechanism-Niche” Integration and Its Mechanism of Action***

Governance subjects, governance mechanisms, and governance niches must be integrated to achieve governance effects. Experimental governance is a dynamic, flexible, and non-linear process [12]. The integration of the above-mentioned governance elements is gradually realised in implementing governance, which includes three key aspects.

Overall, the governance process of achieving factor integration is an iterative and gradual process with experiential learning as the core, including a dynamic cycle at both cognitive and behavioural levels. The behavioural level includes four basic steps: defining/adjusting governance objectives, optimising governance measures, implementing governance, and evaluating effectiveness. Among them, governance objectives essentially embody the shared vision and expectations of governance actors and are themselves a means to cope with uncertainty [1]. However, under the influence of uncertainty, governance objectives can only be continuously adjusted according to changes in governance effectiveness and external factors. As governance goals change, governance measures must be dynamically adjusted and optimised accordingly. At the cognitive level, on the one hand, the governance subject determines the governance objectives and measures, implements governance, and evaluates the effects based on the existing knowledge base, and on the other hand, the governance subject summarises the experience based on the results of the effect evaluation and further optimises and improves the knowledge base. What drives this process is

the experiential learning of the actors, i.e., the cycle of practical experience into knowledge.

Furthermore, to address the governance dilemma of digital transformation of the industrial innovation ecosystem caused by complexity and uncertainty, the above governance process works mainly through three mechanisms: multiobjective equilibrium, all-around collaboration, and heuristic trial and error.

Multiobjective equilibrium means that the tentative governance of the industrial innovation ecosystem needs to deal with multiple governance issues simultaneously and achieve a static and dynamic equilibrium among multiple governance objectives, which is an important way to solve the complexity of governance. In the exploratory governance model, polycentric governance subjects and multiple governance niche combinations lay the foundation for multiobjective equilibrium, and the integrated and progressive governance process is the guarantee for achieving the multiobjective equilibrium.

All-round synergy refers to a high degree of synergy among stakeholders and resources involved in the transformation, which are both required to overcome the complexity of governance and a way to resolve the uncertainty caused by information asymmetry. In the exploratory governance model, the polycentric governance structure lays the organisational foundation for all-around synergy. The governance mechanism combining policy, contract, and relationship then provides the means to realise all-around synergy from the perspective of formal and informal mechanisms. After that, the diverse governance niche further connects the synergy of resource elements and subjects. Finally, the gradual governance process ensures the formation of all-around synergistic relationships.

Heuristic trial and error are a key tool for dealing with uncertainty. Since governance objectives, measures, and their effects are difficult to be fully predicted, governance subjects cannot predict the effects of solutions or measures in advance, but can only try them out, and such attempts need to be made continuously to find and retain effective measures.

## 5 Results

The digital transformation of the industrial innovation ecosystem is the key to the innovation and development of traditional industries in the digital economy. Based on the complexity and uncertainty of digital transformation of the industrial innovation ecosystem, this paper constructs a tentative governance framework model based on three key elements: governance subject, governance mechanism, and governance niche, combined with the governance process of gradual integration and its mechanism of action. Specifically, the tentative governance of the digital transformation of the industrial innovation ecosystem requires the formation of a polycentric governance structure with the participation of multiple subjects, the adoption of a governance mechanism with the organic integration of policies, contracts, and relationships, and the combination of governance niches consisting of resource allocation,

search guidelines, market formation, and legitimacy, and the integration of the above elements through a gradual governance process to achieve governance effects.

## **6 Theoretical and Practical Implications**

First, this paper studies industrial digital transformation from the perspective of the innovation ecosystem and provides a conceptual basis and an analytical framework for subsequent research. The existing studies on digital transformation mainly focus on microenterprises. However, under the influence of the closely connected industrial network, the digital transformation of individual enterprises cannot be separated from the interaction with other subjects. At the same time, digital transformation emphasises the new combination of digital technology and existing business, which is a typical digital innovation behaviour, and thus the innovation ecosystem becomes a suitable unit of analysis for studying industrial digital transformation. This paper further clarifies the connotation and characteristics of digital transformation of the industrial innovation ecosystem and constructs a tentative governance framework for the digital transformation of the industrial innovation ecosystem, which has positive theoretical values for the research of industrial digital transformation. The digital development of the industrial innovation ecosystem is also a new research trend in innovation ecosystem theory, but the research on how to realise the digital transformation of the industrial innovation ecosystem is still insufficient. This study is also important for the development and deepening of innovation ecosystem theories.

Under the impact of the new epidemic, the trend of digitalisation of industries is becoming clearer and more urgent. However, for traditional industries with many small and medium enterprises and a weak resource base, achieving digital transformation is a real challenge. The experimental governance model constructed in this paper has important practical implications for solving this real-life challenge.

## **7 Limitation and Expectation**

The digital transformation of the industrial innovation ecosystem is at the stage of theoretical and practical exploration, and exploratory governance is also an emerging governance concept. The tentative governance of digital transformation of the industrial innovation ecosystem is a complex system project, and the interactions among governance subject, governance subject, governance niche, and governance process need to be studied more deeply. This paper focuses on theoretical framework construction, which is not enough to constitute a rigorous theoretical test. We will further collect and follow up on typical cases to conduct more comprehensive empirical research.

## References

1. Budde, B., Konrad, K.: Tentative governing of fuel cell innovation in a dynamic network of expectations. *Research Policy*. 48, 1098–1112 (2019). <https://doi.org/10.1016/j.respol.2019.01.007>.
2. Granstrand, O., Holgersson, M.: Innovation ecosystems: A conceptual review and a new definition. *Technovation*. 90–91, 102098 (2020). <https://doi.org/10.1016/j.technovation.2019.102098>.
3. Yang, W., Liu W.: Research on the Internet transformation model of manufacturing enterprises under the framework of epigenetic economic dynamics theory. *Journal Science and Technology Progress and Countermeasures*, 36, 78–84 (2019).
4. Nambisan, S., Lyytinen, K., Majchrzak, A., Song, M.: Digital Innovation Management: Reinventing Innovation Management Research in a Digital World. *MIS Quarterly*. 41, 223–238 (2017). <https://doi.org/10.25300/misq/2017/41:1.03>.
5. Holmström, J.: Recombination in digital innovation: Challenges, opportunities, and the importance of a theoretical framework. *Information and Organization*. 28, 107–110 (2018). <https://doi.org/10.1016/j.infoandorg.2018.04.002>.
6. Peters, B.G.: Is governance for everybody? *Policy and Society*. 33, 301–306 (2014). <https://doi.org/10.1016/j.polsoc.2014.10.005>.
7. Jin Chen, Jiaxue Li.: The innovation paradigm under digital technology. *Information and Management Research*. 5, 1–9 (2020).
8. Hopkins, M.M., Crane, P., Nightingale, P., Baden-Fuller, C.: Moving from non-interventionism to industrial strategy: The roles of tentative and definitive governance in support of the UK biotech sector. *Research Policy*. 48, 1113–1127 (2019). <https://doi.org/10.1016/j.respol.2019.01.008>.
9. Reale, F.: Governing innovation systems: A Parsonian social systems perspective. *Technology in Society*. 59, 101174 (2019). <https://doi.org/10.1016/j.techsoc.2019.101174>.
10. Rindfleisch, A., O'Hern, M., Sachdev, V.: The Digital Revolution, 3D Printing, and Innovation as Data. *Journal of Product Innovation Management*. 34, 681–690 (2017). <https://doi.org/10.1111/jpim.12402>.
11. Wareham, J., Fox, P.B., Cano Giner, J.L.: Technology Ecosystem Governance. *Organization Science*. 25, 1195–1215 (2014). <https://doi.org/10.1287/orsc.2014.0895>.
12. Kuhlmann, S., Stegmaier, P., Konrad, K.: The tentative governance of emerging science and technology—A conceptual introduction. *Research Policy*. 48, 1091–1097 (2019). <https://doi.org/10.1016/j.respol.2019.01.006>.
13. Yang W., Liu J., Zhou Q.: Formation mechanism of the digital ecosystem in traditional industries: a polycentric governance perspective. *Journal of University of Electronic Science and Technology (Social Sciences Edition)*. 22, 11–17 (2020).



# Factors Influencing Technopreneurs' Adoption of Islamic Banking Products



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**Abstract** As an alternative banking system, Islamic banking provides a variety of services throughout the world. These services are utilised by many types of bank customers, including technopreneurs, in their regular financial and banking transactions. Nevertheless, the knowledge and adoption rate of these services in Malaysia appears to be below expectations. This is due to issues such as confusion of information and ignorance about the Islamic bank's marketing of banking products. In addition, most individuals will select the bank they perceive to be the most profitable and easy to use. Thus, this study was conducted to identify the knowledge of technopreneurs in Kelantan regarding Islamic banking products, to analyse the factors that influence technopreneurs in Kelantan to adopt Islamic banking products, and to assess the level of usage of technopreneurs towards Islamic banking products. Several interviewees were selected to participate in this study, where a qualitative approach and an interview method were employed. Furthermore, ATLAS.ti analysis software and thematic analysis method were used in this study. The results indicated that technopreneurs in Kelantan have just a moderate awareness of Islamic banking products. Furthermore, it has been emphasized that the adherence to Sharia principles, recognition of the benefits of utilizing Islamic banking, improved awareness, and educational initiatives are key factors that impact the decision of technopreneurs in Kelantan to utilize Islamic banking products. The utilisation rate of Islamic banking products among technopreneurs is high; yet, some of them do not comprehend the concept of Islamic banking in its entirety. In general, the surrounding population plays a crucial role in promoting awareness of Islamic banking products.

**Keywords** Adoption · Awareness · Preference · Islamic banking products · Technopreneurs

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## 1 Introduction

Islamic awareness helps Malaysia develop Islamic banking. Malaysia has promoted a comprehensive Islamic banking system, according to Ibrahim [8]. These Muslims wish to follow the Islamic way of life, including using Islamic banking products. Muslims account for 61.3% of the population, which is a huge market for Islamic banking. Islamic banking forbids *riba*, *gharar*, and *maysir* [23]. It offers fixed repayment rates and profit-sharing dividends to investors. Islamic banks have many differences from conventional banks. All product features, dealings, transactions, business approach, investment focus, and responsibility are derived from sharia law [15].

By utilising numerous Islamic banking principles, such as *tawarruq* (reverse *murabahah*), *mudarabah* (profit sharing), *musharakah* (partnership), and *ijarah* (lease), Islamic banking institutions in Malaysia have a great deal of dynamicity, creativity, and alternative when developing Islamic banking products. Moreover, Islamic banking establishes a higher bar for investments and promotes greater responsibility and risk management by emphasising the requirement for transactions to be supported by legitimate trade or business-related activity.

There are Muslims in this country who still use conventional banking products, thus, they have little exposure to Islamic banking. Muslims who use conventional banking products think they will make more money, but they should know about their prohibited practices. Well-educated Muslims should apply sharia law to their finances and lives to be blessed in this world and the Hereafter [6]. Given the situation in which numerous Islamic banks offer internet banking services and a significant number of subscribers, consumers' usage of internet banking necessitates acceptance of the technology, which necessitates a shift in their behaviour patterns. Therefore, consumer adoption becomes a significant factor in determining the rate of change in the Islamic banking industry [18]. A number of research have examined the factors that influence the adoption of Islamic banking services in Malaysia [10, 16, 17, 19, 31, 32]. Even though researchers have researched and replicated using numerous respondents or informants, there are no studies on the acceptance of Islamic banking products among Malaysian technopreneurs.

Therefore, this research examines technopreneurs' adoption of Islamic banking products in Kelantan. Positively, Kelantan's emphasis on Islamic values will help spread Islamic banking knowledge, including among technopreneurs. Technopreneurs are among educated people who are more aware about technological development, including banking products [21]. Thus, their perception of Islamic banking products would be useful, as it is their role as Muslims to follow Islamic law by using such products. This research aims to examine technopreneurs' understanding of Islamic banking products, the factors that influence them to adopt the aforementioned products. Islamic banks offer many products, but some Muslims do not understand them. They may be using conventional banking products while adhering to Islamic law as Muslims. Why do technopreneurs use Islamic banking products, and do they fully understand them?

## 2 Literature Review

A total of four (4) themes have been found in the literature review, namely, awareness of Islamic banking products, customer's preference towards Islamic banking products, adoption of Islamic banking products, and the distinction between Islamic banking and conventional banking products. The themes are discussed as below.

### 2.1 Awareness Towards Islamic Banking Products

According to Fathonih et al. [7], the informants' awareness of Islamic banking products is relatively high. Nevertheless, based on the interview results, Muslim business owners are interested in a financing system that does not hinder establishing their firm, as long as it adheres to Islamic standards. Furthermore, Islam and Rahman [9] discovered that the majority of their informants lacked a basic comprehension of Islamic banking terminology in their study of Indian Muslims. This assertion is corroborated by the findings of Butt et al. [5]. According to the survey, users and non-users are unaware that Islamic banking is fully interest-free. In addition, this study found that consumers believe that Islamic banking is merely a facade and do not practice Islamic banking.

Furthermore, according to Ahmad and Harun [1], several Islamic banking companies fail to successfully promote their Islamic banking products to consumers. As a result, most customers are only vaguely familiar with Islamic banking products. In addition, research conducted in Pakistan by Tara et al. [30] found that the informants' understanding about Islamic banking products and services is still low. However, Khattak [14] found that for several common products, such as current accounts and deposit accounts, the level of client knowledge of Islamic banking products is high.

### 2.2 Customer Preference Towards Islamic Banking Products

The level of community influence, religious requirements, and awareness of Islamic banking products affect customers' preference for Islamic banking systems. In typical products such as current and saving accounts, customer awareness regarding the Islamic banking intersection is higher [2, 25]. However, most clients are preoccupied with Islamic financial products terms, such as *murabahah* and *ijarah*. Junaidi et al. [12] concurred that customer preference for the Islamic banking system is due to knowledge.

Previous studies have demonstrated that many consumers lack an adequate understanding of Islamic financial products, particularly the differences between Islamic and non-Islamic products. As depicted by Islamic economics, Islamic financial focuses on casual products that strive for equity, accountability, and impartiality.

Customers must establish the habit of selecting and attempting to purchase Islamic banking products [24]. However, many additional factors influence a customer's decision to use an Islamic banking system, including the efficiency of bank transactions, the short working hours, and the intimate interaction with customers [25]. Johan et al. [11] and Mohd Thas Thaker et al. [19] concur that Muslims favour Islamic banking, while non-Muslims recognise that Islamic banking is relevant to Muslims in general.

### ***2.3 Adoption of Islamic Banking Products***

Based on Shaikh and Karjaluo [29], the term "adoption" can be defined as accepting something that will be put into effect against that individual. The global adoption of Islamic banking products has been the subject of numerous studies. Specifically, according to the study by Bananuka et al. [4], the strategies used by financial institutions in ensuring the adoption of Islamic banking are now known such as creating awareness of Islamic banking's mode of operation among existing and potential clients. In addition, Islam and Rahman [9] demonstrated that Islamic financial services organisations may have difficulty educating the public about their operations and that customer awareness is, therefore, essential for adopting Islamic banking services. According to Mahdzan et al. [16] the authors investigated the adoption of Islamic banking services in Malaysia. They discovered that understanding Islamic banking concepts and perceived advantages substantially impact the adoption of Islamic banking services.

In another study, Bananuka et al. [4] discovered that attitude, subjective norm, and religiosity are all significant predictors of intention to adopt Islamic banking in Uganda. However, the hierarchical regression model revealed that the subjective norm ceases to be a substantial predictor once attitude and religiosity are added to the model. Moreover, according to the study by Butt et al. [5], users and non-users believe Islamic banking is not entirely interest-free. In addition, consumers believe that Islamic banking (IB) is merely a facade and does not truly practise Islamic banking. In addition, religion is not a significant factor in attracting new users as opposed to other vital elements in marketing Islamic banking, including service quality, convenience, branch network, etc.

### ***2.4 The Distinction Between Islamic Banking and Conventional Banking Products***

The philosophical and operational differences between Islamic banking and conventional banking pertain to the performance of the banking function in a financial institution. According to Asad et al. [3], Islamic banking is a new system that replaces the conventional with a sharia-compliant operation. In addition, they concurred that

the operation of each bank's system is distinct from the other. Islamic banking and conventional banking operate differently regarding deposits, financing and investments, credit cards, loans, leasing, and other products [22].

Additionally, the conventional banking is more profitable than the Islamic banking. This is due to the volume of loans and deposits that will positively affect the bank's profit. They stated that bank managers and administrators must emphasise the interest earned on loans and the return payables on customers' deposits to generate a more significant profit [28]. According to Rahmi et al. [27], Malaysian corporate customers, who are predominantly Muslim, use Islamic banking products and services infrequently, despite knowing that Muslims are prohibited from using conventional banking systems due to the interest forbidden by Islam.

### 3 Research Methodology

Using a qualitative approach, descriptive research and exploratory research methods are used to assess the understanding, analyse the factors and examine the level of adoption of Islamic banking products among technopreneurs in Kelantan. The data for this study is derived from primary (through interviews) and secondary sources. Through primary sources, the researchers construct an interview and collect data on individuals that can be observable, measurable, and reproducible. Five (5) technopreneurs underwent in-depth interviews in several districts in Kelantan. They are technopreneurs in various fields, for example, gadget clinic owner, computer store owner and phone store owner. Kelantan was selected because there are many Muslim entrepreneurs in the state, as well as many Muslim entrepreneurs active in the technology sector. As a result, Kelantan is an appropriate choice for the study's chosen location. Secondary data are used to complete the study by compiling data collected from journal articles, conference papers, books, and others [26].

Secondary data used in this study is divided into two parts; firstly, primary data, in which the researcher uses al-Quran, Hadith, al-Quran interpretation, and *Syarah Hadith*; secondly, general data are used to generate related information that are published in various publications such as journal articles, conference papers, books and others. ATLAS.ti software was used to analyse the data and ensure the accuracy of the information examined efficiently. The procedure of the study is divided into three stages, the first of which is the study's initiation, including the document preparation. The second stage entails determining the study's methodology to be employed in this investigation. Meanwhile, the third stage is to evaluate factors and determine the extent to which technopreneurs in Kelantan use Islamic banking products.

## 4 Findings and Discussion

The interviews conducted with five (5) respondents according to the study's objectives. There are three main objectives: understanding, factors influencing and level of usage toward Islamic banking products. To meet the first objective, understanding Islamic banking products, each respondent was aware that all practices in offering Islamic banking products are sharia-compliant. However, the perspectives of the five (5) respondents regarding the tax rate vary. Some respondents believe that the Islamic banking tax rate is relatively higher than that of conventional banking. Some argue that the Islamic banking tax rate is lower than that of a conventional banking. Moreover, respondents comprehend the meaning of Islamic banking products. The respondents informed that Islamic banking products prohibit *riba*, *gharar*, and *maysir* under the sharia law. The results of this study are similar to what was found by Fathonih et al. [7], which concluded that the informants' awareness of Islamic banking products is relatively high. However, this finding is different from Islam and Rahman [9], Butt et al. [5], Ahmad and Harun [1], and Tara et al. [30].

The second objective are the factors that encourage them to choosing Islamic banking. The average respondents stated the factors such as sharia compliance, lowest tax rates, and awareness that prompted them to choose Islamic banking products. As the respondents are Muslims, they preferred financial institutions that are sharia-compliant. The respondents want to have blessing from Allah SWT in their wealth management, so that they are not guilty of doing illegal things and they will not be asked Hereafter. As Islamic banking offered the lowest rate, the respondents are also being considered to choose Islamic banking.

As the respondents of this study are technopreneurs in Kelantan, they are well informed about the pros and cons of Islamic banking. Thus, the utilisation rate of Islamic banking among technopreneurs in Kelantan is high because they know their obligations as Muslims to live under the sharia law. Technopreneurs in Kelantan extensively use Islamic banking products for this reason. These are the findings of the study's third objective. These findings are in line with Muhammad et al. [24], Amin et al. [2], Naim et al. [25] and Junaidi et al. [12] who viewed the rate of Islamic banking utilisation among Muslims is high.

Based on the earlier findings, several arguments for the literature review outlined in Sect. 2 have been developed. There are five points: adoption, awareness, customer preferences, comparison, and distinction between Islamic and conventional banking products. This justification's network is depicted in Fig. 1.

Figure 1 shows the themes and its subthemes in this research. The first theme is the adoption of Islamic banking products. The subthemes of this theme are the name of the bank and the types of products used. According to Mahdzan et al. [16], the adoption of Islamic banking products and services was measured by asking, "Are you an Islamic banking customer?" to determine either that person's adoption of Islamic banking services. Overall, its claims that the adoption of Islamic banking products is a dependent variable or factor used to answer the question of why people adopt or accept Islamic banking services as their choice. Based on the interviews

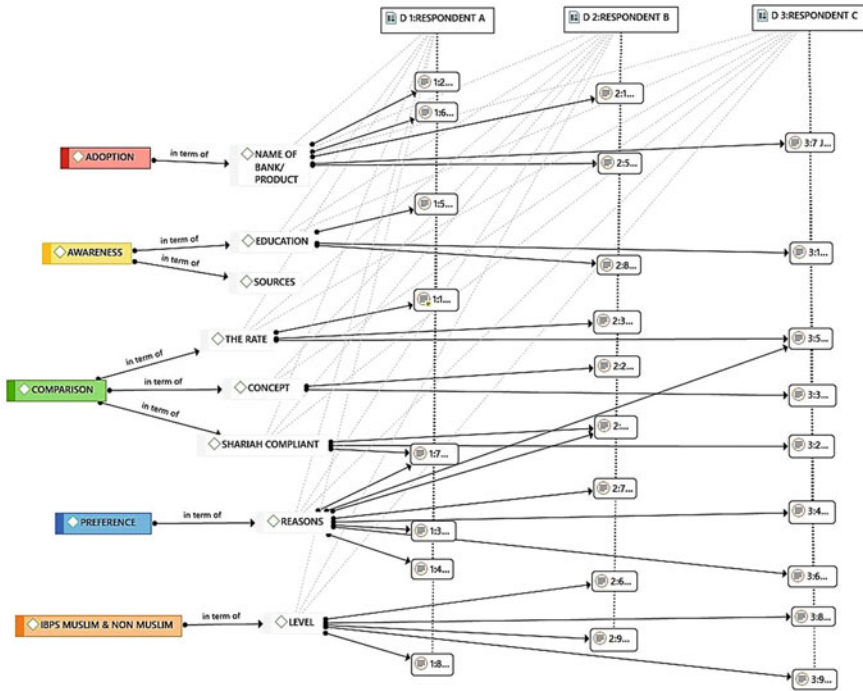


Fig. 1 The network view of the themes and the subthemes

conducted with five (5) technopreneurs in Kelantan, all the respondents in this study used the products of Islamic banking. Respondent A made vehicle financing and saving at Bank Islam Malaysia Berhad. For business purposes, Respondent A has used the current account facility in Bank Islam Malaysia Berhad. Respondents B and E stated that they used Islamic banking products, which are saving accounts in several Islamic banks such as Maybank Islamic Bank, Bank Islam Malaysia Berhad, and Bank Muamalat. They also used the financing facility in Islamic banking, namely, a home loan at Maybank Islamic Bank. Meanwhile, Respondents C and D used the Islamic Bank to save money and the Bank Islam Malaysia Berhad overdraft facility. They also made gold investment in Maybank Islamic Bank, namely, Maybank Islamic Gold Account-i (MIGA-i).

The second theme is awareness of Islamic banking products. The subthemes are education and sources. According to Keong et al. [13], the informants' awareness level toward Islamic banking products is relatively high, with 76.1% as opposed to 23.9% of those who are unaware of this matter. Muhammad et al. [20] mentioned that the effective communications strategy on how Islamic banking operates would be enhanced to create awareness. Meanwhile, according to Butt et al. [5], some Islamic banking institutions have not fully educated their customers about Islamic banking products. Respondents A and D mentioned that they have used a product from Islamic

banking, but they are unsure about the product's name and characteristics. Their awareness is also only limited to the rate of Islamic banking products. Respondents A and D lack sufficient knowledge about Islamic banking, which lead him to prefer conventional banking in order to receive better products than those provided by Islamic banking. Respondent B stated that *al-Falah* or, in other words, to follow Allah's ways, he needs to follow sharia. Islamic banking products are the sharia-compliant banking system rather than the conventional one that applies *riba*, *gharar*, and *maysir*; thus, Respondent B chose Islamic banking products. Respondent B said that he used Islamic banking products because he wants Allah's blessings in life and in wealth. Respondents C and E also stated an awareness starts from education. Although they adopted Islamic banking products, there are still some Islamic banking products that they are not aware of. This problem is due to the lack of information, whereby they did not receive enough education about Islamic banking products.

The third theme is a comparison between Islamic banking and conventional banking. There are three subthemes under the third theme: the rate, the concept of banking practice, and the types of products. According to Asad et al. [3], Islamic and conventional banking have similarities and dissimilarities. Islamic banking is a system of ethical banking, and its practice is based on the sharia law embodied in the Holy Qur'an, Hadith, and other Islamic jurisprudence sources. Trading involving elements prohibited in Islam is not permitted. Based on the interviews conducted, Respondents A and D state that the difference they can observe is in terms of tax imposed by the aforementioned two types of banks. They added that their main factor for choosing Islamic banking is due to the fixed tax rate as opposed to the variable tax rate set by conventional banks.

Meanwhile, Respondent B believes that the tax difference between the above-mentioned two types of banks is not much different, where the said respondent gave an example of home financing and other loans between Islamic banking and conventional banking. From the point of view of Respondents C and E, the difference can be seen in terms of the concept used. In Islamic banking, this organisation operates on the concept of sharia, which is to avoid *riba*, *gharar*, and *maysir*. Meanwhile, conventional banking practices are principles that do not follow sharias. In addition, Respondents C and E noted the differences in products issued by the bank. According to them, generally, most Islamic and conventional banking products are the same. What differentiates these two organisations is that Islamic banking products have *aqad* in signing the agreement between the bank and customer and are sharia-compliant, while conventional banking does not have *aqad* and is non-sharia-compliant.

The fourth theme is customer preference for Islamic banking products. The subthemes are the reasons why they chose to use Islamic banking products. In an interview that has been done, Respondents A and E stated that they used Islamic banking products because of their religious obligation. Profits from the investment are not the main factor for why customers are choosing Islamic banking, rather, it is actually because of the religion itself. This view is similar to the study by Johan et al. [11] and Mohd Thas Thaker et al. [18]. Respondents B and D also stated that they used Islamic banking products, as they think of themselves as Muslims. Respondents B said that:



I used all the financing products from an Islamic bank as I know the Islamic bank does not practice prohibited elements like *riba*, *gharar*, and *maysir*. Apart from that, I use Islamic banking products because I want to get Allah's pleasure and success in this world and in the Hereafter

Meanwhile, Respondent C stated that he, as a Muslim, must follow the Islamic law in his life, included in the financing aspect. He stated that:

I used all the products and services for financing from Islamic banking because I know about mostly the operations that have been practised by Islamic banking commonly said as the prohibited *riba*, *gharar*, and *maysir*

He also stated that with the existence of Islamic banking, people, especially Muslims, can choose to use Islamic banking products to manage their money in a halal way, as demanded in Islam.

From the discussion above, it can be concluded that the respondents agreed that Islamic banking is sharia-compliant. However, they have different opinions about the rate (financing rate or profit rate) offered by Islamic banking and conventional banking. The respondents know that it is their duty to use Islamic banking products because they are free of *riba*, *gharar*, and *maysir*. Besides that, the respondents said Islamic banking products are competitive and have the lowest financing rate. Apart from that, most Kelantan's technopreneurs have been using Islamic banking products, such as financing, savings, etc., for various purposes.

## 5 Conclusion

Preliminary surveys show that technopreneurs' adoption of Islamic banking products is at a good level, but their understanding of Islamic banking is still below average. Even though Malaysia is among the most prominent Islamic banking hubs in the world and most Malaysians are Muslims, knowledge and understanding of Islamic banking are still lacking. Most of them chose to adopt Islamic banking due to the principle of sharia compliance, but they still lack knowledge of the other Islamic banking concepts. The findings also indicate that the significant factors influencing technopreneurs in Kelantan in the use of Islamic banking products are the principles of sharia compliance, the tax rate imposed, and the level of knowledge. These factors have influenced technopreneurs in their adoption of Islamic banking rather than conventional banking. As a Muslim, they should take care of the five essential objectives of the *maqasid* sharia, which are to preserve religion, life, intellect, wealth, and heredity. Therefore, the principle of sharia is strongly emphasised in all matters of Islamic finance to preserve the *maqasid* sharia that is blessed by Allah SWT in the world and in the Hereafter.

Finally, the third objective question has been answered by studying the level of usage of Islamic banking products among technopreneurs in Kelantan. Overall, the majority of technopreneurs in Kelantan are Islamic banking users. This is proven when respondents stated that they are confident that many of their colleagues in

the technology business have used Islamic banking. However, those who deal with Islamic banking are prepared to accept any return so long as the bank observes Islamic sharia principles. They trust the bank with regard to their money and its ability to satisfy religious concerns.

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## References

1. Ahmad, N., Harun, S.: Perceptions of Malaysian corporate customers towards Islamic banking products and services. *International Journal of Islamic Financial Services*, 3(4), 13–29 (2002).
2. Amin, H., Ramayah, T., Suhartanto, D., Ali, M., Abdul Razak, D., Muhammad, M.Z.: Investing in Islamic fixed deposit accounts: a technology acceptance model perspective. *International Journal of Business and Society*, 23(2), 786–801 (2022).
3. Asad, M., Ahmad, I., Haider, S.H., Salman, R.: A critical review of Islamic and conventional banking in digital era: a case of Pakistan. *International Journal of Engineering & Technology*, 7(4), 57–59 (2018).
4. Bananuka, J., Kaawaase, T.K., Kasera, M., Nalukenge, I.: Determinants of the intention to adopt Islamic banking in a non-Islamic developing country: the case of Uganda. *ISRA International Journal of Islamic Finance*, 11(2), 166–186 (2019).
5. Butt, I., Ahmad, N., Naveed, A., Ahmed, Z.: Determinants of low adoption of Islamic banking in Pakistan. *Journal of Islamic Marketing*, 9(3), 655–672 (2018).
6. Burhanudin, B.: The effect of Muslims' tendency to regret being customers of conventional banks on their intention to save money in Islamic banks. *Journal of Islamic Marketing*, 13(5), 1050–1068 (2022).
7. Fathonih, A., Anggadwita, G., Ibraimi, S.: Sharia venture capital as financing alternative of Muslim entrepreneurs: opportunities, challenges and future research directions. *Journal of Enterprising Communities: People and Places in the Global Economy*, 13(3), 333–352 (2019).
8. Ibrahim, M.H.: Islamic banking and bank performance in Malaysia: an empirical analysis. *Journal of Islamic Monetary Economics and Finance*, 6(3), 487–502 (2020).
9. Islam, J., Rahman, Z.: Awareness and willingness towards Islamic banking among Muslims: an Indian perspective. *International Journal of Islamic and Middle Eastern Finance and Management*, 10(1), 92–101 (2017).
10. Jamshidi, D., Hussin, N., Lai Wan, H.: Islamic banking services adoption as a new banking restructure: examining its adoption from the perspective of DOI theory and trust in Malaysia. *Humanomics*, 31(2), 214–223 (2015).
11. Johan, Z. J., Hussain, M.Z., Mohd, R., Kamaruddin, B.H.: Muslims and non-Muslims intention to hold Shariah-compliant credit cards: a SmartPLS approach. *Journal of Islamic Marketing*, 12(9), 1751–1785 (2020).
12. Junaidi, J., Wicaksono, R., Hamka, H.: The consumers' commitment and materialism on Islamic banking: the role of religiosity. *Journal of Islamic Marketing*, 13(8), 1786–1806 (2022).
13. Keong, L.L., Khor, M.L., Low, S.P., Wong, Z.H.: Awareness of Islamic banking products and services among non-Muslims in Malaysia. (Unpublished doctoral dissertation). Universiti Tunku Abdul Rahman, Perak, Malaysia (2012).
14. Khattak, N.A.: Customer satisfaction and awareness of Islamic banking system in Pakistan. *African Journal of Business Management*, 4(5), 662 (2010).
15. Kuyateh, M.A.: Shariah compliance prohibitions in Islamic banking and finance: the case of riba, gharar and maysir. *Journal of Islamic Banking & Finance*, 39(1), 29–36 (2022).

16. Mahdzan, N.S., Zainudin, R., Au, S.: The adoption of Islamic banking services in Malaysia. *Journal of Islamic Marketing*, 8(3), 496–512 (2017).
17. Mariadas, P.A., Murthy, U.: Factors influencing the adoption of Islamic banking in Malaysia. *International Journal of Business and Management*, 12(11), 187–193 (2017).
18. Mohd Thas Thaker, H., Mohd Thas Thaker, M.A., Khaliq, A., Allah Pitchay, A., Iqbal Hussain, H.: Behavioural intention and adoption of internet banking among clients' of Islamic banks in Malaysia: an analysis using UTAUT2. *Journal of Islamic Marketing*, 13(5), 1171–1197 (2020a).
19. Mohd Thas Thaker, H., Sakaran, K.C., Nanairan, N.M., Thaker, M.A.M.T., Hussain, H.I.: Drivers of loyalty among non-Muslims towards Islamic banking in Malaysia: evidence from SmartPLS. *International Journal of Islamic and Middle Eastern Finance and Management*, 13(2), 281–302 (2020b).
20. Muhammad, A.M., Basha, M.B., Al-Hafidh, G.: UAE Islamic banking promotional strategies: an empirical review. *Journal of Islamic Marketing*, 11, 2, 405–422 (2019).
21. Muhammad, M.Z., Amboala, T. Mohd Din, N., Ghazali, M.F., Redzuan, R.H.: A model development of Shariah principle in e-payment: the case of Malaysia. *Lecture Notes in Networks and Systems* 194, 1758–1771 (2021a).
22. Muhammad, M.Z., Muhamad, F.H., Muhamad, M., Ibrahim, W.M.Y.W., Kesuma, T.M.: Why Kelantan entrepreneurs prefer takaful over conventional insurance? *Lecture Notes in Networks and Systems*, 194, 1146–1152 (2021b).
23. Muhammad, M.Z., Muhamad, F.H., Doktoralina, C.M., Mukhtar, D., Ghazali, M.F., Rahman, M.K., Mohd Din, N.: Online banking of Islamic banks: the customer's perceptions in Kelantan. *Lecture Notes in Networks and Systems*, 487, 859–873 (2023a).
24. Muhammad, M.Z., Mat Yunoh, M.N., Muhamad, F.H., Zainol, N.R., Mohd Din, N. Yasoa', M.R., Abdullah, A.R., Abd Hamid, N.F.: The assumption of unlimited human wants (AUHW) in Islamic economics: a tasawur perspective. *Lecture Notes in Networks and Systems*, 487, 907–924 (2023b).
25. Naim, A.M., Hamid, M.L.A., Wahab, M.Z.H.: The roles of lifestyle, future need and customer preferences in customer's satisfaction on Islamic banks products and services. *The Journal of Muamalat and Islamic Finance Research*, 60–76 (2019).
26. Pandey, P., Pandey, M.M.: *Research methodology tools and techniques*. Romania: Bridge Center (2021).
27. Rahmi, M., Azma, N., Obad, F.M., Zaim, M., Rahman, M.: Perceptions of Islamic banking products: evidence from Malaysia. *Asian Journal of Business Environment*, 10(3), 35–42 (2020).
28. Salman, A., Nawaz, H.: Islamic financial system and conventional banking: a comparison. *Arab Economic and Business Journal*, 13(2), 155–167 (2018).
29. Shaikh, A.A., Karjaluo, H.: Mobile banking adoption: A literature review. *Telematics and Informatics*, 32(1), 129–142 (2015).
30. Tara, N., Irshad, M., Khan, M.R., Yamin, M., Rizwan, M.: Factors influencing adoption of Islamic banking: A study from Pakistan. *Journal of Public Administration and Governance*, 4(3), 352–367 (2014).
31. Thambiah, S., Eze, U.C., Tan, K.S., Nathan, R.J., Lai, K.P.: Conceptual framework for the adoption of Islamic retail banking services in Malaysia. *Journal of Electronic Banking Systems*, 1, 1–10 (2010).
32. Thambiah, S., Ramanathan, S., Mazumder, M.N.H.: The determinants of Islamic retail banking adoption in Malaysia. *International Business & Economics Research Journal (IBER)*, 11(4), 437–442 (2012).

# Practices of *Hibah* (Inter Vivos Gift) Among Technopreneurs in Kelantan



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**Abstract** *Hibah* (inter vivos gift) is a component of Islamic wealth management that refers to a material or immaterial gift. The primary objective of this study is to investigate the understanding and practices of *hibah* among technopreneurs in Kelantan. This study also seeks to determine whether or not individuals, particularly technopreneurs, can manage and grow their wealth responsibly and equitably. This is crucial because if Muslims continue to disregard their property management, unclaimed assets will continue to grow and be frozen. Thus, this study aims to determine the level of understanding and practices of *hibah* among technopreneurs in Kelantan. Data were gathered through interviews with technopreneurs, and thematic analysis was conducted using the ATLAS.ti data analysis software. Overall, the informants have knowledge of *hibah* and some of them have practised it. Although *hibah* has not been fully grasped by the informants, they are familiar with it. This study will provide the policymaker with recommendations for addressing any state-level issues. In addition, it enables the state Islamic religious council to play an essential role in promoting the understanding and practising of *hibah* among technopreneurs and the Muslim community.

**Keywords** Islamic wealth management · *Hibah* · Technopreneurs · Understanding · Practices

## 1 Introduction

Islamic wealth management entails an orderly property management system for the welfare of life in this world and the hereafter. In general, wealth and property (*mal*) refer to what an individual possesses in the form of goods or advantages

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[36]. The two components of Islamic wealth management are wealth management during life and wealth management after death. *Hibah*, wills, waqf, philanthropy, and vows are some forms of estate planning utilised during one's lifetime [8]. Regarding language, *hibah* (inter vivos gift) refers to any type of gift, physical or otherwise. It is derived from the Arabic word '*wahaba*', which means gratuitous giving and includes gifts and charities. It is essential to examine the understanding and practises of *hibah* among technopreneurs in Kota Bharu, Kelantan. The selected population was technopreneurs in Kota Bharu, Kelantan, hence the samples included respondents from predominantly Muslim areas with several businesses and a state with a majority of Muslim population [17]. This study focused on technopreneurs given that the technology industry expanded significantly following the COVID-19 pandemic, particularly in e-commerce [35]. These events also led to an indirect increase in their income and assets. In order to secure the property so that it can be inherited by the family and prevent any property conflicts in the future, this study attempts to examine the assets owned by technopreneurs from the perspective of the *hibah* process implemented [6, 18, 35].

This study investigates the understanding and practises of *hibah* (inter vivos gift) among technopreneurs in Kota Bharu, Kelantan. The research findings may reveal the knowledge and practise of *hibah* (inter vivos gift) among technopreneurs in the study area.

## 2 Literature Review

This study consists solely of a literature review based on multiple sources, and numerous articles can be categorised according to various themes. These themes provide an overview of Islamic wealth management, the concept of *hibah*, its practises, and its relevance. Through the concept of *hibah*, the formation of *hibah*, types of *hibah*, and cancellation of *hibah* are explained. In addition, the discussion of the literature review and the framework will be covered in this section.

The word 'property' was derived from the Arabic word, which refers to ownership of an asset known as '*mal*' [7]. Islam does not prohibit humans from amassing wealth for pleasure in the world, but it also encourages people to amass assets to leave to their families after death [15]. The deceased's family should be left in a comfortable state rather than in a dire situation where they must beg from others. Islam specifies the method for acquiring property, which is that property must be acquired properly [24]. It is impossible to separate the relationship between wealth and technopreneurs given that every technopreneur who operates a business will profit. Eventually, the resulting profit will create wealth. Every piece of property acquired by technopreneurs must be distributed to other Muslims. Allah SWT stated in Surah al-Baqarah verse 261 that Allah encourages His servants to spend their wealth in His way.

Comparisons (donations) those who spend their possessions in the way of Allah are like a seed that grows to produce seven stems: every stem also contains a hundred seeds. And

remember Allah will multiply the reward for whom He will. And Allah is the All-Mighty, the Wise. (al-Baqarah, 2:261)

## 2.1 The Concept of Hibah

*Hibah* is one method of Islamic property management. It has intimate ties to bequests, *faraid*, waqf, and philanthropy. All of them are tools for wealth management that Muslims can utilise to accommodate inheritance regulations [13]. *Hibah* and wills are similar in that both involve the transfer of property ownership without compensation. However, there are variations when a *hibah* is included in the contractual category that requires the grantor's and grantee's approval [12]. While wills are not contracts, they are merely a form of *tasarruf* from the testator [4, 29].

## 2.2 Formation of Hibah

Formation of *hibah* occurs once all pillar and *hibah* conditions have been satisfied [27]. Setting *hibah* as an agreement with norms and restrictions distinguishes it from *hibah* with gifts and charities, all of which have *tabarru* aspects. Hanafi scholars hold that the only pillars of *hibah* are *sighah*, *ijab*, and *qabul* [33]. While jurists have established that the donor (*wahib*) is the primary element in the creation of *hibah*, the *hibah* receiver (*mawhub lahu*) and the donated items are also significant (*mawhub*). According to Islamic law, three (3) requirements must be met for the *hibah* to be legally valid on the Islamic side. Among the aspects are the donor's expression of a desire to *hibah* a gift (*ijab*), the receiver's acceptance statement, either explicitly or implicitly (*qabul*), and the occurrence of *qabd* on *mawhub* from the *hibah* recipient, either actual or constructive [21, 22].

## 2.3 Types of Hibah

There are numerous types of *hibah* as follows:

### **Absolute Hibah**

Absolute *hibah*, also known as *al-hibah al-munjizah*, is exhibited when someone gives *hibah* on their money in the form of ordinary without prescribing any conditions to enforce the *hibah* or is defined as gifts perpetuated throughout life without a stipulation by *hibah* givers [21]. In this instance, the absolute will have a *hibah* effect if certain requirements and pillars are met. Among the effects that are transferred, the title of *hibah* is permanent and cannot be limited, and the title of 'ayn *hibah* provider and *mawhub*'s benefits will be lost [22].

### Conditional *Hibah*

Conditional *hibah* is subdivided into *hibah umra*, *ruqba*, and *hibah* rewards. *Hibah ruqba* refers to granting a *hibah* basis from one individual to another. If one of the parties dies, the property is returned to the remaining party [22]. Imam Abu Hanifah provides similar definitions for the idea of *hibah ruqba* concerning a death provider. *Hibah's* assertion that *ruqba* is transferring property title to another party after his death [10].

## 2.4 The Revocation of Hibah

Revocation of the *hibah (ruju)* refers to the *hibah's* withdrawal from the giver to the receiver following the property transfer (*qabd*). They permit the withdrawal of funds before their transmission to the recipient in the form of measured and weighed property under the Hanbali school [25]. In addition, there are Muslims who fear that their property will be exploited for ill-gotten gain and that the recipient will breach the *hibah* agreement, knowing that once the *hibah* has been made, it cannot be revoked because property ownership has already been passed to the recipient. Consequently, revocation is essentially impossible [30].

According to the Maliki school, *hibah* cannot be revoked because the pipeline is deemed ideal with simply the contract and no need for *qabd*. This exemption is made in two situations: when the *hibah* is awarded as a reward and when a father responds to the *hibah* he made to his son. However, this *ruju* is contingent on the father not anticipating the recompense of Allah SWT [34].

## 2.5 Practice of Hibah

The practice of *hibah* is encouraged in Islam. This practice is demonstrated in accordance with the Quran, Sunnah, and *Ijma* [27]. Some verses in the Qur'an that advocate *hibah*, such as Surah Al-Baqarah verse 177, where Allah SWT encourages it:

... and gives wealth, despite the love for it, to relatives, orphans, the needy, the traveller, those who ask [for help], and for freeing slaves. (al-Baqarah, 2:177)

The Muslim population in Malaysia has historically engaged in *hibah* traditions or gift-giving. There is evidence that this *hibah* practice began as early as the 1900s but was not as organised as it is today [23]. In reality, there is no regulation regarding the *hibah* awarded in Malaysia. According to Abd Wahab et al. [1], this *hibah* is implemented in the wealth management industry. In this instance, Islam highly emphasises systematic and efficient property management to ensure that every individual achieves their appropriate rights.

### 3 Methodology

A few approaches can be employed by researchers when conducting qualitative research. In this study, the researcher chose to conduct interviews since they are effective methods to successfully elicit pertinent information or comments from informants. In this strategy, any topic the informant provides is considered valuable information for a study. By investigating a specific issue, scholars also gain a more profound comprehension and breadth of knowledge using this method [9, 32].

Consequently, during the data analysis phase of the research, records are compiled based on informant replies to each question and the most prominent themes derived from the interviews conducted following data collection. Hence, the eligible technopreneurs were first chosen before selecting a minimum of five (5) technopreneurs from Kota Bharu for the main interview to obtain more information and their opinion on the research topic. The interview session continued until data saturation, and the number of interviewees was determined based on the amount of data received [19].

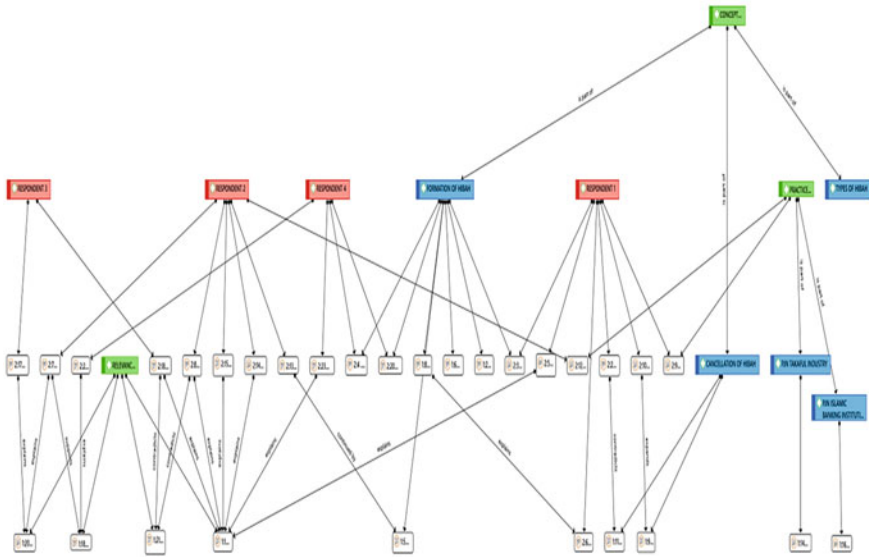
All the gathered data were subjected to thematic analysis using ATLAS.ti. ATLAS.ti program is loaded with narrative text acquired, such as responses to open-ended questions on the interview questions or observer notes. The qualitative data were coded utilising the specified coding structure: selective, in vivo, open, or emerging. The particular coding construct enables researchers to determine the relationship between various concepts identified in the topic's literature review [16].

### 4 Findings and Discussion

ATLAS.ti version 9 was used to obtain the network view, as shown in Fig. 1. To achieve the goals of these studies, the researchers selected five (5) informants for this study. The three themes obtained were the concept of *hibah* and the practice of *hibah* among technopreneurs in Kota Bharu, Kelantan. The themes were further divided into various segments. Overall, the researchers discovered many points that contradicted the themes during the interviews with the informants. These contributions offer viewpoints that might aid in the development of this research. In essence, although they were not fully comprehended, the informants had some exposure to *hibah* due to a particular circumstance.

According to the interview results, most informants recognised and understood the exact meaning of *hibah*, a present or gift to a person while he is still living. Informants 1 and 2 explained the aim of *hibah* with clarity while informant 2 understood but did not elaborate on the facts during the interview session. Additionally, informants 4 and 5 affirmed that they do not get the *hibah* notion. According to informants 1 and 2, *hibah* is a present given to a living person. This fact parallels the literature review cited by Muda [27] and Kamarudin et al. [22], which indicates that *hibah* and will share similar characteristics in that both involve the transfer of property ownership for free and without response. Nevertheless, there are differences between the two





**Fig. 1** Network view ATLAS.ti of the understanding and practices of *hibah* among technopreneurs in Kota Bharu, Kelantan

when a *hibah* is included in the contractual category that requires the consent of both parties’ grantees.

Considering the first objective, which is to determine the level of understanding of *hibah* among technopreneurs in Kota Bharu, Kelantan, the majority of informants have the same response or perspective, namely that the process of *hibah* in Malaysian wealth transfer is rarely positive [14]. Thus, contemporary Muslims should expand their investigation and select the most prudent means of wealth distribution. This is because *hibah* is an alternative or superior method to *faraid* and *wasiyyah* for distributing wealth. According to Bakar et al. [13] and Muda [27], *hibah* and *wasiyyah* have similar characteristics in that they both involve the transfer of property ownership for free and without consideration. However, there are differences between the two when *hibah* is included in the contractual category that requires the consent of both parties’ grantees. Most informants feel that *hibah* should be utilised by Muslims, particularly technopreneurs, to transfer their money or business since it might alleviate problems associated with the distribution of wealth, such as sibling disputes [28].

Except for informant 4, who does not apply *hibah* in his life, most informants, (i.e., 1, 2, 3 and 5) have their manner and viewpoint on the concept of the *hibah* process. Informants 1 and 5 began learning about *hibah* they gave a house to their siblings as a *hibah*. Meanwhile, informant 2 learned about *hibah* when his mother used it to divide her wealth many years ago. These findings reflect that *hibah* can even be practised between family members [11]. The third informant stated that she began learning *hibah* in school. She had been exposed to *hibah* since her school days,

and she studied the concept in depth when it was applied by her family for wealth distribution. Informant 4 had also learned *hibah* in school, but she did not use it after that, thereby limiting her comprehension of the *hibah* concept. It may be inferred that the majority learned the concept of *hibah* from experience while others learned it solely in school [10].

This study focuses primarily on the knowledge of the *hibah* concept and whether all informants are familiar with or have a solid grasp of it. According to the interviews, most informants comprehend the notion of *hibah*, including its method and theory. It may be inferred that technopreneurs in Kota Bharu, Kelantan, have a moderate comprehension of the idea of *hibah*. As a result of learning the theory and practice of *hibah* in this manner to transfer wealth, these technopreneurs have a solid understanding of *hibah*. However, only one informant in this interview does not comprehensively comprehend the concept of *hibah*, as she has no experience with the distribution of wealth by *hibah* instruments and has not disclosed or clarified the concept sufficiently [31]. Most individuals are not exposed to *hibah* in their lives, which explains the low knowledge and the lack of *hibah* practices among people today. Thus, the level of *hibah* knowledge among technopreneurs is influenced by their *hibah* activities.

The second purpose of this study is to investigate the *hibah* practices of the technopreneurs in Kota Bharu, Kelantan. Resultantly, most of the informants practice *hibah* in their daily lives. Although most of them are familiar with the *hibah*, only a few use it to divide their wealth or property. In this analysis, all informants claimed to have limited knowledge of the *hibah* and shared information about it in various ways. For instance, they were exposed to the concept in school or college, and one of the informants knows that their family practices the *hibah* in property distribution. For them, *hibah* is one of the simplest and quickest methods for distributing property because it requires a few administrative steps. As a result, they desired to employ *hibah* as the instrument for distributing their holdings. According to Islamic law, three requirements must be met for the *hibah* to be legally valid Islamically. Among the aspects are the donor's expression of the desire to *hibah* a gift (*ijab*), the receiver's acceptance statement, either explicitly or implicitly (*qabul*), and the occurrence of *qabd* on *mawhub* from the *hibah* recipient, either actual or constructive [12, 13, 30].

In addition, most informants in this study practice *hibah* in their daily lives. Informant 1 distributed her property to her offspring using the *hibah*. Informant 2 utilised *hibah* to distribute her income. They valued the *hibah* above other instruments since there was no restriction on how they might distribute property between males and females. Under simple terms, they can split the property according to their desires because, in *hibah*, there are no ratios like *faraid* and other instruments they must adhere to while dividing the property among themselves or their family members. *Hibah* is a token of affection from the donor to the recipient, it can be issued to heirs or non-heirs, and the transfer is effective upon delivery or during life. Therefore, in principle, property owners can leave their property to whoever they choose as a *hibah* [23].

The informants who practice *hibah* in their daily lives reported that they were satisfied and pleased with their employment of the concept to divide their riches

because it is simple and quick to manage. Furthermore, they were delighted with the management of the *hibah* in Malaysia. For them, the *hibah* process in Malaysia is highly satisfactory. This is proven by commercial companies in virtually every state that offers authoring services, provisioning, and *hibah* problem-solving services. According to Abd Wahab et al. [1], the *hibah* application is evident in the property planning business. Therefore, they are interested in *hibah* and believe using it to distribute their property will ensure the continuation of amicable relationships, particularly among family members.

Additionally, they practice *hibah* because they believe distributing property through *hibah* can prevent numerous issues. *Hibah* is required during the grantee's lifetime to distinguish *hibah* from wills [20]. In a will, only one-third of the estate may be bequeathed to non-family members. Meanwhile, *hibah* can give an unlimited amount to anyone [34]. For instance, informant 1 uses *hibah* because, in her opinion, it is one of the approaches to prevent property misdeeds among children. While informant 2 chooses *hibah* to give her children justice without repressing them, especially her adoptive child, given that *hibah* allows her to dispose of her property in whatever manner she chooses. Meanwhile, informant 3 chooses *hibah* because she could divide the property without restriction. Informant 4 was also aware of *hibah*, but she is yet to practice it in her life. Nonetheless, she is interested in learning more about *hibah* since she believes it relates to the hereafter.

Based on this research, most informants are interested in learning and understanding more about *hibah* since it can assist anyone in resolving problems associated with property and management while still alive. *Hibah* can be offered to anybody chosen by property owners (*wahib*) [23]. Based on *hibah*, property owners (*wahib*) can determine who will inherit their property and how it will be distributed, considering the economic situation and heirs' needs [30]. In truth, *hibah* imposes no constraints on us regarding time or execution [31].

Most technopreneurs have a moderate level of understanding about *hibah*, and most of them practice it. The majority of the informants agree that *hibah* is a simple way to divide property. In the interview, they stated that *hibah* was a crucial instrument for property allocation. However, one informant consented to *hibah*, but she does not practice it.

It is evident from the statement of informant 1 that *hibah* is vital and communities must be aware of it to prevent property grabs. This is because the issue of property struggle in Kota Bharu, Kelantan, has never been resolved. According to informant 1, using *faraid* instruments is time-consuming and they are not effective for wealth distribution. Settling an heir's estate is typically time-consuming given that it entails procedures in various bodies and requires a significant time investment [3]. Consequently, property division in *faraid* is sometimes tricky, as is the distribution of assets to the correct heirs. Thus, most individuals prefer to make a *hibah* to transfer property.

According to Shahid [26], the jury of Hanafi scholars, Maliki, and Shafie contend that circumcision is equivalent to the granting of *hibah* among children and that giving more to one of them is *makruh*, even though the gift is legitimate. For Hanbali's school, it is mandatory to administer *hibah* fairly to youngsters. According to Imam

Malik, it is impossible to give some children all the property while others receive nothing. It is an honour to grant *hibah* to youngsters. *Hibah* to children may be revoked as long as the object is still in the child's custody, with no inconsistent rise, no sale, etc. [5]. This can be done to discourage children from being greedy. After inheriting their parents' property, children typically do not want to handle it. This is where the children become relevant to the cancellation of the *hibah*. In addition, *hibah* does not affect the earnings of Muslim entrepreneurs. As demonstrated by informant 1, the implementation of the *hibah* does not affect their business, and the latter is becoming more profitable as the property provided matches the grantee's skills and abilities, whose property is a business where the recipient of the *hibah* has the approval of the business administration. This approach demonstrates that real estate may grow profitably.

Informant 2 concurs with informant 1 that *hibah* is used to prevent discord among children. The second informant agrees that the distribution of the *hibah* to mature and business-minded children are more advantageous for the firm. According to Rashid and Ahmad [2], through a *hibah* approach, property owners can determine who would receive their property and how much will be allotted, considering the beneficiaries' economic situation and their requirements. Therefore, it is prudent for technopreneurs to divide their assets over their lifetime. Shahid [26] posits that *hibah* also assists those in need and lacking the legal right to inherit property through a *faraid* or bequest such as the inheritance of property by an adopted kid. The distribution of property can be accomplished through *hibah* to their benefit.

Additionally, informants 3 and 5 concurred with informant 1 that *hibah* is crucial in the modern day. *Hibah* is essential for well-being to prevent disunity among family members. The majority concurred that property is uncontested if the *hibah* is implemented. Since the distribution of property via *hibah* does not require the approval of any party, many people believe that it is simple, quick and depends entirely dependent on the giver. Therefore, the distribution of the property can be completed quickly.

According to informant 4, *hibah* is excellent since they represent a fair distribution of equitable instruments. This is because the distribution of property by *hibah* is honest, as the grantor can choose to whom he will donate his property. Family disputes can be avoided through the allotment of the property via *hibah* and the property has no limit. This is because the property to be rented is the grantor's property and it is up to the grantor to determine the rental rate. Nevertheless, according to Muda [27], Hanafi, Maliki, and Shafie scholars consider circumcision equates a gift among children. Therefore, one of the excellent advantages is *makruh* despite the gift being legal. The execution of *hibah* is ideal since it does not create difficulties for the grantee's heirs after death. However, informant 4 does not engage in *hibah* as a business to generate a monthly income.

Based on the information gleaned from the informants in this study, *hibah* is one of the alternate property distribution alternatives for *Faraid*. This is linked to the fact that the *hibah* property distribution system is more advantageous to the receiver. Through *hibah*, the property can be allocated following an individual's needs and talents. Using this approach, the property will not be tainted if given to a person who

can adequately care for it. Overall, the five informants reflected good knowledge of *hibah*, and it was practised by three of them. Through *hibah*, it is possible to gain additional insights into the *hibah* within oneself. This interview also informed the researcher that three of the five interviewees understood and performed *hibah* in their daily lives.

## 5 Conclusion

In conclusion, a *hibah* is a document used to divide property throughout the grantor's lifetime. It differs significantly from other property distribution instruments like will and *faraid*. This *hibah* research is not intended to contradict the distribution of property by will or *faraid* but rather to supplement the Islamic property distribution system. Research on *hibah* among technopreneurs has been a major topic since technopreneurs are company owners whose firms or assets are sure to be inherited. Through this study, researchers elucidated the level of comprehension and implementation of *hibah* among technopreneurs. The present study revealed a moderate level of *hibah* knowledge among technopreneurs but most of them implement *hibah* because they recognised its significance in life. This is because property disputes frequently arise when a property owner dies before the property can be divided.

Distribution of property is necessary to ensure the preservation of property. There are numerous pros and cons to every other Islamic property allocation system. Consequently, the purpose of the *hibah* evaluation is to inform the public of the possible options for land distribution. Planning the distribution of property during one's lifetime using the *hibah* principle should be practised. The process of lowering property through *hibah* not only contributes to the growth of the society's and nation's economies but also assures that the property operated by technopreneurs does not become a source of conflict among the remaining beneficiaries. In conclusion, technopreneurs should plan for all property they own to ensure that the property can be enjoyed continuously, whether for their benefit and the welfare of others or both. Since a *hibah* is practical and straightforward, the researcher predicts that more technopreneurs in Kota Bharu, Kelantan, will adopt this practice.

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## References

1. Abd Wahab, N.A., Ab Hamid, N., Che Man, N., Nordin, R.: *Faraid* dan hibah: persediaan ke arah pencen hakiki. Paper presented at the 5th South East Asia International Islamic Philanthropy Conference, Melaka, Malaysia (2017).
2. Abdul Rashid, R., Ahmad, N.H.: Hibah wealth management: the importance and benefit from various aspects for ummah development. *Jurnal Hadhari: An International Journal*, 5(1), 91–104 (2013).
3. Abdul Rashid, R., Mujani, W.K., Wan Hussain, W.M.H., Yaakub, N.I.: A need for the legal framework of gift inter vivos (Hibah) in Malaysian estate planning. *International Journal of Business, Economics and Law*, 2(3), 2289–1552 (2013).
4. Abdullah, M.M.I., Fariddudin, S.N.F.M., Muhamad, N.H.N., Awang, A.B.: Islamic estate planning in the industrial revolution 4.0 era: issues and challenges. *Journal of Emerging Economies and Islamic Research*, 9(2), 40–56 (2021).
5. Abu Hassan. I.: Instrumen hibah: isu-isu dan cabaran. (Unpublished doctoral dissertation). International Islamic University Malaysia, Selangor, Malaysia (2016).
6. Ahlstrom, D., Bruton, G. D.: An institutional perspective on the role of culture in shaping strategic actions by technology-focused entrepreneurial firms in China. *Entrepreneurship Theory and Practice*, 26(4), 53–68 (2002).
7. Al-Zarqa M.A.: *Al-'uqud al-musammāt fi'l-fiqh al-Islami: 'aqd al-bay'*. Dar al-Qalam: Damascus, Syria (1999).
8. Amin, H., Ramayah, T., Suhartanto, D., Ali, M., Abdul Razak, D., Muhammad, M.Z.: Investing in Islamic fixed deposit accounts: a technology acceptance model perspective. *International Journal of Business and Society*, 23(2), 786–801 (2022).
9. Arifin, S.R.M.: Ethical considerations in a qualitative study. *International Journal of Care Scholars*, 1(2), 30–33 (2018).
10. Asni, F., Sulong, J.: The mura'ah al-khilaf and ma'alat method in fatwa decisions: its application for fatwa coordination related to conditional hibah in Malaysia. *International Journal of Islamic and Middle Eastern Finance and Management*, 14(4), 641–654 (2021).
11. Awang, A.B., Abd Rahman, A.A.: Are parents free to bestow their wealth onto their children? A juristic discourse on equality and justice in hibah. *Jurnal Syariah*, 22(3), 407–426 (2014).
12. Azhar, A., Nor, M.Z.M.: Hibah in the administration of Islamic property: ijthadi elements and reality in Malaysia. *UUM Journal of Legal Studies*, 10(2), 103–119 (2019).
13. Bakar, A.A., Fauzi, N.S.M., Hashim, H.: Hibah as a way of Islamic wealth management. *Webology*, 17(2) (2020).
14. Fazal, S.A., Zainol, N.R., Mustapa, W.N.W., Al Mamun, A., Salameh, A. A., Muhammad, M. Z.: Economic vulnerability, orientations and performance: a study among micro-enterprises in Kelantan, Malaysia. *Lecture Notes in Networks and Systems*, 488, 445–462 (2023).
15. Firdaus, M.I.: Correlation of the concept of property rights in Islamic law and KUHPdata. *Az-Zarqa'*: *Jurnal Hukum Bisnis Islam*, 14(1), 63–83 (2022).
16. Friesse, S. *Qualitative data analysis with ATLAS.ti*. Sage, New York, USA (2019).
17. Hilaluddin, K., Muhayiddin, M.N., Muhammad, M.Z., Ab Rahman, A.A.: Exploring entrepreneurship theories within religious perspective based on al-kutub al-tis'ah: a proposed model. *Lecture Notes in Networks and Systems*, 486, 999–1011 (2022).
18. Hong, Z. (2004). Mapping the evolution and transformation of the new private entrepreneurs in China. *Journal of Chinese Political Science*, 9(1), 23–42 (2004).
19. Kamal, S.S.L.B.A.: Research paradigm and the philosophical foundations of a qualitative study. *PEOPLE: International Journal of Social Sciences*, 4(3), 1386–1394 (2019).
20. Kamarudin, M.K., Nor Muhammad, N.H.: Faktor pemberian hibah menurut perspektif pentadbir tanah (factors of granting hibah from the land administration's perspective). *UMRAN-International Journal of Islamic and Civilizational Studies*, 4(3-1), 22–31 (2017).
21. Kamarudin, M.K., Zaman, N., Razak, R.M.: Thematic analysis on the necessity of hibah law in Malaysia: analisis tema terhadap keperluan undang-undang hibah di Malaysia. *Al-Qanatr: International Journal of Islamic Studies*, 16(1), 1–13 (2019).

22. Kamarudin, M.K., Muhamad, N.H.N., Alma'amun, S., Ganti, N.: "I want to withdraw my hibah": why and how to explain it? *Journal of Islamic Thought and Civilization*, 12(1), 75–95 (2022).
23. Kamis, N.S., Wahab, N.A.: Investigating the level and determinants of hibah knowledge: a study among Muslims in Kedah, Malaysia. *Journal of Islamic Accounting and Business Research*, 13(3), 486–513 (2021).
24. Kurbonov, K.: Religious-legal bases of activity of Islamic credit institutions. *Архив научных исследований*, 1(1) (2021).
25. Mohamed Said, N.L., Awang, M.R., Mohd Nor, A.H., Muda, M.Z. Mohamad, A.B.: Revocation of gift (hibah) according to Islamic law and its practice under Syria civil law 1949. *International Business Management*, 7(1), 1–7 (2013).
26. Mohd Shahid, I.S.: Beza hibah dan wasiat. *Sinar Harian*. pp. 1A–2A (2018).
27. Muda, M.Z.: Instrumen hibah: analisis hukum dan aplikasi di Malaysia. *Konvensyen Fara'id dan Hibah Kebangsaan. Malaysia: Jabatan Kemajuan Islam Malaysia* (pp. 1–19), Kuala Lumpur, Malaysia (2008).
28. Muhammad, M.Z., Yusoff, M.N.H., Muhamad, F.H., Din, N.M., Warjio.: Wasiyyah preparation among women micro-entrepreneurs using Theory of Planned Behavior (TPB). *Lecture Notes in Networks and Systems*, 194, 1184–1191 (2021).
29. Muhammad, M.Z., Mat Yunoh, M.N., Muhamad, F.H., Zainol, N.R., Mohd Din, N. Yaso'a', M.R., Abdullah, A.R., Abd Hamid, N.F.: The assumption of unlimited human wants (AUHW) in Islamic economics: a tasawur perspective. *Lecture Notes in Networks and Systems*, 487, 907–924 (2023).
30. Nor Muhamad, N.H.: Hibah dalam undang-undang Islam. *Johor Bharu, Malaysia: UTM Press* (2011).
31. Othman, N.S., Mohamed Said, N.L., Muda, M.Z., Nor Muhamad, N.H. Analisis kes amalan hibah di Malaysia. *Islamiyyat*, 39(2), 135–142 (2017).
32. Peterson, J.S.: Presenting a qualitative study: a reviewer's perspective. *Gifted Child Quarterly*, 63(3), 147–158 (2019).
33. Saeed, T.: A brief study on qardh hasan, hibah and wadiah in the light of Islamic jurisprudence. *International Journal of Engineering Technology Science and Research*, 4(6), 870–873 (2017).
34. Shapiee, R.: Isu dan konflik perundangan dalam hibah hartanah di Malaysia: issues and legal conflicts related to hibah of immovable properties in Malaysia. *Journal of Muwafaqat*, 1(1), 84–101 (2018).
35. Torpey, J., Brockmann, H., Hendricks, B.: Excess profits, taxpayer-subsidized philanthropy, and the coronavirus crisis: charitable giving of the tech elite in response to the pandemic. *Sociologica*, 15(2), 95–116 (2021).
36. Zailania, M.N., Mohd Satar, N., Zakaria, R.H.: A review of indicators for the preservation of wealth (hifz al-mal) based on maqasid al-shariah. *Journal of Islamic Philanthropy & Social Finance (JIPSF)*, 4(1), 23–29 (2022).

# Influence of Entrepreneurial Leadership on Successful Indian Entrepreneurs in K-Link International Sdn. Bhd.



Balakrishnan Parasuraman and Shalini Raja Kapol

**Abstract** Public acknowledgement and accepting towards the MLM business in Malaysia are still low, in addition to the negative perception that it is a type of money scamming and laundering business rather than an income-generating and job-creating opportunity. Moreover, there are insufficient studies on Indian entrepreneurs in Malaysia as well as theoretical and empirical research on entrepreneurial leadership (EL) as the key factor that promotes entrepreneurial growth and development. This study aims to address these gaps by conducting a qualitative investigation on EL among Indian entrepreneurs in K-Link International Sdn. Bhd. with the aim of (1) describing the concept of EL in MLM from the successful Indian entrepreneurs' perspective, (2) explaining the success factors of Indian entrepreneurs, and (3) examining the role of EL in creating successful Indian entrepreneurs in K-Link International Sdn. Bhd. The data were collected using semi-structured interviews and document review and it was analysed using thematic and content analysis. The findings showed that both management system and organisational factors highly influence EL in K-Link International Sdn. Bhd.

**Keywords** Multi-level marketing · Entrepreneurial leadership · Indian entrepreneurs

## 1 Introduction

On 31st December 2019, the early cases of the coronavirus (COVID-19) were reported in Wuhan, China [33] and it later evolved into a pandemic that has been causing a large number of human deaths [11]. Apart from healthcare, COVID-19 has badly impacted various other industries, including airlines, entertainment, hospitality, and tourism [28, 47]. This resulted in millions of people losing their jobs and sources of income, subsequently leading to anxiety and depression [48]. According to data from the International Labour Organization [17], the Asia-Pacific labour market has

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lost 81 million jobs. At the same time, nearly 100,000 Malaysians have lost their jobs since the implementation of the Movement Control Order (MCO) [54].

While efforts to curb the spread of COVID-19 had forced major economic sectors to cease operations causing job loss to millions of people, travelling bans, and limitations for social gatherings, the Multi-Level Marketing (MLM) industry has been propounded as among the major aids for those affected by the global pandemic.

This is because the MLM industry has been creating employment and business opportunities, particularly for individuals who lost their source of income or faced salary cuts as a result of COVID-19 [43]. According to the Malaysian Direct Distribution Association (MDDA), direct sales companies in Malaysia such as Amway, Cosway, Avon, and Edmark had recorded significant growth in sales between 20 to 30% during the MCO period while the industry itself recorded a total sales of RM13.6 billion in 2017, RM15.9 billion in 2018, and RM17.9 billion in 2019 [7, 13]. The data shows that MLM or direct selling business has the potential of being a good source for job creation, income generation, and reducing poverty in a country [9]. Therefore, this study was conducted in K-Link International Sdn. Bhd. as an MLM company that plays a crucial role in creating employment opportunities, contributing to the local economic development, and cultivating top leaders to become successful entrepreneurs [20]. In this digital era, the demand for entrepreneurial leadership (EL) in organisations is increasing every day. Esmer and Dayi [10] highlight the importance of exploring EL because it creates value for businesses, stakeholders, and society. Thus, this study has investigated several successful Indian entrepreneurs selected from K-Link International Sdn. Bhd. to understand their concept of EL, their stories in becoming successful entrepreneurs, and the role played by EL in creating them.

## 2 Literature Review

### 2.1 *The Concept of Leadership*

The word “leader” originated from the ancient English word “*lǣdan*”, which means “to go before as a guide”. In the fourteenth century, the word “leadership” was first used to describe a person in charge [34]. Throughout historical evolution, leadership theories and principles have evolved and changed. The concept of leadership began with the exploration of certain individuals seen as heroic leaders, such as Alexander the Great, Napoleon Bonaparte, Nelson Mandela, Adolf Hitler, Asoka, and Abraham Lincoln [16]. Existing literature has offered numerous definitions and opinions on leadership, which are based on the respective authors’ beliefs, philosophies, perspectives, and values. For example, Meraku [37] defined leadership as a process of influencing individuals so that their efforts are directed towards accomplishing the organisation’s goals. Meanwhile, Hao and Yazdanifard [14] described leadership as a kind of strength that one possesses in order to have the capacity

and capability of influencing or modifying the values, attitudes, and behaviours of another person's development. These definitions indicate that leadership is a process of influencing subordinates, who embrace entrepreneurship, over others to guide, motivate, as well as facilitate activities and relationships within an organisation to achieve common goals. It subsequently implies that leadership and entrepreneurship are interrelated.

## 2.2 *The Concept of Entrepreneurship*

The word "entrepreneurship" was derived from the French verb "*entreprenre*", which means "to undertake", with "*entre*" meaning "between" and "*prendre*" meaning "to take" [31]. Entrepreneurship is the process of creating new valuable things, whereas entrepreneur refers to a person who invests the time and energy as well as bears the associated financial psychological and social risks in exchange for money and the desired outcome [38].

Joseph Alois Schumpeter was the first author to introduce the concept of entrepreneurship in 1911 [18]. According to Schumpeter, entrepreneurs are the pillars of capitalism and the source of innovation who serve as an essential force to drive the development of the capitalist economy [32, 35]. In his manuscript written in 1730, Richard Cantillon later defined entrepreneurship as self-employment and described entrepreneurs as irregular wage seekers and risk takers because they invest a known amount but do not know how much it will generate [39]. The concept of entrepreneurship has been changing over time along with the development of scientific and technological progress as well as the evolution of society.

The literature to date has offered various definitions of entrepreneurship as the concept is viewed differently by scholars. For instance, both psychologists and behaviourists see entrepreneurship as the need for achievement, perceived locus of control, and risk-taking prosperity; most economists view entrepreneurship as assembling all production factors (land, entrepreneur, labour, and capital) and bearing the price of buying and selling; whereas many sociologists describe entrepreneurship as the ability to identify the market opportunity to provide social services and act accordingly [49]. On the other hand, Kao [21] defined entrepreneurship as a process of wealth creation while Hessels and Naude [15] said that entrepreneurship is an intersection of economic development. Nevertheless, entrepreneurship has become a symbol of perseverance and business achievement, with entrepreneurs being seen as innovators who are driven by opportunity. The world has undergone an entrepreneurial revolution from small business owners/managers to successful entrepreneurs. In this twenty-first century, the entrepreneurial revolution is more than just creating a business [29]; the role of the entrepreneurial sector changes as the comparative advantage of industries shifts to knowledge-based economic activities. This resulted in large companies losing their competitiveness while smaller and more flexible entrepreneurial companies have been gaining new interest amidst the enhancement of the knowledge-based economy [2].

### ***2.3 The Concept of Entrepreneurial Leadership***

The concept of entrepreneurial leadership was introduced by McGrath and MacMillan [36] who propounded on the need for a new sort of leader amidst the increasing uncertainties and competitive pressure within the dynamic market, known as “entrepreneurial leaders”. The fast-moving and changing marketplaces provide individuals with an entrepreneurial mindset with the capacity to capitalise on chances to acquire benefits for their business faster than others [22, 36]. However, researchers have offered numerous definitions of entrepreneurial leadership. For instance, Roebuck [45] defined entrepreneurial leadership as organising a group of individuals to accomplish shared objectives through proactive entrepreneurial behaviour by innovating to capitalise on opportunities, accepting personal responsibility, optimising risks, and managing changes in a dynamic context for the benefit of a firm. Whereas, Vickers [57] viewed entrepreneurial leadership to comprise two fundamental aspects, namely their leadership style and process of entrepreneurship.

In addition, entrepreneurial leadership is a type of leadership that includes entrepreneurial acts at the individual level, creative actions at the organisational level, and measures made to capitalise on identified market possibilities [4]. It is also defined by Kesidou and Carter [24] as the process of creating opportunity-based behaviour in support of a firm’s improvement and development. Other scholars also view entrepreneurial leadership as guiding and directing employees’ performance towards achieving the company goals, which include identifying and leveraging entrepreneurial opportunities [52]. In today’s rapidly changing global scenario, many advocate the need for agile leaders who can think quickly, adapt to changes, make fast decisions, and become innovators and creators [40], and these qualities are aligned with entrepreneurial leadership. As entrepreneurial leaders are not born but mainly nurtured through the continuous learning process, entrepreneurial education is an important aspect for every entrepreneur who is going to start up a business or expand their business. This is because entrepreneurial education provides entrepreneurs with relevant knowledge, skills, and motivation to recognise commercial opportunities, manage resources, and initiate a business venture [12]. Furthermore, entrepreneurial leaders must have the entrepreneurship skills to exploit the new business opportunity, foster creativity and innovation in business, and protect it from the threat of competitors [5]. According to Kotelnikov [25], acquiring these qualities require entrepreneurial leaders to have specific attributes, in which they must take initiative, be proactive rather than reactive, constantly motivating their employees, demonstrate entrepreneurial creativity, and constantly seek and pursue new opportunities. Additionally, they must also be willing to take risks, venture into new fields, provide strategic direction and inspiration to employees, and most importantly, they must be responsible for the team’s failure, learn from these failures, and use them as a measure of strategic success and achievement.

### 3 Methodology

The data collection process of this study was done using the qualitative approach. A set of open-ended questions was used to obtain responses from selected Indian entrepreneurs while a document review was conducted to elicit information that can explain the success factors of Indian entrepreneurs and define the concept and role of entrepreneurial leadership in creating successful Indian entrepreneurs from the MLM perspective. According to Parasuraman [41], qualitative approach is based on non-numerical data and is not concerned with statistical analysis. This is because not all situation in the world comes naturally in quantities. Similarly, Soiferman [51] argues that qualitative theorists believe that various constructive realities produce different meanings to different individuals while the interpretation depends on the perspective of the researcher. It is believed that qualitative research provides more detailed information on a complex issue than quantitative research methods. Therefore, the qualitative research method was used in this study to explore and gain an in-depth understanding of the influence of entrepreneurial leadership towards Indian entrepreneurs and to explain the success factors of Indian entrepreneurs in K-Link International Sdn. Bhd.

### 4 Findings and Discussion

The results obtained in this study were intended to achieve a total of three research objectives as follows:

**Research Objective (1): To describe the concept of entrepreneurial leadership (EL) in Multi-Level Marketing (MLM) from the perspective of successful Indian Entrepreneurs in K-Link International Sdn. Bhd.**

The results showed that Indian entrepreneurs define the concept of EL as the entrepreneurial mindset and entrepreneur characteristics required for entrepreneurs to perform well in an organisation. As defined by Ireland et al. [19], EL is the ability to influence others to manage resources strategically and to emphasize both opportunity-seeking and advantage-seeking behaviours. Subramaniam and Shankar [53] pointed out that entrepreneurial leaders are the drivers of entrepreneurial leadership in organisations as they possess an entrepreneurial mindset that can drive entrepreneurial actions among those under their leadership. Entrepreneurial mindset is also considered a set of motives, talents, and cognitive processes that lead to entrepreneurial success [8]. Meanwhile, most distributors define the concept of EL as risk taker and seizing the opportunity. Kasim and Zakaria [23] suggest that risk-taking is the best example of an entrepreneurial leader's willingness to absorb uncertain environments and take on major responsibilities and challenges for the future. Whereas, Langowitz [30] argues that becoming entrepreneurial leader necessitates the willingness to learn, embrace opportunities, motivate and mobilise others within

a business entity in doing the same. Lastly, the Chief Executive Officer (CEO) of K-Link International Sdn. Bhd. highlighted that the core values of entrepreneurs are a critical part for EL. This is supported by Tarabishy et al. [55] who defined EL as the way people work together to get work done. They also advocate the importance of coordination, the strength of shared values and beliefs, and the degree to which people in the organisation genuinely agree on the importance of those values and beliefs; thus serving as a guide for their actions.

**Research Objective (2): To identify the success factors of Indian entrepreneurs in K-Link International Sdn. Bhd.**

Based on the viewpoint of five successful Indian entrepreneurs, the success factors of Indian entrepreneurs in K-Link International Sdn. Bhd. are personal traits and entrepreneurs' characteristics. Baran [3] believes that personality traits play a significant role in entrepreneurial activities as they can be influenced by various factors and can shape the entrepreneurs' behaviours, abilities, and competencies to produce a successful business performance. On the other hand, distributors pointed out that social and psychological factors impart a crucial role in the success factors of Indian entrepreneurs. This is consistent with Rokhman and Ahamed [46] who found that psychological factors can characterise important variables such as personality, attitudes, demography, and behaviours in actual entrepreneurial practice. From the top-level management perspective, attitude is important to determine the success factors of Indian entrepreneurs. As discussed by Varma [56], attitude describes how individuals work or progress towards their objectives while determining their potential of gaining certain skills or knowledge that will help them to reach their goals. Furthermore, Smith [50] propounded that attitude can be acquired through the principle of learning, while Al-Qarioti [1] argued that attitude represents the most effective predictor in relation to the most organised entrepreneurial behaviour.

**Research Objective (3): To examine the influence of entrepreneurial leadership to create successful Indian entrepreneurs in K-Link International Sdn. Bhd.**

Insights from five successful Indian entrepreneurs in K-Link International Sdn. Bhd. indicate that organisational factors highly influence the entrepreneurial leadership in creating successful Indian entrepreneurs. This corresponds with Rezvani et al. [44], who emphasised that face-to-face sales and marketing to family members, relatives, and acquaintances in one-to-one marketing hints at the role of viral marketing in network marketing, leading to consumer knowledge on advertising, merchandise sales, and distribution. Moreover, Kumar and Satsangi [27] posit that personality development, such as training and learning programmers, is critical in the MLM industry as it affects networkers' thinking abilities and lifestyles. The distributors also suggest that product quality and leader support greatly influence entrepreneurial leadership. This is supported by Berrett, Burton, and Slack [6] who highlighted the provision of quality products and services as the biggest factor influencing the success of an entrepreneur. Meanwhile, Pauceanu et al. [42] believe that both leaders and entrepreneurs are accountable for fulfilling a company's vision and goals while also acting as role models for other workers. Finally, the CEO of K-Link International Sdn.

Bhd. also highlighted the same viewpoint as the five successful Indian entrepreneurs in which the management system and syllabus directly influence entrepreneurial leadership in creating successful Indian entrepreneurs. This is aligned with Krishnan [26] who emphasises the need to train entrepreneurs in strong general management practices to avoid the difficulties that plague many entrepreneurial ventures.

## 5 Conclusion

This study investigated the influence of entrepreneurial leadership within the MLM industry with the intention of addressing three research objectives. The first research objective looked at the concept of EL in the MLM industry from the perspective of successful Indian entrepreneurs in K-Link International Sdn. Bhd. The results showed that entrepreneurial mindset and entrepreneurial behaviour are key aspects in defining the concept of EL. Furthermore, the second research objective aimed to identify the success factors of Indian entrepreneurs in K-Link International Sdn. Bhd. It was found that personal attributes and entrepreneurs' characteristics play a crucial role to identify successful entrepreneurs. Finally, the third research objective examined the influence of EL to create successful Indian entrepreneurs in K-Link International Sdn. Bhd. The results showed that both management system and organisational factors highly influence the extent of EL in the organisation. These findings are aligned with the Transactional Leadership Theory, which posits that entrepreneurs and leaders are inspiring and guiding their distributors so that they can perform independently and become successful as they are in their life.

## References

1. Al-Qarioti, M. Q. A. (2019). Factors Affecting Attitudes Towards Entrepreneurship: A Case Study of CBA Students at Kuwait University. *Journal of Corporate Governance Research*, 3.
2. Amiri, N. S., & Marimaei, M. R. (2012). Concept of Entrepreneurship and Entrepreneurs Traits and Characteristics. *Scholarly Journal of Business Administration*, 2, 150–155.
3. Baran, W. (2018). Personality Traits of an Entrepreneur, Determinants of Successful Microenterprise in Ireland.
4. Bel, U., & Ordu, A. (2020a). Entrepreneurial Leadership in Start-up Businesses. Volume 18. Retrieved from <https://files.eric.ed.gov/fulltext/ED608388.pdf>.
5. Bel, U., & Ordu, A. (2020b). Entrepreneurial leadership in start-up business. 18.
6. Berrett, T., Burton, T. L., & Slack, T. (2006). Quality products, quality service: Factors leading to entrepreneurial success in the sport and leisure industry. 12, 93–106. <https://doi.org/10.1080/02614369300390091>.
7. Boudonck, G. (2017). Top 10 MLM Companies in Malaysia. Retrieved from <https://onlinemlmcommunity.com/top-10-mlm-companies-in-malaysia/>.
8. Daspit, J. J., Fox, C. J., & Findley, S. K. (2021). Entrepreneurial Mindset: An Integrated Definition, A Review of Current Insights and Direction for Future Research. *Journal of Small Business Management*. <https://doi.org/10.1080/00472778.2021.1907583>.

9. Effiom, L., & Effiong, F. A. (2015). The Role of Multilevel Marketing (MLM) in Poverty Alleviation in Calabar-Cross River State, Nigeria: A Case Study of Forever Living Product (Nig.) Ltd. *Advances in Social Sciences Research Journal*, 2, 150–163 pp. <https://doi.org/10.14738/assrj.22.874>.
10. Esmer, Y., & Dayi, F. (2017). *Entrepreneurial Leadership: A Theoretical Framework*. Volume 4(Issue 2).
11. Gopinath, G. (2020). The Great Lockdown: Worst Economic Downturn Since the Great Depression. Retrieved from <https://blogs.imf.org/2020/04/14/the-great-lockdown-worst-economic-downturn-since-the-great-depression/>.
12. Grecu, V., & Denes, C. (2017). Benefits of entrepreneurship education and training for engineering students. <https://doi.org/10.1051/mateconf/201712112007>.
13. Hamdan, M. A. (2020). Malaysia on track to achieve RM20b direct sales target-ministry. Retrieved from <https://www.theedgemarkets.com/article/malaysia-track-achieve-rm20b-direct-sales-target-%E2%80%944-ministry>.
14. Hao, M. J., & Yazdanifard, D. R. (2015). How effective leadership can facilitate change in organizations through improvement and innovation. *Global Journal of Management and Business Research: A Administration and Management*, Volume 15(Issue 9).
15. Hessels, J., & Naude, W. (2019). The Intersection of the fields of entrepreneurship and development economics: A review towards a new view. *Journal of Economic Surveys*, Vol 33, pp 389–403.
16. Hunt, T., & Fedynich, L. (2019). Leadership: Past, Present and Future: An Evolution of an Idea. *Journal of Arts and Humanities* 8(2), 20–26. <http://dx.doi.org/https://doi.org/10.18533/journal.v8i2.1582>.
17. ILO. (2020). 81 million jobs lost as COVID-19 creates turmoil in Asia-Pacific labour markets. Retrieved from [https://www.ilo.org/asia/media-centre/news/WCMS\\_763819/lang--en/index.htm](https://www.ilo.org/asia/media-centre/news/WCMS_763819/lang--en/index.htm).
18. Institute, C. F. (2015). Who is Joseph Schumpeter? Retrieved from <https://corporatefinanceinstitute.com/resources/knowledge/economics/joseph-schumpeter/>.
19. Ireland, R. D., Hitt, M. A., & Sirmon, D. G. (2003). A Model of Strategic Entrepreneurship: The Construct and its Dimensions. *Journal of Management*, 29, 963–989.
20. K-Link. (2017). A Courageous Chief Leading His People Towards A Better Future. Retrieved from <https://apea.asia/malaysia/hall-of-fame-my-2017/k-link-international/>.
21. Kao, R. W. Y. (1993). *Defining Entrepreneurship: Past, Present And? Volume 2*.
22. Karim, M. M., Latif, W. B., & Choudhury, M. M. (2019). The art of developing entrepreneurial leadership. Retrieved from file: C:/Users/User/Downloads/Entrepreneurialleadership-ACBSPAnnualConference-2019.pdf.
23. Kasim, N. M., & Zakaria, M. N. (2019). The Significance of Entrepreneurial Leadership and Sustainability Leadership (Leadership 4.0) towards Malaysia School Performance. *International Journal of Entrepreneurship and Management Practices*, 2(8), 27–47. <https://doi.org/10.35631/ijemp.28003>.
24. Kesidou, E., & Carter, S. (2014). Entrepreneurial leadership and firm performance: Reconciling the objective-subjective dichotomy. Retrieved from [https://www.kmu-hsg.ch/rencontres2014/resources/Topic\\_A/Rencontres\\_2014\\_Topic\\_A\\_KESIDOU\\_CARTER.pdf](https://www.kmu-hsg.ch/rencontres2014/resources/Topic_A/Rencontres_2014_Topic_A_KESIDOU_CARTER.pdf).
25. Kotelnikov, V. (2007). *Entrepreneurial Leadership*.
26. Krishnan, D. L. (2019). Entrepreneurial Attitude Orientation Versus Entrepreneurial Success Among Entrepreneurs in Small and Medium Enterprise (SME). 6(4).
27. Kumar, A., & Satsangi, A. K. (2021). Factors Responsible for Joining MLM Business and Relation of Mode of Association with Networker’s Satisfaction *International Research Journal of Business Studies* 14. <https://doi.org/10.21632/irjbs>.
28. Kumar, N., & Haydon, D. (2020). Industries Most and Least Impacted by COVID-19: A Market-Implied Probability of Default Perspective. Retrieved from <https://www.spglobal.com/marketintelligence/en/news-insights/blog/industries-most-and-least-impacted-by-COVID-19-a-market-implied-probability-of-default-perspective>.

29. Kuratko, D. F. (2007). Entrepreneurial leadership in 21st century. *Journal of Leadership and Organizational Studies*, 13.
30. Langowitz, N. (2019). How to Be an Entrepreneurial Leader. Retrieved from <https://entrepreneurship.babson.edu/how-to-be-entrepreneurial-leader/>.
31. Lerner, D. (2009). Etymology of the Word Entrepreneur. Retrieved from [https://www.davelechner.com/latest-posts/david\\_b\\_lerner/2009/05/etymology-of-the-word-entrepreneur.html](https://www.davelechner.com/latest-posts/david_b_lerner/2009/05/etymology-of-the-word-entrepreneur.html).
32. Liberto, D. (2021). Who is Joseph Schumpeter? Retrieved from <https://www.investopedia.com/terms/j/joseph-schumpeter.asp>.
33. Mackenzie, J. S., & Smith, D. W. (2020). COVID-19: a novel zoonotic disease caused by a coronavirus from China: what we know and what we don't. <https://doi.org/10.1071/MA20013>.
34. Macmillan. (Ed.) (2018).
35. McDaniel, B. A. (2005). A contemporary view of Joseph A. Schumpeter's Theory of the Entrepreneur. *Journal of Economic Issues*, 39, 485–489. <https://doi.org/10.1080/00213624.2005.11506826>.
36. McGrath, R. G., & MacMillan, I. C. (2000). The Entrepreneurial Mindset. Retrieved from <https://doi.org/10.5465/ame.2001.4251568>.
37. Meraku, A. (2017). Role of Leadership in Organizational Effectiveness. *Journal of Economics, Business and Management*, Vol 5.
38. Minaev, I. (2016). Master Thesis in Entrepreneurship: Entrepreneurial activity in developing countries.
39. Muhumed, A. A. (2020). What is entrepreneurship? Retrieved from [https://www.academia.edu/25526008/ENTREPRENEURSHIP\\_What\\_is\\_entrepreneurship](https://www.academia.edu/25526008/ENTREPRENEURSHIP_What_is_entrepreneurship).
40. Oglethorpe, A. (2018). Entrepreneurial leadership Part 1: Why is it important? Retrieved from <https://www.antoINETteoglethorpe.com/entrepreneurial-leadership-why-is-it-important/>.
41. Parasuraman, B. (2014). *Employee Participation in Malaysia: Theory and Practices* (First Edition ed.): UMK Press.
42. Pauceanu, A. M., Rabie, N., Moustafa, A., & Jiroveanu, D. C. (2021). Entrepreneurial Leadership and Sustainable Development-A Systematic Literature Review 13. <https://doi.org/10.3390/su132111695>.
43. Raj, A. P. (2021). Growing direct selling industry gets boost from the pandemic. *The Edge Malaysia*. Retrieved from <https://www.theedgemarkets.com/article/growing-direct-selling-industry-gets-boost-pandemic>.
44. Rezvani, M., Ghahramani, S., & Haddadi, R. (2017). Network Marketing Strategies in Sale and Marketing Products Based on Advanced Technology in Micro-Enterprises. *International Journal of Trade, Economics and Finance*, 8. <https://doi.org/10.18178/ijtef.2017.8.1.535>.
45. Roebuck, C. (2017). Critical need for entrepreneurial leaders during turbulent times.
46. Rokhman, W., & Ahamed, F. (2015). The Role of Social and Psychological Factors on Entrepreneurial Intention among Islamic College Students in Indonesia. *Entrepreneurial Business and Economics Review* 3. <https://doi.org/10.15678/EBER.2015.030103>.
47. Rosenfeld, J. (2021). The 10 Industries That Have Been Impacted the Most by COVID-19. Retrieved from [https://finance.yahoo.com/news/10-industries-impacted-most-COVID-110042511.html?guccounter=1&guce\\_referrer=aHR0cHM6Ly93d3cuZ29vZ2xiLmNvbS8&guce\\_referrer\\_sig=AQAAAEj\\_-V3axRT0N\\_nv-4w0H4131PR8dMNmDitt5gPfZbDpexgsw962i-3iHuqV5ST3UJiThpranE7yMpfHCtphphzHL5KyAv2T0IoD-nitN9QZU3jPU8JNrf6iTDCFK3Dnn2S2Ag0nu\\_N8ocnxdCsWndIRQ6DC0haXHd\\_MjonQbm](https://finance.yahoo.com/news/10-industries-impacted-most-COVID-110042511.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xiLmNvbS8&guce_referrer_sig=AQAAAEj_-V3axRT0N_nv-4w0H4131PR8dMNmDitt5gPfZbDpexgsw962i-3iHuqV5ST3UJiThpranE7yMpfHCtphphzHL5KyAv2T0IoD-nitN9QZU3jPU8JNrf6iTDCFK3Dnn2S2Ag0nu_N8ocnxdCsWndIRQ6DC0haXHd_MjonQbm).
48. Saladino, V., Algeri, D., & Auriemma, V. (2020). The Psychological and Social Impact of COVID-19: New Perspectives of Well-Being. Retrieved from <https://www.frontiersin.org/articles/https://doi.org/10.3389/fpsyg.2020.577684/full>.
49. Shuaibu, H., Kamin, Y. B., Isa, U. M., & Cledumas, A. M. (2021). The concept of entrepreneurship. <https://doi.org/10.5772/intechopen.94857>.
50. Smith, B. (2018). Attitudes. Retrieved from <https://www.encyclopedia.com/social-sciences-and-law/sociology-and-social-reform/sociology-general-terms-and-concepts/attitudes>.
51. Soiferman, L. K. (2010). Compare and contrast inductive and deductive.



52. Soomro, B. A., Shah, N., & Mangi, S. (2019). Factors affecting the entrepreneurial leadership in small- and medium-sized enterprises (SMEs) of Pakistan. An empirical evidence. *World Journal of Entrepreneurship, Management and Sustainable Development* Vol 15, pp 31–44.
53. Subramaniam, R., & Shankar, R. K. (2020). Three Mindsets of Entrepreneurial Leaders. *The Journal of Entrepreneurship*, 29, 7–37. <https://doi.org/10.1177/0971355719893498>.
54. Tan, T., Carvalho, M., Sivanandam, H., & Rahim, R. (2020). Nearly 100,000 Malaysians have lost jobs since start of MCO, says HR ministry. Retrieved from <https://www.thestar.com.my/news/nation/2020/12/09/nearly-100000-malaysians-have-lost-jobs-since-start-of-mco-says-hr-ministry>.
55. Tarabishy, A., Lloyd W. Fernald, J., & Solomon, G. T. (2003). Understanding Entrepreneurial Leadership in today's Dynamic Markets. Proceedings to the United States Association for Small Business and Entrepreneurship, 23–26.
56. Varma, N. (2013). The Role of Attitude and Aptitude in Success. Retrieved from <https://www.allerin.com/blog/role-of-attitude-and-aptitude-in-success>.
57. Vickers, J. (2018). Entrepreneurial leadership: A case study of U.S. Accelerator Executives. Retrieved from <https://utd-ir.tdl.org/bitstream/handle/10735.1/6306/ETD-5608-027-VICKERS-8597.01.pdf?sequence=6&isAllowed=y>.

# Measuring the Influence of Celebrity Endorsement on Customer Purchase Intention Using TEARS Model



Norlina M. Ali, Siti Farrah Shahwir, Mazlina Ismail, Nur Adilah Saud, and Fattematu Addella Nafis

**Abstract** Celebrity endorsement is one of the marketing strategies used to help a brand gain a new potential customer. Celebrities promote products and services in ways that help in building credibility and brand awareness among customers. Featuring celebrities in advertising campaigns brings immediate results in sales and return on investment for the organisation. Additionally, celebrity endorsement can encourage consumer purchase intention and turn them into loyal customers. However, using multiple celebrities as endorsers can lead to consumer confusion. Using the TEARS (trustworthiness, expert, attractiveness, respect, and similarity) model as an indicator, this study aimed to determine the factors that influenced the adoption of the celebrity endorsement strategy on customer purchase intention in the textile business. The information was gathered through a questionnaire survey. The survey was given to 100 respondents who came to buy the products. The findings revealed that only three factors influenced celebrity endorsement: similarity, expertise, and respect towards consumer buying intentions. Surprisingly, trustworthiness and attractiveness of the endorsers were less important factors for consumers while shopping at the outlets. It showed that consumers tended to buy more products based on the celebrity's expertise in how well the celebrity explained and demonstrated the product to the consumers through traditional or digital platforms. Moreover, the consumers were more educated and demanded products that had similar characteristics to them.

**Keywords** Celebrity endorsement · Purchase intention · TEARS model

## 1 Introduction

In 2022, the sales value from the textile, wearing apparel, leather, and footwear industry grew from 11.8 to 15.4%. From here, we can see that the textile industry is growing year by year because of heavy demands from customers for the products [1]. Many companies take this as an opportunity to sell more products to potential

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and existing customers via several methods such as aggressive promotions through advertising, sales promotion, social media marketing, hired spokespersons, and many more. Some companies tend to use celebrity endorsers as their promotional strategy since celebrities are close to their followers.

A celebrity is someone who is well-known and has a positive reputation in the thoughts and societies of the people [2]. In today's world of competitive industry, many well-known companies hire celebrity endorsement as the face of their brands. Celebrity endorsement is one of the marketing tactics employed by many businesses, firms, and non-profit organisations (NGOs) to promote products and raise awareness of green marketing and environmental concerns. Numerous companies use celebrity endorsements to make advertising campaigns more believable and credible in the eyes of customers. In addition, celebrities promote products and services in ways that help in building credibility and brand awareness among customers. Featuring celebrities in advertising campaigns brings immediate results in sales and return on investment for the organisation. Most importantly, celebrity endorsement can encourage consumer purchase intention and also turn them into returning customers.

In practice, using celebrity endorsement as a spokesperson for the brands will increase the brand identity and sales of the company. With the popularity possessed by celebrities, many companies tend to use their popularity to increase sales among potential and existing customers. Hence, companies hire celebrities to become the faces of their brands, leveraging the popularity possessed by these influential individuals in order to enhance brand recognition and appeal [3]. However, when a company uses multiple celebrities, it will automatically create misunderstanding among consumers about the brand identity and cause consumers to feel indifferent about the brand. Thus, this is not a good sign for the business since the company has already invested a lot of money to pay for the multiple endorsers' services. Moreover, choosing the right celebrity as a spokesperson for the right brand is not easy for the company. Different celebrities possess different personalities, charisma, aura, popularity, number of fans, and expertise portrayed by them.

The usage of celebrities has resulted in the development of a brand identity for the product as people learn to associate the traits of celebrities with the companies. Therefore, the purpose of this study was to determine the factors that influenced the adoption of the celebrity endorsement strategy on customer purchase intention in the Malaysian textile business. The researchers used the TEARS (trustworthiness, expert, attractiveness, respect, and similarity) model to analyse the aspects influencing customer purchase intention while selecting a suitable celebrity.

## 2 Literature Review

### 2.1 *Concept of Celebrity Endorsement*

Celebrity endorsement has long been used in marketing. Both the corporation and the celebrity benefit from the celebrity endorsement strategy. A celebrity endorsement is “an agreement between an individual who enjoys public attention (a celebrity) and an entity (e.g., a brand) to use the celebrity for the purpose of promoting the entity” [4]. According to Prakash [5] and Knoll and Matthes [6], celebrities are among the most appealing people to promote goods, brands, and even political campaigns. A celebrity serving as the brand ambassador and endorsing its claims and positions by extending his or her personality is known as a celebrity endorsement [7]. The effectiveness of celebrity endorsement marketing depends on several factors in addition to choosing the correct celebrity, such as finding the best media outlet and crafting a “smart message” that fits the celebrity’s persona [8]. Consumers frequently aspire to emulate celebrities (e.g., by dressing as they do or acting as they act). This behaviour increases the desire of consumers to buy the products linked to celebrities [9]. The social and cultural influences that celebrities have on the members of society are likely to change depending on the celebrities’ reputations.

### 2.2 *TEARS Model*

Based on the TEARS model, there are several characteristics of how celebrity endorsement affects customer purchase intent, which include trustworthiness, expertise, attractiveness, respect, and similarity [10].

#### **Trustworthiness**

Trustworthiness is the first component in the TEARS paradigm. According to a study by Melati et al. [11], the trustworthiness of the celebrity itself has a big impact on customer attitudes. Wang and Scheinbaum [12] also studied the effect of celebrity credibility on consumers’ propensity to buy the promoted product. Additionally, studies found that celebrity trustworthiness affects customers’ purchasing decisions in a positive way [13]. Purchase intention is positively impacted by the celebrity’s credibility, according to another study [14]. The most important issue being examined in the beauty industry is the public figure’s credibility [12]. This issue has a stronger association with social media influencers since they have identified attractiveness as a key to influencing consumer opinions. De Brito Silva et al. [15] also looked into how product endorsement would be impacted by an ad developed for the Instagram platform.

## Expertise

The term “expertise” describes the information, experiences, or abilities that a brand endorser possesses in relation to the endorsed product. Expertise is accepted as the most important component for endorsement to be successful. The level of celebrity expertise determines the effectiveness of a brand [16]. The more expertise a celebrity possesses, the more effective the brand they endorse. That is why an endorser needs to master the field they engage in. The endorsement becomes more effective when it is done by celebrities or social media influencers compared to if it is done by the brand owner itself. This is because customers usually think that celebrities are more expert [17]. So, it is important for certain brands to choose the right celebrities who are experts in the field they are promoting. Celebrities seem to be more competent and resourceful to external information seekers. Moreover, expert celebrities are generally more reliable and credible. Moreover, the main reason Generation Y follows their idols and celebrities on social media sites such as Facebook, Twitter, Snapchat, and Instagram is to stay up to date with their lifestyles and personalities. This pattern could be the reason why people have a soft spot in their hearts for these celebrities [18].

The celebrity expert facilitates consumer purchase intention by valuing marketing strategies that support business success. Celebrity reputation boosts a company’s marketing efforts by influencing the consumers’ impulsive purchase behaviour [19]. The ability of celebrities to sell a product is crucial in influencing consumer purchasing decisions. Customers plan less and rely more on the endorser’s knowledge to direct their purchase decisions. Because of the celebrities’ expertise, customers can understand the product better, thus encouraging them to purchase it. Most of the audience assesses the advertising message depending on the authority of the source [12]. The credibility of the experts provides consumers with useful information, thus increasing the effectiveness of the business promotion. A celebrity with a high level of credibility attracts the consumers’ attention because it has an impact on their decision-making and purchase intention. Customers change their thoughts towards the brand when the source is reliable, thus assuring favourable purchase intention [20].

## Attractiveness

In businesses, celebrity persona plays an important role in increasing brand recognition especially when the brand is still new in the market. Celebrities increase brand sales and help people establish a favourable perception of the brand. Persuasion happens through identification when fans see something in a celebrity that they find attractive. The TEARS model identifies three subcomponents of the general concept of attractiveness: physical attractiveness, respect, and similarity [21]. Physical attractiveness includes characteristics that consumers may perceive in an endorser, such as intellectual skills, personality properties, lifestyle characteristics, and athletic talent [10].

Undoubtedly, many industries have improved their marketing strategies with new concepts in the era of globalisation and competitiveness. Because the fashion industry is booming, marketers are using celebrities' attractiveness as a creative way to attract customers. People are frequently awed by the lifestyles of the endorsers and their devotion to their psychical traits. Today, nevertheless, this core idea has led to brands leveraging celebrity appeal as a form of influence to raise brand recognition. In comparison to endorsers who are not attractive, those who are attractive succeed more in capturing purchasers' intention to acquire or purchase. Celebrities' physical attraction plays a significant role in offering the markets an advantage when promoting the goods that their companies have to offer. Products are frequently chosen by consumers based on similarity. Customers get the impression from this kind of endorsement that the celebrity's appeal complements the qualities of the brand [22].

Consumers perceive celebrities as attractive because they represent great achievements. They act as a role model and people aspire to them. Celebrities possess a charisma that creates an aura, thus motivating people to become like them [23]. Additionally, the celebrity attraction adds to the advertising's allure and allurement. Given the justification, celebrity endorsement helps the brand advertisement, which in turn influences the consumer's buying intention [24]. The advertising industry places high importance on celebrity brand endorsements. The physical attractiveness of the endorser appears to enhance the firm's reputation by raising its status among consumers. Additionally, the physical beauty of celebrities is a significant marketing strategy that influences people's purchase intentions. It increases people's purchasing power, which shifts their focus to product attributes. Moreover, celebrity attraction encourages customers to make purchases [25]. Without question, a celebrity's attractiveness plays a key role in advertising the company's products. The brand message becomes fascinating and appealing, as a result. Through their personality traits, endorsers are instrumental in grabbing consumers' attention.

## **Respect**

Respect refers to the quality of being admired or even esteemed due to the endorser's accomplishments. Celebrities are possibly respected because of the factors of their acting performance, athletic prowess, unique personalities, their opinion on important societal issues, and other qualities. Celebrities who are respected are also generally liked, and likeability arises from the endorsers because of their behaviour, physical appearance, or other traits [26]. Celebrity endorsers are most effective in influencing consumers' attitudes towards the product that celebrities represent when the celebrities are respected by the public [27]. If a celebrity endorser is someone respected and well-known, the respect element towards the celebrities might extend to the brand, and this could lead to a high level of acceptance and shows a positive attitude towards the brand. Previous studies found that when celebrities are respected, consumers are far more likely to purchase the products or services endorsed by them. However,

another study showed different results that the reputation of the celebrity had a weak positive relationship with the reputation of the celebrity and branding [28].

### **Similarity**

Similarity represents the degree to which an endorser matches an audience in terms of characteristics pertinent to the endorsement relationship based on gender, age, and ethnicity. Having a similarity with celebrities is one of the factors considered by the consumer in arousing consumer intentions. In addition, the similarity concept is important in marketing communication with the assumption that consumers will easily believe and get on messages from sources that share similar characteristics with them. That is why celebrities are selected upon their characteristics that match well with the targeted consumers. A study showed that consumers felt sharing similar opinions with celebrity endorsers can have a significant effect on their purchase intentions [27]. In conclusion, if consumers perceive themselves to have a close similarity with a celebrity or feel they have something in common with him or her, then the customers tend to purchase the product that has been promoted. The bond of similarity between the endorser and the consumers increases the source level of persuasion. This explains why marketers use regular-looking celebrities that consumers can relate to Belch and Belch [29].

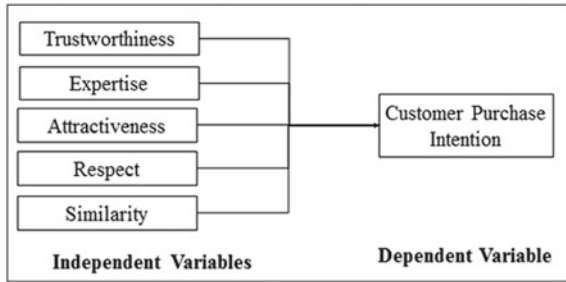
### **2.3 Purchase Intention**

Purchase intention represents “the possibility that consumers will plan or willingness to purchase a product or service after the evaluation process takes place” [30]. Perceived value, brand trust, price, quality of products, and other factors may affect a customer’s purchase decision. Past research found that consumers’ purchase intentions are easily influenced by many external factors in consumer decision-making processes [31]. Consumer purchase intentions are easily built up through promotional strategies, thus their attitudes towards the promoted products are easily affected by the popularity and image of the celebrity doing the promotion. Celebrity endorsers have been seen by customers as their idols, and these customers are most likely to stay using the same brand used by celebrities. Therefore, celebrities can be considered powerful influencers that cause consumers to repeat purchases of the products.

### **2.4 Research Framework**

Based on the literature review, the following research framework was formulated. This study was based on TEARS model, as discussed previously (see Fig. 1).

**Fig. 1** TEARS model



### 3 Methodology

In this study, the researchers employed a quantitative method to gather the information needed to compute all the elements for the study’s outcome. A total of 100 respondents were employed in this study, particularly customers who were actively visiting these two textile outlets, which were Jakel Trading Sdn. Bhd. and Gulati’s Store Sdn. Bhd. in Kuala Lumpur. As the minimal sample size was 90 respondents, this sample size was regarded as sufficient [32].

To collect all the information from the respondents, this study employed convenience sampling. The data was gathered through a questionnaire distributed to the customers at Jakel Trading Sdn. Bhd. and Gulati’s Store Sdn. Bhd. since these two textile enterprises employed celebrity endorsement as a promotional strategy. The respondents were selected randomly using the convenience sample approach depending on their availability at the time the researchers distributed the questionnaire. The data acquired from the questionnaire were analysed using frequency analysis, descriptive analysis, and Pearson correlation analysis in this study. The study utilised regression analysis to examine if the elements may be accepted and used for prediction. The researchers also utilised coefficients to determine the relevance of the independent and dependent variables.

### 4 Analysis

As shown in Table 1, female respondents made up 66.0% of the total number of respondents, while male respondents made up the remaining 34.0%. Additionally, there were five age categories from 18 years old to 41 years old and older in the age segment. Thirty-eight % of the respondents were between 18 and 25 of age, while 11 % of respondents were beyond the age of 41. Meanwhile, in terms of marital status, the majority of the respondents (51.0%) were single. The majority of respondents worked in the private sector as this group contributed the highest percentage (59.0%). In terms of the range of income, the range of RM1,000–RM1,500 formed the majority among the respondents (45.0%). In conclusion, most of the respondents were single



females between 18 and 25 years old. Most of them had SPM level as their education level, worked mostly in the private sector, and earned a monthly salary between RM1,000 and RM1,500.

The mean values for factors such as purchase intention (3.2240), trustworthiness (3.5440), expertise (3.6640), attractiveness (3.5440), respect (3.6620), and similarity (2.5640) are shown in Table 2. The mean value revealed the location of the data centre as well as the feedback and answer provided by the respondents on a scale from 1 (strongly disagree) to 5 (strongly agree). Overall, the respondents concurred that all the factors such as expertise, respect, trustworthiness, attractiveness, and

**Table 1** Respondents' profile

Demographic profile		Percentage
Gender	Male	34.0
	Female	66.0
Age	18–25 years old	38.0
	26–30 years old	20.0
	31–35 years old	19.0
	36–40 years old	12.0
	41 years and above	11.0
Marital status	Single	51.0
	Married	39.0
	Divorced	10.0
Education level	SPM	43.0
	Diploma	30.0
	Degree	19.0
	STPM	4.0
	Certificate (skills)	4.0
Occupation level	Student	10.0
	Government servant	15.0
	Private	59.0
	Professional	5.0
	Business	5.0
	Not working	3.0
	Other	3.0
Monthly income	Less than RM1,000	16.0
	RM1,000–RM1,500	45.0
	RM1,500–RM2,000	16.0
	RM2,000–RM2,500	11.0
	RM2,500–RM3,000	7.0
	More than RM4,000	5.0
Total		100

**Table 2** Descriptive analysis

Variables	N	Mean	Std. Deviation
Purchase intention	100	3.2240	0.80618
Trustworthiness	100	3.5440	0.61238
Expertise	100	3.6640	0.71457
Attractiveness	100	3.5440	0.70443
Respect	100	3.6620	0.69147
Similarity	100	2.5640	0.87358

similarity were significant for customer purchase intentions. According to the table, expertise has the highest mean value of 3.6640, whereas similarity has the lowest mean value of 2.5640.

Table 3 reveals the correlation between TEARS model with celebrity endorsement and purchase intention. The results showed a moderately positive correlation between the likelihood of making a purchase and the trustworthiness and expertise factors, with  $n = 0.571$  and  $n = 0.640$ , respectively. At the same time, there was a moderate positive correlation between the factor of purchase intention and attractiveness, which represented  $n = 0.692$ , and the respect factor, which represented  $n = 0.698$ . Meanwhile, the similarity factor with  $n = 0.495$  and the purchase intention had a weakly positive link. The results demonstrated that similarity, trustworthiness, expertise, attractiveness, and respect may all be used to enhance purchase intention. Consumer purchase intention was shown to positively correlate with all the independent factors. The results also showed that the five factors including trustworthiness, expertise, attractiveness, respect, and similarity were related to customer purchase intention. It was discovered that purchase intention had a moderate positive connection with all the independent factors. The findings indicated that respect, with a correlation factor of 0.698, which was close to 1.0, was the largest factor affecting the customer purchase intention, whereas the similarity factor, with a correlation of 0.495, was the least important.

Based on the rules of thumb, an adjusted  $R^2$  value greater than 0.85 (85%) can be considered good and acceptable and can be utilised for predicting. An adjusted  $R^2$  for this study is 0.661. This indicates that the independent variables chosen can account for 66% of changes in the dependent variable. Due to the omission of various other factors, the remaining 34% cannot be explained (Table 4).

Table 5 shows the extracted coefficients from SPSS, the value of unstandardised coefficient (B and standard Error), Standardised Coefficients (Beta), T value, and the significant value.

**Trustworthiness factor, purchase intention**

Since the p-value for the trustworthiness factor (0.720) was larger than 0.05 when it should be less than 0.05 ( $p < 0.05$ ), it was not a significant variable for customer purchase intention. The trustworthiness factor must be eliminated from this model because the p-value was not significant.

Table 3 Correlation analysis

	Purchase intention	Trustworthiness	Expertise	Attractiveness	Respect	Similarity
Purchase intention	Pearson correlation	<b>0.571**</b>	<b>0.640**</b>	<b>0.692**</b>	<b>0.698**</b>	<b>0.495**</b>
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000
	N	100	100	100	100	100
Trustworthiness	Pearson correlation	0.571**	0.621**	0.621**	0.650**	0.224*
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.025
	N	100	100	100	100	100
Expertise	Pearson correlation	0.640**	0.621**	0.625**	0.686**	0.171
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.088
	N	100	100	100	100	100
Attractiveness	Pearson correlation	0.692**	0.625**	1	0.705**	0.373**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000
	N	100	100	100	100	100
Respect	Pearson correlation	0.698**	0.686**	0.705**	1	0.188
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.061
	N	100	100	100	100	100
Similarity	Pearson correlation	0.495**	0.171	0.373**	0.188	1
	Sig. (2-tailed)	0.000	0.088	0.000	0.061	0.000
	N	100	100	100	100	100

\* The correlation is significant at the 0.05 level (2-tailed)

\*\* Correlation is significant at the 0.01 level (2-tailed)

**Table 4** Regression analysis

Model	R	R square	Adjusted R square	Std. Error of the estimate
1	0.823 <sup>a</sup>	0.678	0.661	0.46959

<sup>a</sup> Predictors: (Constant), Similarity, Expertise, Trustworthiness, Attractiveness, Respect

**Table 5** Coefficients

Model	Unstandardised coefficients		Standardised coefficients	t	Sig
	B	Std. Error	Beta		
(Constant)	-0.763	0.307		-2.485	0.015
Trustworthiness	0.040	0.110	0.030	0.359	0.720
Expertise	0.251	0.098	0.222	2.566	0.012
Attractiveness	0.196	0.107	0.171	1.832	0.070
Respect	0.402	0.112	0.345	3.604	0.001
Similarity	0.297	0.059	0.322	5.055	0.000

<sup>a</sup> Dependent Variable: Purchase Intention

**Expertise factor, purchase intention**

The expertise factor was a significant variable towards consumer purchase intention. It was evident that the p-value for expertise, which was 0.012, was less than 0.05. It significantly and positively correlated with beta = 0.251.

**Attractiveness factor, purchase intention**

The p-value for the attractiveness factor (0.70) was larger than 0.05 when it should be less than 0.05 (p 0.05). Thus, it was not a significant variable for customer purchase intention. The attractiveness factor must be eliminated from this model because the p-value was not significant.

**Respect factor, purchase intention**

The respect factor was a significant variable towards consumer purchase intention. It was evident that the p-value for respect, which was 0.01, was less than 0.05. It significantly and positively correlated with beta = 0.402.

**Similarity factor, purchase intention**

The similarity factor was a significant variable towards consumer purchase intention. It was evident that the p-value for similarity, which was 0.00, was less than 0.05. It significantly and positively correlated with beta = 0.297.

## 5 Findings and Conclusion

The findings revealed three factors, namely respect, similarity, and expertise, which had a substantial impact because the p-value was less than 0.5. Since the p-value was greater than 0.05, the other two elements (trustworthiness and attractiveness) had no bearing on the decision to choose a celebrity endorsement. Researchers can also get the conclusion that, with a p-value of  $0.00 < 0.05$ , the respect factor was the main factor influencing the customer purchase intention. It significantly and positively correlated with  $\beta = 0.402$ . It demonstrated that the most crucial factor in selecting the endorser for this study was respect.

For Jakel, well-known personalities like Zizan Razak, Aaron Aziz, Jep Sepahtu, Nabil Ahmad, Dato' AC Mizal, Dato' Aliff Syukri, Hairul Azreen, and Awal Ashaari served as endorsers for men's fashion. Meanwhile, Dato' Siti Nurhaliza, Hanis Zalikha, and Ayda Jebat were chosen for women's clothes. Also, Lara Alana, Upin, and Ipin were chosen for children's apparel to promote the products and to improve brand awareness and image among customers. Meanwhile, Gulati's Silk House ambassador employed Zahirah McWilson as a celebrity endorser.

In selecting the right celebrity endorsement, the company evaluated the quality and criteria of the endorser before hiring them. Based on the findings, consumer purchase intention in textile stores was positively impacted by the respect, knowledge, and similarity factors in celebrity endorsement. To persuade people to buy the items, celebrity endorsers had to exhibit respect. Respected celebrities tended to be liked as well, and likability came from the endorsers due to their behaviour, appearance, or other attributes [26]. In this case, Jakel chose the right celebrities to promote and persuade their customers to buy more clothes and fabrics from their outlets, especially during a festive session. The selection of Dato' Siti Nurhaliza as Jakel's endorser was a wise decision since she was actively involved in the community, which brought a significant impact on the business.

In addition, when celebrities recommended products related to the subjects that had made them famous, they would be called experts [33]. It took place when the product experts knew how to use their popularity to persuade their followers to support and purchase the products. Additionally, consumers were more drawn to a brand when they saw one of their favourite celebrities using or consuming the products [34]. The more well-known a celebrity was, the more people would purchase the products from them, compared to less well-known celebrities. Besides, human brains detect similarities between celebrities and the product they endorse [35]. It happens when there is a wide range of products offered and target audiences are heterogeneous. From the findings in this study, the similarity between the endorser and the audience was found to be significant [10]. A celebrity must make sure the brand and their persona were compatible. When companies and celebrities collaborated, it would immediately inspire customers to buy more items.

In conclusion, we can see that the three factors of a celebrity's similarity, expertise, and respect have the greatest influence on consumers' intent to make purchases,

followed by the two other factors namely trustworthiness and attractiveness. Interestingly, Malaysians are less likely to be persuaded to buy products from textile stores by a celebrity endorser's attractiveness. Normally, customers are more easily attracted to celebrities who possess physical attractiveness, which gains their interest in the brands. However, in this study, the element of respect possessed by the celebrities contributed more merit to hiring the celebrity as a spokesperson for the company. Finally, it would be interesting if researchers can explore the role of social media influencers in inspiring purchase intention among online buyers. The reason researchers choose social media influencers as a topic for future study is that the cost of paying for their services is cheaper rather than the company using a celebrity as a spokesperson.

## References

1. Department of Statistics Malaysia: Monthly Manufacturing Statistics Malaysia, July 2022 (2022).
2. Patel, P. C.: Impact of Celebrity Endorsement on Brand Acceptance. *Journal of Consumer Behavior*, 4(1), 36–45 (2009).
3. Escalas, J. E., Bettman, J. R.: Managing Brand Meaning Through Celebrity Endorsement. *Journal of Brand Meaning Management*, pp. 29–52 (2015).
4. Bergkvist, L., Zhou, K. Q.: Celebrity Endorsements: A Literature Review and Research Agenda. *International Journal of Advertising*, 35(4), 642–663 (2016).
5. Prakash, N.: Who Celebrities are Endorsing in the 2020 Presidential Election, Marie Claire, [www.marieclaire.com/politics/g33798127/celebrity-endorsements-2020-presidential-election](http://www.marieclaire.com/politics/g33798127/celebrity-endorsements-2020-presidential-election), last accessed 18 October 2020, (2020).
6. Knoll, J., Matthes, J.: The Effectiveness of Celebrity Endorsements: A Meta-Analysis. *Journal of the Academy of Marketing Science*, 45(1), 55–75 (2017).
7. Shenje, J.: Midas Touch or Time Bomb? A Look at the Influence of Celebrity Endorsement on Customer Purchase Intentions: The Case Study of Fast Foods Outlet Companies in Harare, Zimbabwe. *African Journal of Business Management*, 11(15), 347–356 (2017).
8. Kanaujia, V.: Why Celebrity Endorsement Will Fail. [www.linkedin.com/pulse/why-celebrity-endorsement-fail-Vineet-kanaujia](http://www.linkedin.com/pulse/why-celebrity-endorsement-fail-Vineet-kanaujia), last accessed 29 June 2020, (2016).
9. Osei-Frimpong, K., Donkor, G., Owusu-Frimpong, N.: The Impact of Celebrity Endorsement on Consumer Purchase Intention: An Emerging Market Perspective. *Journal of Marketing Theory and Practice*, 27(1), 103–121 (2019).
10. Shimp, T. A.: Advertising, Promotion and Supplemental Aspects of Integrated Marketing Communications. Mason, Ohio: Thomson Southwestern. *Journal of Marketing Communications*, 10 (4), 289–290 (2003).
11. Melati, I., Indira Budiwan, T., Sarjono, H.: The Influence of Celebrity Endorsement on Consumer's Attitude: A Study Case of Smartphone Brands in Jakarta, Indonesia. *International Journal of Engineering and Technology*, 7(4), 30–32 (2018).
12. Wang, S. W., Scheinbaum, A. C.: Enhancing Brand Credibility via Celebrity Endorsement: Trustworthiness Trumps Attractiveness and Expertise. *Journal of Advertising Research*, 58(1), 16–32 (2018).
13. Mansour, I. H. F., Diab, D. M. E.: The Relationship Between Celebrities' Credibility and Advertising Effectiveness. *Journal of Islamic Marketing*, 7(2), 148–166 (2016).
14. Onu, C. A., Nwaulune, J., Adegbola, E. A., Nnorom, G.: The Effect of Celebrity Physical Attractiveness and Trustworthiness on Consumer Purchase Intentions: A Study on Nigerian Consumers. *Management Science Letters*, vol. 9, 1965–1976 (2019).

15. De Brito Silva, M. J., de Farias, S. A., Grigg, M. H. K., de Azevedo Barbosa, M.D.L.: The Online Engagement and The Role of Digital Influencers in The Product Endorsement on Instagram. In CLAV 2019, (2019).
16. Amos, C., Holmes, G., & Strutton, D.: Exploring the Relationship Between Celebrity Endorser Effects and Advertising Effectiveness: A Quantitative Synthesis of Effect Size. *International Journal of Advertising*, 27(2), 209–23 (2008).
17. Shiyun, Jo-Yun: Effects of Celebrity, Social Media Influencer, and Peer Endorsements on Consumer Responses Toward a Celebrity-Owned Brand: The Role of Source Credibility and Congruency. *International Journal of Internet Marketing and Advertising*, 17(1-2), 133–161 (2022).
18. Abdurrahman, Owusu, Soladoye, Kalimuthu: Celebrity-Brand Endorsement: A Study on Its Impacts on Generation Y in Nigeria. *Asian Journal of Scientific Research*, 11 (3), 415–427 (2018).
19. Koay, K. Y., Teoh, C. W., Soh, P. C. H.: Instagram Influencer Marketing: Perceived Social Media Marketing Activities and Online Impulse Buying. *First Monday*, 1–10 (2021).
20. Weismueller, J., Harrigan, P., Wang, S., Soutar, G. N.: Influencer Endorsements: How Advertising Disclosure and Source Credibility Affect Consumer Purchase Intention on Social Media. *Australas. Mark. J.* 28 (2020).
21. Shimp, T. A.: Advertising Promotion and Other Aspects of Integrated Marketing Communications, Eighth Edition, Mason, OH: South-Western Cengage Learning (2010).
22. Lui Mengmeng: Determining the Role of Influencers' Marketing Initiatives on Fast Fashion Industry Sustainability: The Mediating Role of Purchase Intention. *Front. Psychol., Organisational Psychology* (2022).
23. Kumar, S., Kaur, M., Balpreet, P.: Factors Influencing Consumer Choice of Celebrity Endorsements and Their Consequent Effect On Purchase Decision. *International Journal Emergence Technology*, 10, 392–397 (2019).
24. Lee, C. H., Chen, C. W.: Impulse Buying Behaviours in Live Streaming Commerce Based on the Stimulus-Organism-Response Framework. *Information*, (12) 241 (2021).
25. Arora, N., Prashar, S., Parsad, C., Tata, S. V.: Influence of Celebrity Factors, Consumer Attitude and Involvement on Shoppers' Purchase Intention Using Hierarchical Regression Decision. 46, 179–195 (2019).
26. Bryne, A., Whitehead, M., Breen, S.: The Naked Truth of Celebrity Endorsement. *British Food Journal*, 105 (4), 288–296 (2003).
27. Karen, S. F., Cathy C. C.: Wither The Impact of Celebrity Endorsement. *Journal of Communication and Media Technologies, Special Issue-December 2015* (2015).
28. Dissanayake, D. M. R., Weerasiri, R. A. S.: The Impact of Perceived Effectiveness of Celebrity Endorsement on Perceived Brand Personality. *Journal of Accounting and Marketing*, 6, 244 (2017).
29. Belch, G. E., Belch, M. A.: Advertising and Promotion: An Integrated Marketing Communications Perspective. 5th Edition New York. McGraw Hill (2001).
30. Wu, P. C. S., Yeh, G. Y. Y., Hsiao, C. R.: The Effect of Store Image and Service Quality on Brand Image and Purchase Intention for Private Label Brands. *Australasian Marketing Journal*, 19, 30–39 (2011).
31. Sheu, J. B.: A Hybrid Dynamic Forecast Model for Analyzing Celebrity Endorsement Effects on Consumer Attitudes. *Mathematical and Computer Modeling*, 52 (9), 1554–1560 (2010).
32. Ong, M. H. A., Mahmud, Z.: An Exploratory Factor Analysis of Market Survey Instruments for Automobile Industry: A study on Malaysian Motor Vehicle Industry. *Thailand Statistician*, 18(4), 481–490 (2020).
33. Biswas, D., Biswas, A., Das, N.: The Differential Effects of Celebrity and Expert Endorsements on Consumer Risk Perceptions. *Journal of Advertising*, 35 (2), 17–31 (2006).
34. Zauner, A., Koller, M., Fink, M.: Sponsoring, Brand Value and Social Media. *Revista de Administração de Empresas*, 52(6), 681–691 (2012).
35. Jill, E.: How Much Influence Do Celebrity Endorsements Really Have on Our Purchasing Decision. Retrieved 28 September 2016, <http://www.organicauthority.com/sanctuary/how-much-influence-do-celebs-really-have-on-our-purchasing-decisions.html> (2013).

# Use of ICT Towards Women's Business Performance: The Case of SMEs in Padang City of Indonesia



Fivi Anggraini, Daniati Putri, and Neva Novianti

**Abstract** SMEs' adoption of digital technology is one of the potential means to accelerate business development opportunities to be more efficient, competitive, and sustainable. The COVID-19 pandemic and the impacts of limitations on community movement is the right time for SMEs to digitise their business process. This study aims to analyse information and communication technology (ICT) use on women's business performance through a case study in Padang city of Indonesia. This study used quantitative methods with 120 women's SMEs in the city as the samples. The Partial Least Square (PLS) software was used to examine the hypotheses. This study empirically proved that ICT's use significantly affected the business performance of women's SMEs. Consequently, using ICT improved the business performance of women's SMEs in the study area. The findings can be used to motivate women's SMEs to be mindful of ICT as it is becoming popular to be implemented with its various benefits in the business process either during or after the COVID-19 pandemic.

**Keywords** Business performance · ICT · Women entrepreneurs

## 1 Introduction

Information communication technology (ICT) has become a pillar of socioeconomic development worldwide and is necessary during a pandemic [1]. The current COVID-19 pandemic can be a moment to start digitising businesses, especially those run by women. The Insight Center [2] said online retail transactions significantly increased from 4.7 to 28.9% during the pandemic, while offline transactions dropped from 52.3 to 28.9%. The increment includes business transactions among women entrepreneurs, especially in Small and Medium Enterprises (SMEs), which currently account for more than 50% owned and managed by women. According

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to data from the Ministry of Cooperatives and Small and Medium Enterprises, the number of entrepreneurs in Indonesia is continuously increasing. The number of entrepreneurs as a whole and the number of women entrepreneurs in Indonesia are also increasing. According to the Bank Indonesia data, the number of SMEs in Indonesia in 2020 was 59.2 million, whereby 37 million were women entrepreneurs. Women entrepreneurs mainly engage in various business fields such as culinary, education, garment, fashion, handicraft, cosmetics, and others. This data shows the participation and role of women in supporting the Indonesian economy.

Digital development is one of the potentials that open up opportunities for many women entrepreneurs to develop their businesses. Women entrepreneurs refer to the women or a group of women who are wholly or partially own, innovate, regulate, and adapt a business activity [3]. ICT, also known as information communication technology is a digital platform that generates opportunities for entrepreneurial activity by utilising tools such as the internet, mobile technology, and social computing. Emerging digital ICT technologies have strengthened business while simultaneously solving problems in business processes for women entrepreneurs [4].

In the entrepreneurial process, innovation involves various dimensions, including individual, organisational, environmental, and collaborative processes in the business environment. Salam and Majumar [5] examined how ICT enabled traditional housewives to reach a targeted audience and investigated the effects of ICT on women's entrepreneurship. Pappas et al. [6] mentioned the emerging digital platforms, such as ICT, that can create opportunities for new types of entrepreneurial activity among women and reveal women's entrepreneurial capabilities. However, few women are leveraging technology to fulfil their entrepreneurial aspirations in business [7].

Looking at the Indonesia scenario, a study on the use of ICT and its impact on the performance of Small and Medium Enterprises (SMEs) has been widely studied, such as Djatikusumo [8] in Malang, East Java, Endraswari [9] in Bantul Yogyakarta, and Basry and Sari [10] in Indonesia. The results stated that using ICT for SMEs can increase productivity, build new business opportunities, and speed up communication and connection to global networks with an international business partner. Nonetheless, there is very little study on the use of ICT on the business performance of women entrepreneurs in Indonesia. As far as we know, only a study by Widiatmoko et al. [11] evaluated the internet adoption of women entrepreneurs to improve marketing performance. However, this study specified internet adoption and women entrepreneurs. Besides the lack of studies, the previous research did not comprehensively discuss the adoption of ICT for women entrepreneurs as the actual current problem. Therefore, it is crucial to carry out further research to fill in the gap in the previous studies. The focus should be given to the business performance of women SMEs.

Hence, this study aims to analyse the use of ICT on women entrepreneurs' business performance in the city of Padang, West Sumatra. The findings of this study can be used to promote an understanding of the importance of using ICT as one of the components that facilitates business activities among women entrepreneurs. Apart from that, these findings will hopefully meet the government's programme

in promoting digital technology to empower women involved on a larger economic scale.

## **2 Literature Review**

### ***2.1 Information Communication Technology (ICT) in SMEs***

ICT combines all network components, applications, devices, and systems, enabling organisations and individuals to interact in the digital world [1]. One form of ICT is mobile phones, supported by wireless networks and the internet. The list of ICT components, such as telephones and computers, has existed for decades [12]. Others, such as digital TV, robots, and smartphones, are newer models. Using digital social media platforms, access to information about business processes and interactions with customers around the world will offer digital-based business management solutions that are superior and competitive. ICT, as a new business model for SMEs, provides new market access and sources of competitive advantage Apulu et al. [13] and Hoque et al. [14]. ICT is the most powerful tool for building, creating, sharing, transferring knowledge, and enhancing capabilities even in different locations, expanding economies, and among many people [15]. Without ICT, SMEs will have serious and fatal consequences in the future and will risk being left behind economically, with all its implications. Digital technology strengthens a business and can increase the level of uncertainty and solve the problems of many SME businesses Okundaye et al. [16] and Nambisan [17].

### ***2.2 Business Performance of Women SMEs***

Women SMEs continue to grow in Indonesia. During the COVID-19 pandemic, the percentage of women entrepreneurs in Indonesia was quite high at 21%, much higher than the global average of 8%. This increase was because many women who experienced layoffs turned to SMEs. The high number of women entrepreneurs continues to increase, causing the phenomenon of entrepreneurial characteristics to change [18]. Economic development of a country in poverty alleviation, the role of women's entrepreneurship is very necessary [19]. Women entrepreneurs are women who can take risks in business and manage them. Women entrepreneurs are assumed to experience gender discrimination and more difficulties than their male counterparts in starting and running a business [16]. Even when issues such as barriers to women entrepreneurs are raised in gender and entrepreneurship debates, it is usually done from the perspective that women entrepreneurs are an untapped resource and have the potential to contribute to a country's economic performance.

### ***2.3 The Effect of Using ICT on the Business Performance of Women SMEs***

Information Communication Technology (ICT) has been recognised as an important indicator of women's empowerment. According to Noor et al. [20], the use of ICT among women entrepreneurs of SMEs can expand the participation of men and women in the country's economic growth. For this reason, women entrepreneurs must be able to express the development of their personalities and capacity to do business through ICT [21]. According to Noor et al. [20], there is a strong positive correlation between the levels of economic digitisation and labour productivity. Yang et al. [1] said that using ICT in the business processes of women entrepreneurs of SMEs provides many benefits, such as reduced transaction costs, online collection and processing of information, and faster and more accurate access to information. Thus, knowledge-based ICT is important for women entrepreneurs to access the labour market and help empower women in society [22]. ICT is a new digital platform for women entrepreneurs who are required to use it in business. It provides many benefits to encourage the increased performance of women entrepreneurs [7, 23]. For this reason, the standard of living and education level of women entrepreneurs are the factors for the success of women's empowerment in developed countries.

*H1: There is an effect of using ICT on the business performance of women SMEs.*

## **3 Method**

The population of this research was the women's SMEs registered at the Department of Cooperatives & SMEs, Padang City, West Sumatra. This study used a quantitative approach with a sampling technique using random sampling with a simple random type. The data collection technique used in this study was the survey method. Questionnaires were distributed directly to SME women entrepreneurs. The analysis technique to analyse the data was conducted using the Partial Least Squares Equation Modelling (PLS-SEM). ICT is a digital platform that generates opportunities for entrepreneurial activity by leveraging tools such as the Internet, mobile technology, and social computing. A total of 19 question items for ICT adoption were used to measure the underlying construct of the data using a Likert scale from 1 for very dissatisfied to 5 for satisfied.

## 4 Result and Discussion

The distribution of questionnaires was sent directly. A total of 124 questionnaires were distributed. All 122 respondents returned complete responses, except two incomplete responses, and were excluded from the analysis. The number of questionnaires that can be processed in this study amounted to 120. The detailed process of collecting questionnaires can be seen, which showed that the response rate was 96.8 or 96.8% of the total respondents. The characteristics of respondents who answered the questionnaire were dominated by SME business actors, with 86 business owners or 71.7%, and the staff position. Based on the education level, there were more senior high schools, with a total of 93 or 77.5% compared to only five junior high schools or 4.2%, with the age of respondents ranging from 26 to 35 years old and as many as 53 or (44.2%). Based on the type of business, women's SMEs were mostly engaged in the culinary business with 36 respondents (30%), followed by the fashion business with 25 respondents (20.8%). From this business, the monthly income from these business actors ranged from 5 million IDR to 3 million IDR with 53 respondents (3.44%), and the highest number of respondents used m-commerce as their type of ICT, with 89 respondents (74.2%).

Assessment of the measurement model for all indicators was carried out by testing the loading factor, Cronbach's alpha composite reliability, and average variance extracted (AVE). All indicators in Table 1 are valid and meet the criteria recommended by Hair et al. [24] and are declared good categories because the outer loading value is  $>0.7$ . Factors that have a value lower than the recommended value of 0.7 are omitted.

Cross-loading and Fornell-Larcker criteria were used to test the discriminant validity of the concept [25]. Based on the results obtained in Table 2, it can be stated that the indicators used in this study have good discriminant validity in compiling their respective variables [24]. The values of R square and Q square of the results of this study are in Table 3. The R square test obtained a coefficient value of 0.427. Thus, it can be concluded that the contribution of the women's business performance variable to the formation of ICT is 42.7%, and the contribution given by all these variables is weak [26]. Structural model measurements are shown in Fig. 1.

The results of hypothesis testing with a P-value of 0.000 explained the significant effect of using ICT on the performance of women's SMEs (see Table 4). The results indicated that the application of ICT can benefit the business performance of women's SMEs in developing their businesses. This proved that women's SMEs treat ICT as an important tool for business success. This finding is also in line with the previous studies, which mentioned that proper use of ICT could provide various opportunities for women entrepreneurs' business development. In fact, ICT is also a power to drive business globally [27–29, 30, 31].

**Table 1** Results of the measurement model

Constructs	Factor loading	Cronbach's alpha	Composite reliability	AVE
Rule of thumb	>0.7	>0.7	>0.7	>0.5
<i>Information communication and technology (ICT)</i>		0.914	0.929	0.593
Self-confidence as a user of ICT (ICT1)	0.739			
M-commerce is easier for business transactions because its equipment i.e., smartphones can move freely and easily (ICT4)	0.765			
Information communication technology and information systems are implemented regularly in business (ICT5)	0.808			
Having an interest in allocating the investment for implementing ICT in business (ICT8)	0.803			
The implementation of ICT lifts up business profits (ICT9)	0.755			
Management decision by the implementation of ICT provides a quick response to consumers (ICT13)	0.756			
As entrepreneurs must be able to give support in using ICT (ICT14)	0.762			
Entrepreneurs must be acquainted with the use of ICT (ICT15)	0.771			
Having an interest in reskilling knowledge of ICT (ICT17)	0.770			
<i>Business performance</i>		0.887	0.914	0.640
I am satisfied that the increase in employment growth has an impact on economic growth in the region (WP8)	0.770			

(continued)

**Table 1** (continued)

Constructs	Factor loading	Cronbach’s alpha	Composite reliability	AVE
I need high efficiency in operation (WP9)	0.838			
I need high productivity (WP10)	0.797			
I need to generate better business performance than business competitors (WP11)	0.814			
My product must be able to satisfy consumers (WP13)	0.758			
In general, I need business performance always improve (WP14)	0.821			

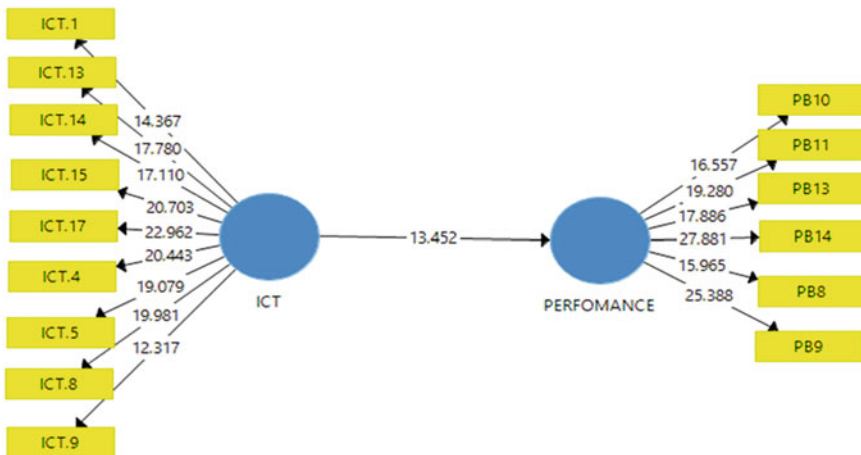
Source SEM-PLS (2022)

**Table 2** Discriminant validity

	Information communication and technology (ICT)	Women’s business performance
Information communication and technology (ICT)	0.770	
Women’s business performance	0.654	0.800

**Table 3** R square value

	R square	R square adjusted	Result
Women’s business performance	0.427	0.423	Weak



**Fig. 1** The result of the structural model. Source SEM-PLS (2022)

**Table 4** Results of hypothesis testing

Model	Original sample (O)	Mean (M)	Standard deviation (STDEV)	T statistics (IO/STDEV)	P-values	Hypothesis results
ICT → W P	0.654	0.667	0.049	13.452	0.000	H1 accepted

Source SEM-PLS (2022)

## 5 Conclusions

This study concluded that the use of ICT has offered a significant effect on women's SME business performance. However, remember that using ICT requires creative exploration of technology in various business tasks such as compiling letters, preparing reports, setting up databases, planning, budgeting, and solving overall problem analysis, and so on. Therefore, for this reason, women's SMEs in the study area should be able to adapt to the trend of technological sophistication to survive in business competition. The use of ICT has eased women's SMEs in making quick communication with suppliers, vendors, retailers, sellers, customers, and other parties.

Consequently, it is suggested that women entrepreneurs will be more actively involved in the use of ICT and involved in more training programmes and workshops. Government agencies and ministries should provide relevant support for women entrepreneurs to smooth the implementation of this programme, especially for those women's SMEs living in rural areas to be more familiar and confident with the use of ICT. These programmes can be delivered either free of charge or with a charge. This depends on the type and level of training and workshops given. Conclusively, using ICT can reduce production costs and, at the same time, increase the overall income of SMEs. Utilisation of ICT for business activities will be able to improve business performance because, in today's modern business life, entrepreneurs must be able to follow the trends of technological sophistication to make their businesses viable and sustainable.

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## References

1. Yang, S., Fichman, P., Zhu, X., Sanfilippo, M., Li., S & Fleischmann, K.R: The use of ICT during COVID-19. Panels and Alternative Events 1–5 (2020).
2. Insight Center. Digitalisasi UMKM di Tengah Pandemi Covid-19., (2020) <https://katadata.co.id/umkm> last accessed 2022/05/22.

3. Mohan Kumar, H.S. Chandrika Mohan, Vijaya C, & Lokeshwari N.: The Role of Women Entrepreneurship in Modern World. *International Journal of Current Engineering and Technology*, (1), 100–104. (2013).
4. Othman, N. A., & Omar, F. I.: Cognitive Needs of ICT usage in Business Among Women Entrepreneurs. *International Journal of Innovative Technology and Exploring Engineering (IJITEE)*, 8(7S2), 8–12 (2019).
5. Salam., A & Majumar.S.K.: The effect of ICT on women entrepreneurship. 5th International Conference on Economic Growth and Sustainable Development: Emerging Trends. Mysuru, India November 15–16, (2019).
6. Pappas, M. A., Drigas, A. S., Papagerasimou, Y., Dimitriou, H., Katsanou, N., Papakonstantinou, S., & Karatzaki, Z.: Female Entrepreneurship and Employability in the Digital Era: The Case of Greece. *Journal of Open Innovation: Technology, Market and Complexity*, 4(15), (2018).
7. Afsana, S.: Impact of Digitization on Women Entrepreneurs. *International Journal on Recent Trends in Business and Tourism*, 2(4); 1–4 (2018).
8. Djatikusumo., N. K.: Pengaruh Penggunaan Teknologi Informasi dan Komputer terhadap Kinerja Organisasi (Studi Kasus di UMKM Kota Malang). 1th Industrial Research, Workshop, and National Seminar. Politeknik Negeri Bandung, July 28–29. (2016).
9. Endraswari., R. M.: Faktor-faktor yang mempengaruhi Aplikasi Teknologi Informasi dan Pengaruhnya terhadap Kinerja Perusahaan (Studi Pada UKM Kerajinan Tangan Bantul, Yogyakarta. Tesis Program Studi Magister Manajemen Program Pasca Sarjana Universitas Diponegoro Semarang. (2006).
10. Basry., A., Sari. E. M.: Penggunaan Teknologi Informasi dan Komunikasi (TIK) pada Usaha Mikro, Kecil dan Menengah (UKM). *Jurnal IKRA-ITH Informatika* 2(3), 53–60 (2018).
11. Widiatmoko., K. WismantoroY & Aryanto.V.D.W.: Adopsi Internet para Wirausaha Perempuan untuk Meningkatkan Kinerja Pemasaran. Studi Kasus Batik Tulis Pewarna Alami Kebon Indah Klaten. *Forum Manajemen Indonesia (FMI 9)*, ISSN: 1412-3126. (2017).
12. Chen, A. N., Castillo, J., & Ligon, K.: Information and communication technologies (ICT): Components, dimensions, and its correlates. *Journal of International Technology and Information Management*, 24(4), 2–10 (2015).
13. Apulu I, Latham A and Moreton R.: Factors affecting the effective utilization and adoption of sophisticated ICT solutions: Case studies of SMEs in Lagos, Nigeria. *Journal of Systems and Information Technology* 13(2), 125–14 (2011).
14. Hoque. Md. R, Mohammad Saif., A. N., AlBar., A.M & Bao.Y., Adoption of information and communication technology for development: A case study of small and medium enterprises in Bangladesh. *Information Development* 1–15 (2015).
15. Rahayu, R. and Day, J.: E-commerce adoption by SMEs in developing countries: evidence from Indonesia, *Eurasian Business Review*. 7(1), 25–41 (2017).
16. Okundaye, K., Fan S.K., & Dwyer. R.J.: Impact of information and communication technology in Nigerian small-to-medium-sized enterprises. *Journal of Economics, Finance and Administrative Science*. 24 (47), 29–46 (2018).
17. Nambisan, S.: Digital entrepreneurship: toward a digital technology perspective of entrepreneurship. *Entrepreneurship Theory and Practice*. 41(6), 1029–1055 (2017).
18. Oni, O., Agbobli, E. K., & Iwu, C. G.: Entrepreneurial orientation and performance of the small business in Vryburg region northwest Province South Africa. *Journal of Reviews on Global Economics*, 8, 63–71 (2019).
19. Fatima S.M.A Hasan., AlMubarak, M.M.S. Factors influencing women entrepreneurs' performance in SMEs. *World Journal of Entrepreneurship, Management, and Sustainable Development*. 12 (2), 82–101 (2016).
20. Noor, A., Asghar, Z., Sarwar, H., & Arfeen, M. I.: Role of the ICT in Women Empowerment and Achieving SDGs: A Case Study of Women Labor Force in Developing Countries. *Ekonomi*, 20(2), 339–348 (2021).
21. Mathew, V. Women entrepreneurship in the Middle East: understanding barriers and use of ICT for entrepreneurship development. *International Entrepreneurship and Management Journal*. 6(2), 163–181 (2010).



22. Aydin, M.: Does the Digital Divide Matter? Factors and Conditions That Promote ICT Literacy. *Telematics and Informatics*, 58, 101536 (2021).
23. Welsh, D. H. B., Kaciak, E., Memili, E., & Minalai, C.: Business-family interface and the performance of women entrepreneurs: The moderating effect of economic development. *International Journal of Emerging Markets*, 13(2), 330–349 (2018).
24. Hair, J. F., B. Black, B. Babin.: *Multivariate data analysis*. 8th ed. Upper Saddle River, New Jersey USA: Pearson Prentice Hall. (2018).
25. Fornell, C., & Larcker, D. F.: Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. *Journal of Marketing Research*, 18, 382–388 (1981).
26. Chin, W. W.: How to Write Up and Report PLS Analyses. In: Esposito Vinzi, V., Chin, W.W., Henseler, J. and Wang, H., Eds., *Handbook of Partial Least Squares: Concepts, Methods, and Applications*, Springer, Heidelberg, Dordrecht, London, New York, 655–690 (2010).
27. Lailah, F. A., & Soehari, T. D. the Effect of Innovation, Information Technology, and Entrepreneurial Orientation on Business Performance. *Akademika*, 9(02), 161–176 (2020).
28. Chen, A. N., Castillo, J., & Ligon, K.: Information and communication technologies (ICT). Components, dimensions, and their correlates. *Journal of International Technology and Information, Management*, 24(4), 20–30 (2015).
29. Ong, S., On Yong, Y. O., Habidin, Nurul, F. H., & Salleh, M. I. S.: The relationship between women's entrepreneurship practice ICT adoption, and business performance in Malaysia and Indonesia. 39(4), 530–547 (2020).

# Managing Information System Resources in Agribusiness



Noor Fadzlina Mohd Fadhil and Nurul Hanis Azrin Sabirin

**Abstract** Agriculture is the backbone of food production that contributes to the nation's growth. Recently, the revolution in information technology (IT) such as the Internet of Things (IoT), smart farming, and Artificial Intelligence (AI) technologies have successfully transformed agribusiness. Numerous prior studies have documented the success of these IT applications in achieving agribusiness performance. Despite the rapid growth of IT applications in the agriculture sector, previous studies have shown limited and poor utilisation of IT due to several issues in managing IT resources such as a short supply of infrastructure development, lack of young participation in the agriculture industry, and limited access to financial support from related parties. Therefore, this paper proposes a conceptual model that provides an overview of how Information System (IS) resources are managed for agribusiness performance. Based on the notion of the Resource Management model within the resource-based view (RBV) theory, this paper introduces a process model of how value is generated from IS resources. The paper examines the subject, concepts, and objectives for the upcoming study using a variety of works of literature from several disciplines. This study may provide insights into how IS resources are managed in agriculture, thus unlocking the IS potential for achieving agribusiness performance.

**Keywords** Information system (IS) resources · Information technology (IT) · RBV theory · Resource management model · Agribusiness performance

## 1 Introduction and Background

Agriculture is a vital industry that contributes significantly to a nation's economic growth and food security [31]. A few of the critical roles played by the agriculture sector include a contribution to national income, source of food and raw materials, provision for export agriculture products, development of agriculture infrastructures,

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relief from capital shortages, reduction of income inequality between rural and urban areas, and creation of effective demand for purchasing power [32]. By 2050, the World Resources Institute predicts that there will be around 10 billion people on the planet, necessitating a 56% increase in food production to meet demand [33]. As of now, the agriculture sector has both demonstrated its critical importance to economic development in underdeveloped countries and contributed to the economic welfare of developed countries [25].

In industrialised nations, the agricultural revolution may be seen in England, where it preceded the industrial revolution, as well as in the USA and Japan, where it aided in the industrialisation of those nations [32]. In contrast, most people in developing nations like Ethiopia, Liberia, Somalia, and Myanmar depend on farming and agriculture [12].

Since agriculture is one of the primary producers of food, sustainable development must be heavily emphasised. Because of this, agricultural technology applications could assist farmers and other stakeholders in making decisions that promote low-input agriculture while maintaining appropriate agricultural productivity [38]. The agriculture sector has adopted several innovations to enhance values and increase productivity, including sensor technology, positioning systems, and digital image processing [10]. When data is kept effectively, data-driven agriculture may turn crops into profitable decisions and validate sustainable agriculture for the future [37, 45]. Thanks to technological improvements, the agriculture sector may see an increase in farm profitability and productivity [40]. For instance, precision agriculture is commonly used in affluent nations like the United States, the Netherlands, and Ireland. Higher net returns and operating earnings in agriculture could be the result [37, 39].

The COVID-19 epidemic's unprecedented effects on livelihoods and food security have acted as a wake-up call to the need to address the gaps, weaknesses, and multiple dangers in agri-food systems as well as to protect their operations in the event of interruptions. Agri-food systems are also coming under growing threat from long-term pressures including climate change, deforestation, the loss of natural resources, and other persistent crises. To prevent, anticipate, absorb, adapt, and transform when faced with shocks and pressures, agri-food systems' and their stakeholders' capacities must be improved [15]. Changes to environmentally sustainable technology would be a vital element to assist productivity enhancement and poverty reduction but simultaneously benefit the national economies [14].

## ***1.1 Problem Statement***

There is no disputing the fact that the world's population has grown. To meet the need of the population, additional food must, nevertheless, be produced [16]. It took decades for farmers to labour arduously and go through numerous transitions from the traditional to the digital world to produce enough food to meet demand. Recently, the technological trend in agriculture has encouraged farmers to acquire modern

information technology (IT) for food production, such as artificial intelligence (AI), sensors, big data, and the Internet of Things (IoT) to help farmers produce reliable data in making decisions on production [38]. Nevertheless, optimising the use of IT in agriculture requires the combination of the technology itself, human ability, and other IT-related resources such as skills, knowledge, ability to manage the infrastructure, and necessary investment to connect the potential of technology for value creation [19].

There is a need to resist using more land because land resources are scarce and currently difficult for anybody to acquire. In 2017, more than 50% of the world's vegetated land was used for agriculture [34]. According to the research, the number of individuals in Ethiopia, Somalia, and Kenya who were suffering from extreme hunger had increased by more than 23 million since last year, nearly doubling. Additionally, according to a report, one person passed away every 48 seconds in the three nations because of severe hunger-related causes such as armed conflict, COVID-19, climate change, and inflationary pressures made worse by the conflict in Ukraine [21]. In a similar vein, COVID-19 has disrupted the agricultural sector with a labour shortage when there is a restriction on people crossing borders and lockdown. This led to significant changes in the composition of consumer demand and disruptions to food supply chains. Therefore, to prevent these risks, immediate changes in how food are prepared and distributed are required (Organisation for Economic Co-Operation and Development, 2020).

Hence, this paper will analyse and discuss the overview of information system (IS) resources in agribusiness within the scope gathered from the literature and how the resources will be able to sustain a competitive advantage with the appliance of the resource management model.

## ***1.2 Purpose of Research and Research Question***

The conceptual paper intends to explain how agribusiness could manage their IS resources, including AIS and other IT resources, for sustained competitive advantage from the perspective of the resource management model. As such, the research questions that will be addressed are:

- i. What are the IS resources used in agribusiness?
- ii. How are the IS resources managed to achieve sustained competitive advantage?

## **2 Literature Review**

### **2.1 *Information Systems (IS)***

Information systems (IS) employ a variety of IT such as computers, software, databases, communication systems, the Internet, and mobile devices to complete certain tasks, inform, and interact with numerous players in different organisational or societal contexts [8]. Information technology is generally understood as a tool, such as a computer software and hardware solutions, that is required to support management, operations, and strategies to boost an organisation's productivity [44]. However, IT in agriculture is characterised in the context of agriculture as a tool for direct contribution to agricultural productivity and as a tool for indirect entitlement for farmers to collect knowledge and make quality judgments that would positively impact agriculture activities [28]. Traditional farming is distinguished by limited access to domestic and a shallow degree of technology, while modernised farming can be categorised by its technological level, significant integration, and international markets as well as the policymaker-oriented approach [23]. Technology adoption in agriculture can significantly improve various agricultural problems.

### **2.2 *Accounting Information Systems (AIS)***

The best way to explain AIS is a system that gathers, organises, categorises, and reports financial data to offer financial information for an organisation's bookkeeping needs and decision-making [9]. Comparably, Grande et al. [20] defined AIS as a system that uses technology, procedures, controls, and accounting techniques to record a company's financial transactions. As the accounting system is identified as a subsystem of information inside the enterprise, the use of AIS in an organisation is crucial. This medium collects all the data from various organisational subsystems and transforms it into accurate fiscal and non-fiscal information [13]. However, due to local farmers' slow adoption of this type of technology, Malaysia's agriculture sector is likewise lagging in adopting AIS [41]. Even though using AIS in the agriculture industry has several benefits, most countries now use it insufficiently [49].

### **2.3 *Infrastructure***

Infrastructure can be defined as a system made up of the material, institutional, personal, and digital resources that are made available to economic agents to contribute to inputs in resource allocation cases and produce the integration and highest degree of economic activity [11]. In other words, infrastructure operates as a

means of communication among economic agents and makes sure there is a connection between the stages of production and consumption [6]. According to Munyanyi [30] and Gajigo and Lakuma [17], infrastructure is the key factor in agricultural productivity growth. They also listed the three primary agricultural infrastructures: road system, irrigation technology, and post-harvest storage technology. The lack of the requisite infrastructure is preventing Malaysia's existing IT infrastructure growth in agriculture from transforming to digital access for agricultural productivity [27]. In fact, access to IT infrastructure is a problem for many developing nations' agricultural industries.

## **2.4 People**

Through improving workforce skills, human resource development is thought to be a factor for maximising individual development, organisational effectiveness, and national development [35]. Rivera [35] concurred that the people element has a role in how well new technologies are adopted on farms. The agriculture sector can only thrive if its workforce is attracted, kept, and developed [18]. Research, education, and other service infrastructure should also be supported. In a case study by [50], who examined how the absence of young farmers in the farming industry hampered the efforts to create a more effective, competitive, and innovative business environment, some of the problems with human competence were discussed.

Malaysia's management of human resources and related problems in agriculture could not be disregarded either. Local Malaysian farmers today have a limited understanding of the use and management of IT resources for the growth of their agricultural production, low levels of education among farmers, and a poor perception of the technology utilised in agriculture [27].

## **2.5 Organisation**

A formal framework of organised coordination involving two or more individuals to accomplish goals through an authority relationship and a division of labour is known as an organisation [36]. Foods are an economic good with unique cultural, institutional, and political features that shape the economic environment and business processes of the sector. Numerous agribusiness subsectors collaborate to supply commodities and services to consumers throughout the world [22]. Government policies and programmes are developed to help farmers with input assistance, output support or limitation, technical support, and financial support, and this has been recognised as a direct and observable element determining agricultural productivity [24]. Low teaching capacity, insufficient resources, and lack of funding from the government and connected parties for local farmers to upgrade their farms into

high-technology operations are all contributing factors to the agriculture industry's struggles in Malaysia [27].

## ***2.6 Sustained Competitive Advantage in Agribusiness***

Competitive advantage is the ability to design and carry out value-creating strategies that are not concurrently carried out by present or potential rivals. A competitive advantage that is difficult for rivals to imitate is a sustained one. Therefore, the functional state of the firm or the resource that ensures its ability to pursue value-creating strategies that are difficult to imitate is highlighted in terms of agriculture [1]. Innovations in technology and information systems, as well as changes in population, regional and global economies, and climatic conditions, are the key sources of competitive challenges for the agricultural sector. The most crucial element for creating a sustained competitive advantage is overcoming such challenges [29]. Sustaining competitive advantage is essential because rival organisations will make efforts to duplicate, surpass, and even outperform one another by acquiring resources that they believe would allow their competitors to outperform them [29].

## **3 Theoretical Overview**

### ***3.1 Resource-Based View (RBV) Theory***

The resource-based view (RBV) theory describes a firm as a bundle of resources and capabilities that could be organised to achieve a competitive advantage. The concept of RBV was developed into a strategic management focus by the father of modern RBV theory, Barney [3], who explained that if the firm resources are filled with certain characteristics along with the two assumptions of competitive advantage namely heterogeneous and immobile, it is possible to have sustained competitive advantage [3, 7]. An organisation must ensure that its resources are limited so that rival businesses cannot take advantage of them in the same way. This will therefore improve industrial competition and raise the likelihood that the economy will survive [3, 5].

An organisation's resources must have these four characteristics: valuable, rare, imperfectly imitable, and non-substitutable [26]. When resources can develop solutions that improve a company's efficacy and productivity, they are regarded as valuable. On the other hand, an organisation should guarantee that its resources are scarce so that other firms cannot exploit them similarly. Thus, this will boost industry competitiveness and increase economic survival likelihood [3]. Moreover, a firm with a vision of sustained competitive advantages must have resources that are imperfectly

imitable, such that other firms will be unable to conceive or engage with the strategies because they are lacking in many ways and powerless in comparison to strategic innovators and first-movers who lead these resource characteristics [3].

Besides, the firm resources must be non-substitute, and no other strategic equivalent substitute could be valuable, rare, and imperfectly imitable, according to the RBV theory's final attributes. The type of resources includes tangible, intangible, and organisational capability assets such as a machine, land, the firm's management skills, information and knowledge, and the organisation's routines and processes [3, 4]. For example, the Toyota brand has grown in popularity among consumers and has become more compelling. This aids in the production of value among customers. Firms can charge greater pricing and make more profit this way. In addition, Toyota pioneered a lean manufacturing system that is difficult to duplicate and adapt. It will improve the firm's efficiency and product since the functions can do their tasks consistently, resulting in higher product quality and cheaper prices [46].

### 3.2 *Resource Management Model (RM)*

According to the RBV paradigm, a firm is a bundle of assets that can be organised to gain a competitive advantage. However, RBV theorists were challenged by their critics to define resources and their specifics on performance, which can be important. When it comes to the concept of resources, scholars appear to use various definitions of the term [47]. Amit and Schoemaker [2] expanded the term to include capacities, while Wermerfelt [48] defined resources as "tangible or intangible assets that are semi-permanently attached to a corporation." However, the resources do not ensure the development of competitive advantage or value creation, thus the resources must be accumulated, combined, and exploited [4, 43]. The deficiency of RBV in explaining "how" managers or firms transform resources to create value leads to the development of linking value creation to the dynamic environment of firm resources [42]. Therefore, in this conceptual paper, we apply the resource management model to provide a clear and full explanation of how the management of IS resources could lead to sustained competitive advantage in agribusinesses.

Resource management is a comprehensive process model that structures the firm's resources portfolio, bundling the resources to build capabilities and leveraging the capabilities to exploit the market opportunities to create and maintain value for customers and owners [42]. This model links value creation in a dynamic environment of managing a firm's resources. Based on the dynamic resource management model of value creation proposed by Sirmon et al. [42], the three main resource management processes are as follows: **(i) structuring the resource portfolio** including acquiring (purchasing resources), accumulating (developing resources internally), and divesting (shedding firm-controlled resources), **(ii) bundling the resources** where the capabilities are formed, which include stabilising (incremental improvements), enriching (extending and elaborating), and pioneering (integrating new resources), and **(iii) leveraging the resources** that involve consecutively processes



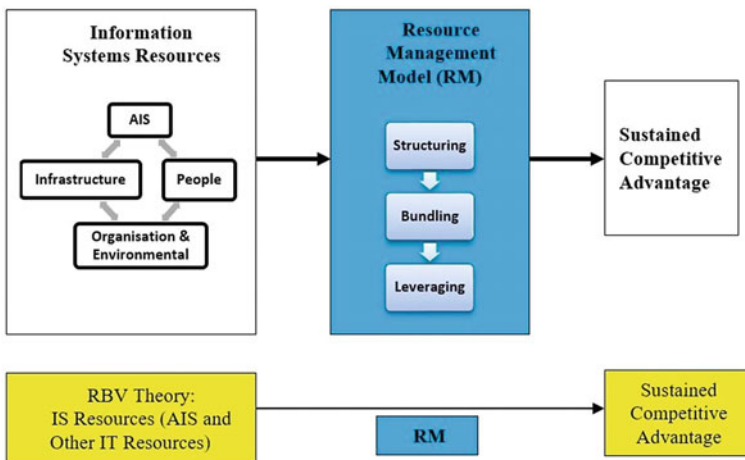
that are made up of mobilising (identifying and designing capabilities needed), coordinating (integrated mobilising), and deploying (using capability physically). Three components in this model must be synchronised, and the top-level managers must be involved in all stages of the resource management process. The three-phase in this model are explained below.

Prior literature has underlined the issues of RBV theory in resource management involving firms that are completely understudied. Drawing upon the lack of studies in resource management, we investigate the agriculture IS resources to come out with a process model of resource management, focusing on how resources are managed in agribusiness to sustain their competitive advantage.

### 4 Conceptual Model Development

This conceptual paper examines how a local farming business manages its IT resources, including AIS and other IT resources, from the perspective of a resource management model for agriculture productivity. A study was performed on a variety of models developed by different scholars. As a result, the study offered a conceptual framework as depicted in Fig. 1 that includes several significant concepts, including the RBV theory, the resource management model, and sustained competitive advantage in the agriculture sector.

The proposed framework for this study is not created to generate the RBV theory that already exists. Rather, it is used to expand the theory by incorporating the resource management model and reflect the resources element of RBV, which refers to AIS and other IT resources, which directly relate to sustained competitive advantage.



**Fig. 1** Conceptual framework for managing AIS and other IT resources for sustained competitive advantage

This study demonstrates how the usage of IS resources in agricultural production would lead to sustaining competitive advantage, as indicated in Fig. 1. However, there are restrictions and shortcomings in the way those IT resources are managed to be effective during the process of sustaining competitive advantage. As a result, in the middle of the conceptual journey, the application of the resource management model is enlarged. In this study, we show how agriculture may gain a competitive advantage if farmers and other stakeholders use IT resources to their fullest potential in production, as opposed to how they currently meet the needs and wants of the world's growing population.

By analysing earlier studies and the problems associated with the resources, this study first identifies the IT resources related to farming finances and operations. This study examines four key IT resources that raise issues about future agriculture and the food business based on the literature evaluation. The AIS, infrastructure, people, and organisation are named as the four IT resources. To put it simply, AIS is an IT solution that uses hardware and software applications to provide management with pertinent financial data for decision-making. Infrastructures, on the other hand, refer to a system that uses hardware and software to facilitate and ease farming activities and procedures. People resources refers to management and human resources in the farming practices. Lastly, a farming organisation involves both internal and external stakeholders, including the government, investors, suppliers, and other parties that have an impact on the organisation's processes.

In this study, we also contend that farmers need to apply RBV theory and choose four standards for resource management to operate a competitive agribusiness. Farmers that have access to these four resources will likely be able to get a competitive edge in the food sector and sustain their business for a very long period. According to RBV, a farm's IT resources must meet four requirements: they must be valuable, scarce, imperfectly imitable, and non-substitutable. However, IT resources alone are insufficient in fully utilising the potential of IT resources in farming businesses. The application of the resource management model is motivated by the limitations of RBV theory, which does not explain how resources would increase over time and how to manage resources in an uncertain environment. To fully optimise all the IT resources for sustained competitive advantage, the resource management model will be applied to the processing of IT resources through the three stages of structuring, bundling, and leveraging. We will be able to identify any possible and existing farm capabilities that might be connected to the RBV theory in this research to fully utilise the IT resources already in use on the farm to carry out major changes in sustaining competitive advantage.

## 5 Conclusion

Despite the significance of farming businesses to a nation, agriculture has sadly received less attention than other sectors due to a lack of resources and challenges with technological usage. In this article, AIS, infrastructure, people, and organisation have been used to collectively explain and highlight the key difficulties and challenges of IT in the agricultural sector. These four elements have been analysed to be the issues of IS in agribusiness. To meet the competitive advantage, these four issues should be resolved. Regarding the theory component, this conceptual paper has added to the literature on IS resources and agriculture by extending the RBV theory using the resource management model, which could be explained through the processes of how the resources are being managed to achieve sustained competitive advantage and by expanding the literature on resource management model. In conclusion, implementing IT into food product and farm management processes and utilising the available human talents are the best ways to address these difficulties with IS resources in agriculture. To maintain the sustainability of food production in the country, each major stakeholder should cooperate and fulfil their respective responsibilities. To address the present agricultural challenges, a deeper understanding of the farming industry is required, which may be attained through conceptual research that will provide a wide range of literature. The farming business will be significantly impacted by the RBV theory and the resource management model for agriculture to maintain a competitive advantage.

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## References

1. Agricultural Marketing Resource Center (AgMRC).: Business and Economic Concepts and Principles - Competitive Advantage. (2022). <https://www.agmrc.org/business-development/business-and-economic-concepts-andprinciples/competitive-advantage>.
2. Amit, R., & Schoemaker, P. J.: Strategic assets and organizational rent. *Strategic Management Journal*, 14(1), 33–46 (1993).
3. Barney, J.: Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99–120 (1991).
4. Barney, J. B., & Arian, A. M.: The resource-based view: Origins and implications. In M. A. Hitt, R. E. Freeman, & J. S. Harrison (Eds.), *Handbook of strategic management*, 124–188, Oxford: Blackwell (2001).
5. Barney, J.: Resource-Based Theories of Competitive Advantage: A Ten-Year Retrospective on the Resource-Based View. *Journal of Management*, 27, 643–650 (2001).
6. Baskakova, I. V, and Malafeev, N. S.: The Concept of Infrastructure: Definition, Classification and Methodology for Empirical Evaluation. *Journal of New Economy*, 3(71), 29–41 (2017).
7. Baysinger, B. & Hoskisson, R.E.: Diversification strategy and R&D intensity in multiproduct firms. *The Academy of Management Journal*, 32(2), 310–332 (1989).

8. Boell, S.K. & Cecez-Kecmanovic, D.: What is Information Systems? 48th Hawaii International Conference on System Sciences. (2015).
9. Boocholdt, J.: Accounting Information Systems Transaction Processing and Control. The MacGraw-Hillcompanies, 5, 433–444 (1999)
10. Braun, A. -T., Colangelo, E., and Steckel, T.: Farming in the Era of Industrie 4.0. *Procedia CIRP*, 72, 979–984 (2018).
11. Buhr, W.: What is infrastructure? Economic Discussion Papers 107-03, University of Siegen, Faculty of Economics, Business Informatics and Business Law (2003).
12. Edwin, K.S.: Influence of Farmers’ to Extension Services on Their Decision to Adoption of Horticulture Farming in Nandi County, Kenya (2017).
13. Elsharif, T. A.: The Elements of Accounting Information Systems and the Impact of Their Use on the Relevance of Financial Information in Wahda Bank—Benghazi, Libya. *Open Journal of Business and Management*, 07(03), 1429–1450 (2019).
14. FAO. (2017). The future of food and agriculture: Trends and challenges. Food and Agriculture Organization of the United Nations.
15. FAO. (2021). The state of food and agriculture. Making agri-food systems more resilient to shocks and stresses. Food and Agriculture Organization of the United Nations.
16. Fróna, D., Szenderák, J. & Rakos, M.: The Challenge of Feeding the World. *Sustainability*. 11. 5816, (2019).
17. Gajigo, G., and Lukoma, A.: Infrastructure and agricultural productivity in Africa. Market Brief, Chief Economist Complex. African Development Bank Marketing Brief (2011).
18. Gardner, T. M., Wright, P. M. and Moynihan, L. M.: The impact of HR practices on the performance of business units. *Human Resource Management Journal*, 13(3), 21–36 (2003)
19. Goedde, L., Katz, J., Menard, A. & Revellat, J: Agriculture’s connected future: How technology can yield new growth, <https://www.mckinsey.com/industries/agriculture/our-in-sights/agricultures-connected-future-how-technology-can-yield-new-growth>, last accessed 2020/10/09.
20. Grande, E. U., Estebanez, R. P., & Colomina, C. M.: The impact of Accounting Information Systems (AIS) on performance measures: empirical evidence in Spanish SMEs. *The International Journal of Digital Accounting Research*, 11, 25–43 (2011).
21. Griffith, R.: With food prices climbing, the U.N. is warning of crippling global shortages, npr, (2022) <https://www.npr.org/2022/05/23/1100592132/united-nations-food-shortages>, last assessed 2022/5/18.
22. Gunderson, M., Boehlje, M., Neves, M., and Sonka, S.: Agribusiness Organization and Management. In *Encyclopedia of Agriculture and Food Systems*, vol. 1, pp. 51–70, (2014).
23. Ismail, N., Khusahry, M., and Yusuff, M.: The Modernized and Higher Technology Agriculture of Malaysia: Development of Livestock Industry. In: *International Conference on Malaysia: Malaysia in Global Perspective*, 27–28 September 2009, Cairo University, Egypt, 381–395, (2009).
24. Lencucha, R., Pal, N. E., Appau, A., Thow, A. M., and Drope, J.: Government policy and agricultural production: A scoping review to inform research and policy on healthy agricultural commodities. *Globalisation and Health*, 16(1), 1–15 (2020)
25. Macatta, M.: Importance of Agricultural Sector in a Country’s Economic Development. <https://www.ippmedia.com/en/features/importance-agricultural-sector-country’s-economic-development>, last accessed 2016/12/02.
26. Mahoney, J. T., & Pandian, R.: The resource-based view within the conversation of strategic management. *Strategic Management Journal*, 13, 363–380, (1992).
27. Mat Lazim, R., Mat Mawi, N. and Masroon M.H.: Adoption of IR4.0 in Agricultural Sector in Malaysia: Potential and Challenges. *Advances in Agricultural and Food Research Journal* (2020).
28. Mitra, T.: Importance of Information Technology in Agricultural Reforms. LinkedIn. <https://www.linkedin.com/pulse/20140627095530-308433376-importance-of-information-technology-in-agricultural-reforms>, last accessed 2014/07/27.
29. Muger, A. W.: Sustained Competitive Advantage in Agribusiness: Applying the Resource-Based Theory to Human Resources. *International Food and Agribusiness Management Review*, 15(4), (2012).

30. Munyanyi, W.: Agricultural Infrastructure Development Imperative for Sustainable Food Production: A Zimbabwean Perspective. *Russian Journal of Agricultural and Socio-Economic Sciences*, 12(24), 13–21 (2010).
31. Pawlak, K. and Kołodziejczak, M.: The Role of Agriculture in Ensuring Food Security in Developing Countries: Considerations in the Context of the Problem of Sustainable Food Production. *Sustainability*, 12, 5488 (2020).
32. Praburaj, L.: Role of Agriculture in the Economic Development of a Country. *Shanlax International Journal of Commerce*, 6(3), 1–5 (2018).
33. Ranganathan, J., Waite, R., Searchinger, T., & Hanson, C.: How to Sustainably Feed 10 Billion People by 2050, in 21 Charts. World Resources Institute. <https://www.wri.org/in-sights/how-sustainably-feed-10-billion-people-2050-21-charts>, last accessed 2018/12/05.
34. Ritchie, H.: How much of the world's land would we need in order to feed the global population with the average diet of a given country? Our World in Data - Agricultural Land by Global Diets. <https://ourworldindata.org/agricultural-land-by-global-diets>, last accessed 2017/10/03.
35. Rivera, W. M.: Human resource development in the agriculture sector: Three levels of need, *International Journal of Lifelong Education* 14(1), 65–73 (1995).
36. Robbins, S. P.: *Essentials of Organizational Behavior*. Prentice-Hall. Essentials of management series (1984).
37. Saiz-Rubio, V., & Rovira-Más, F.: From Smart Farming towards Agriculture 5.0: A Review on Crop Data Management. *Agronomy*, 10(2), 207 (2020).
38. Santiteerakul, S., Sopadang, A., Tippayawong, K. Y., & Tamvimol, K.: The role of smart technology in sustainable agriculture: A case study of wangree plant factory. *Sustainability (Switzerland)*, 12(11), 1–13 (2020).
39. Schimmelpfennig, D. E.: Farm Profits and Adoption of Precision Agriculture. U.S. Department of Agriculture, Economic Research Report. ERR-217. 46 pp. (2016).
40. Shivappa, H., Prakasa, E. V., Gouda, K. C., Ramesh, K. V., Rakesh, V., Mohapatra, G. N., Kantha Rao, B., Sahoo, S. K., & Ajilesh, P.: Digital revolution and Big Data: A new revolution in agriculture. *CAB Reviews*, 13(21), (2018).
41. Shukor, S.A., Shekhi, A. & Nashir, A.H.M.: Enterprise Resource Planning (ERP) adaption in Malaysia Agriculture SME: Issues and Trends. *Journal of Theoretical and Applied Information Technology*, 98(12), 2046–2062 (2020).
42. Sirmon, D. G., Hitt, M. A., & Ireland, R. D.: Managing firm resources in dynamic environments to create value: looking inside the black box. *Academy of Management Review*, 32(1), 273–292 (2007).
43. Sirmon, D. and Hitt, M.: Managing Resources: Linking Unique Resources, Management and Wealth Creation in Family Firms. *Entrepreneurship Theory and Practice*. 27 (2003)
44. Thong, J. Y. L., and Yap, C. S.: CEO characteristics, organizational characteristics and information technology adoption in small businesses. *Omega-The International Journal of Management Science*, 23(4), 429–442 (1995).
45. Triantafyllou, A., Sarigiannidis, P., and Bibi, S.: Precision agriculture: A remote sensing monitoring system architecture. *Information (Switzerland)*, 10(348), 26 (2019).
46. UKessays.: The concept of Toyota Production System Management essay. (2018). <https://www.ukessays.com/essays/management/the-concept-of-toyota-production-system-management-essay.php>, last assessed 2015/1/1.
47. Wade, M., & Hulland, J.: The resource-based view and information systems research: review, extension and suggestions for future research. *MIS Quarterly*, 28(1), 107–142 (2004).
48. Wermerfelt, B. A.: Resource-based view of the firm. *Strategic Management Journal*, 5(2), 171–180 (1984).
49. Xu, Y.: Research on the improvement of accounting work quality of new agricultural business entities under the background of big data. *Acta Agriculturae Scandinavica, Section B—Soil & Plant Science*, 72(1), 440–453 (2022)
50. Žmija, K., Rodrigues F.A., Tia, M., Šūmane, S., Ayambila, S., Žmija, D., Satola, L., and Sutherland, L. A.: Small Farming and Generational Renewal in the Context of Food Security Challenges. *Global Food Security* (2020).

# Role of Religious Elements in Digital Well-Being for Muslims



A. K. Asar  and Aziman Abdullah 

**Abstract** There are diverse opinions among scientists nowadays regarding digital individuals' well-being. Some focus on the role of spiritual elements, while others emphasise ethical elements. The main aim of this review is to highlight the importance of religious elements in digital well-being for human beings, particularly Muslims. Religions enforce moral behaviours by infusing a 'god-fearing' element into the believers. Even though there are various factors contributing to the digital well-being of mankind, religions have proven to have a more positive impact and effectiveness given their connection to supernatural agents. Moreover, for Muslims, religion constitutes the worldview of their existence and their daily life activities in this world. Those religious elements pave the right way for believers in dealing with technology, the internet, and technological devices. This article also proposed a brief theoretical framework of those Islāmic elements which play an important role in digital well-being for Muslims.

**Keywords** Religious elements · Digital well-being · Muslims

## 1 Introduction

There is no consensus among researchers on how digital well-being should be confined since there is a huge range of contemporary responses to the question of what constitutes well-being [1]. Nevertheless, religion surely has a significant effect on people's lives. Some religious studies highlight the impact of religion on human behaviours [2], thoughts [3], and social values [4]. Since the use of technology becomes part of life nowadays, digital well-being is crucial to be understood clearly. For Muslims, Islām impacts all aspects of individual and societal activities,

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including digital well-being. Since the concept of religiosity has been under-reported due to the sensitivity of religion [5], researchers and the general population seem to neglect its importance in societal activities. Hence, this article highlights how religious elements, particularly Islāmic elements play important roles in the digital well-being of Muslims.

## 2 Literature Review

### 2.1 *Digital Wellbeing*

Overall, studies on well-being focus on analysing what constitutes well-being as the end goal for human actions [6]. Some scholars associate well-being with subjective properties such as hedonic or other kinds of experiential states [7] and the satisfaction of personal desires [8]. Some studies reported positive associations between well-being and objective properties such as knowledge [9], virtues [10], certain skills [11], and health conditions [12]. The concept of well-being itself is an evolutionary science and multifactorial. There are various definitions of digital well-being [13]. Fundamentally, it is a merge of technology [14] and well-being [6]. Digital well-being is a research area that explores the impact of digital technologies on people [15]. It is the impact of technology usage on human well-being both in positive and negative ways. However, the main point of digital well-being in this article is to explore the potential aspect that significantly governs human behaviour in using digital technology and the direct effect on their well-being.

### 2.2 *Religious Elements for Digital Wellbeing*

Our knowledge, experience, and environment normally form our beliefs. Beliefs influence our behaviours and actions. Beliefs that are widely accepted have become part of our culture and shape the society we live in many ways. Religion is the main belief system that has existed since the creation of Adam. Most, if not all religions, have some similar thematic principles, the most common ones are two: 1- the concept of God and 2- religious attributes such as love, honesty, and altruism. However, every religion has elements which set them apart from others. Those differences particularly the ideologies, if not well-addressed may bring disharmony in society.<sup>1</sup> Moreover, the coexistence of diverse religions in a single community or nation nowadays is a fact.

Religions enforce moral behaviours by infusing a ‘god-fearing’ element. Islām focuses on the concept of paradise and hell in the hereafter life, Christianity highlights

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<sup>1</sup> The main factor is mainly due to the distorted deduction of religious scriptures by those fanatic and extremist followers which go against the rational principles of well-being society.

heaven-hell and salvation, while Hinduism and Buddhism introduce the concept of karma and reincarnation. Individuals are more likely to behave morally or honestly when they believe in fearsome and punishing supernatural agents [16]. However, religious beliefs are not the only factor that influences oneself and society, other factors such as needs, drives, parenting, and environment determine well-being.

Religious elements indirectly guide digital well-being for technological advancement and its ethical usage. Technologies created by humans throughout history had a variety of influencing factors. The surrounding environment, the ambition for economic growth, and even chance and coincidence are some main popular reasons highlighted by researchers for innovation. But for Muslims, their religion is the main factor for invention. This can be seen in the rapid development of Islāmic civilisation, which has sparked many inventions [17]. Even in the history of the West, a religious factor also had become the main factor for Johannes Gutenberg in publishing his Gutenberg Bible [18]. Religions' role in influencing technology also expands into the realm of warfare such as those jihadist groups in the Middle East. Even in history, the Crusade's battles were driven by religious factors. New battle armour, helmets, shields, and castle fortifications were introduced. Religion gives people something to believe in, it provides a sense of structure and typically offers a group of people to connect with based on similar beliefs. These facets can have a large positive impact on mental health, in fact, religiosity reduces suicide rates [19].

For a Muslim, religion constitutes the main element in daily life because Islām is the way of life in this temporary world [20]. Islām highlights the two main roles for a Muslim in this world, which are worshipping Allāh and becoming His vicegerent. Before we move to those Islāmic elements which play an important role in the digital well-being of Muslims, there is a need to differentiate between religion and spirituality. Religion or spirituality serves important roles in coping, survival, and maintaining overall well-being [21]. Both are rooted in trying to understand the true-life purpose of this world. For spiritual digital well-being, some researchers highlight six dimensions, namely, belief in an organising force, connectedness, faith, compassion, the meaning of life, and the meaning of death [22]. Meanwhile, some researchers state that there are four domains for spirituality or well-being as follows: 1- Personal domain; 2- Communal domain; 3- Environmental domain; and 4- Transcendental domain [23].

Religion focuses on the relationship with a higher power authority called God; while for atheist and agnostic people, God or the supernatural being is a complicated subject which is not or may not exist. Religion is an organised, community-based system of beliefs; while spirituality resides within the individuals and what they believe. The idea of religion and spirituality is like a rectangle versus a square. Within the religion, there is spirituality but having the latter doesn't necessarily mean you have religion. Both religion and spirituality can have a positive impact on digital well-being, however, their effectiveness generally varies due to their different nature.



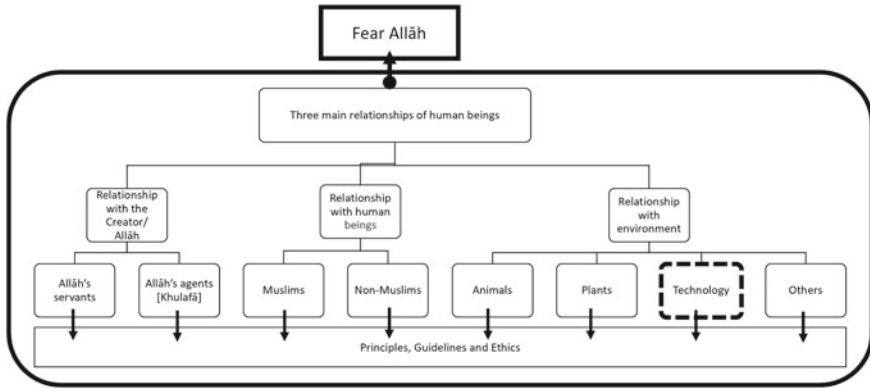


Fig. 1 Theoretical framework for Fear Domains Model (FEDOM) of digital well-being

### 3 Islāmīc Elements for Digital Wellbeing

History has proven that the main factor that contributed to life’s well-being in Muslim civilisation was the religion itself [24]. The problems associated with Muslims nowadays are more related to their lack of religious beliefs [25]. The lack of modern science and technology knowledge has aggravated the situation further [26]. In fact, modern and secular societies seem to ignore the role of religious elements nowadays [27]. Therefore, it is crucial to highlight Islāmīc elements as the core guidance in addressing the digital well-being of Muslims. Generally, there are three main relationships in Islām which are related to human beings in this world. These Islāmīc elements are translated into three main relationships. Technology or digital well-being is in the third relationship as illustrated in Fig. 1.

The first relationship is with the Creator, Allāh. This relationship comprised two roles of human beings: 1- Allāh’s servants and 2- Allāh’s agents. The first role stated in the Qur’an: *“I did not create jinn and humans except to worship Me”* (al-Qur’ān, al-Dzāriyāt, 51: 56). There are many verses of the Qurān which explain the meaning of the servants of Allāh. For instance, the phrase “pious servants” was used in Chapters: al-Baqarāh, 2: 130, Āl ‘Imrān, 3: 39, al-Māidaḥ, 5: 84, and Chapter al-An’ām, 6: 85. In the Qur’ān, individuals who are devout exhibit three primary characteristics: they engage in the worship of Allāh, seek repentance, and actively work towards enhancing the world [28].

As part of a human’s role as the servant of Allāh, a human being also has his/her specific role that differs the person from other creations of the Creator, Allāh. This special role is *khilāfaḥ* [vicegerency]<sup>2</sup> and it is stated in the Qur’ān: *“Remember<sup>3</sup> when your Guardian [Allāh] said to the angels, “I am going to place a khalīfa. They asked*

<sup>2</sup> *Khilāfaḥ* is an Arabic word which means successive human authority on earth (Al-Qur’ān, al-Baqarah, 2:30, n.d.). *Khalīfaḥ* is the singular form of *khulafā’*, it means agent or representative, i.e., the agent or representative of Allāh in this world.

(Allāh), “Will You place in it someone who will spread corruption there and shed blood while we glorify Your praises and proclaim Your holiness?” Allāh responded, “I know what you do not know” (al-Qur’ān, al-Baqarah, 2: 30). *Khilāfah* on the earth is to carry out the divine will [29]. In fulfilling the responsibilities as Allāh’s agent, the caliph/vicegerent of Allāh on the earth, God has endowed mankind with skills and potentials such as reasoning ability for grasping goodness and evil, freedom of choice, and emotion. He has also given mankind creativity and knowledge [30]. Moreover, human beings have contributed to the maturation process in the universe with all the talents, blessings, and faculties they are given such as speech, rhetoric, and intellect [31]. Hence, it becomes incumbent upon a human being to act as the *khālīfah* or God’s agent by upholding Allāh’s laws and guiding all His creatures to their creation purposes based on the Qur’ān and Sunnah.

In Islām, achieving emotional and spiritual intelligence first requires a close relationship with the Creator. It can be developed through consistent acts of worshipping God, performing good deeds, and avoiding evils. Through such consistent acts, the light of God will come and touch the hearts of the believers, causing them to experience pure contentedness [32]. The fear of Allāh because of the love for the Creator is the highest obedience, as it is the sincerest degree of worship for mankind. It trains the soul from its prone-to-evil state to become more angelic, thereby increasing emotional intelligence. This will be reflected in the believer’s actions, which will be aligned with Islāmic teachings as described in the Qur’ān and Sunnah. For the believer, true happiness is to get Allāh’s blessing, which will result in eternal Heaven.

The second relationship is the relationship with human beings as it creates harmonious well-being between mankind. Islām provides every individual with the freedom to practice any religion, ideology, or culture. Allāh mentions in His holy book, the Qur’ān: “There is no compulsion in religion. Verily, the Right Path has become distinct from the wrong path. Whoever disbelieves in Taghūt and believes in Allāh, then he has grasped the most trustworthy handhold that will never break. And Allāh is All-Hearer, All-Knower.” (al-Qur’ān, al-Baqarah, 2: 256) [33]. As the universal religion, it advocates a harmonious relationship among the people of different religions, cultures, and civilisations for the peaceful coexistence and harmonious development of all human beings. Islām constitutes a viable model for resolving religious hatred, it promotes peace and justice among people of diverse ethnic, religious, and cultural backgrounds [34]. In the context of digital well-being, issues like cyberbullying [35], online romance scams [36], online shopping scams [37], and many other cybercrimes [38] are obviously due to the ignorance of the relationship with the Creator and the relationship with human beings.

The third relationship is the relationship with the environment. In Islām, human relationship with the environment is among their duties and functions as the vicegerents of Allāh. This fact denies the allegations that human is one of the roots of the ecological crises in the world. Islām states that man and nature are interdependent and man as the vicegerent of Allāh has the obligation to maintain the balance of nature [39]. Undoubtedly, the environment is a general term, it includes animals [40], plants [41], and other creations of Allāh. It also includes those technologies created by human beings. Since technology itself is not a living thing, the practice

of using technology with the potential of endangering the user himself or others should be guided ethically. In the context of digital well-being, the abuse of digital technology is among the unethical practices that potentially harm the user himself or other related people. For example, abusing technology like cyberbullying in social media can cause depression [42] in the victims, which may lead to self-harming and even suicide [43]. While overuse of technology like social media addiction has the potential to induce depression [44].

Each of the three relationships has its principles, guidelines, and ethics. They are derived from the two main sources in Islām, the Qur'ān and Sunnah. In fact, Islām never rejects any rationalism and empiricism provided they do not contradict the two main sources. In addition, Islām also offers intuition as another source of knowledge [45].

The main question to any discussion about digital well-being whether it is religiosity, spirituality or ethics, is how the person willingly or forcedly accepts the role, instruction, request, or suggestion. This is the main loop that, if not all, many researchers could not address clearly. In Islām, only those who sincerely fear Allāh will have well-being; the Qur'ān states: "*It is only those among His servants who have knowledge that fears Allāh*" (al-Qur'ān, al-Fāṭir, 35: 28). Their principles, guidelines, and ethics are obviously based on the teachings of Islām, which mainly derived from the Qur'ān and Sunnah of the Prophet Muḥammad. Hence, a true believer must try his/ her best to have all good characteristics promoted by Islām for individuals such as being optimistic, kind persons, not arrogant, doing good things, and staying away from bad things. He/she also obviously should not be a lazy and time-wasting person, particularly when dealing with the Internet and technology, because Islām prohibits such negative acts and behaviours.

## 4 Conclusion

Digital well-being is a complex field of knowledge due to its multidimensionality and massive content. Despite many principles, guidelines or ethics that have been proposed for digital well-being; the main question is does the person really wants to follow them? Individuals are free to ignore those principles, guidelines, or ethics since they can directly access online content on their own. This article highlights the role of religious elements rooted in "fear Allāh" whereby the proposed theoretical framework for the Fear Domains Model (FEDOM) of digital well-being seems to be more practical for Muslims.

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## References

1. Gwyther Rees, Leslie J. Francis, Mandy Robbins (2014) *Spiritual Health and the Well-Being of Urban Young People*. University of Wales, Bangor.
2. Kang M, Park Y, Kang SY, Lim J, Kim YS. Religion and Health Behaviors in Primary Care Patients. *Korean J Fam Med*. 2020 Mar;41(2):105–110. <https://doi.org/10.4082/kjfm.18.0107>. Epub 2020 Mar 19. PMID: 32208402; PMCID: PMC7093674.
3. Phemister A (2020) Introduction: religion and political thought in Irish history. *Hist Eur Ideas*. <https://doi.org/10.1080/01916599.2020.1747224>.
4. Christopher D. Ives, Jeremy Kidwell (2019) Religion and social values for sustainability. *Sustain Sci*. <https://doi.org/10.1007/s11625-019-00657-0>.
5. Baazeem TA, Bougoure US, Neale L (2013) The relationship between consumers' religiosity and risk perceptions surrounding the use of SNS. *Int J Soc Entrep Innov*. <https://doi.org/10.1504/ijsei.2013.052758>.
6. Engelsen S (2022) Wellbeing Competence. *Philosophies* 7:42. <https://doi.org/10.3390/philosophies7020042>.
7. van der Deijl W (2021) The sentience argument for experientialism about welfare. *Philos Stud* 178:187–208. <https://doi.org/10.1007/s11098-020-01427-w>.
8. Heathwood C (2019) Which Desires Are Relevant to Well-Being? *Noûs* 53:664–688. <https://doi.org/10.1111/nous.12232>.
9. Easterbrook B, Ricciardelli R, Sanger BD, et al (2022) Longitudinal study of Canadian correctional workers' wellbeing, organizations, roles and knowledge (CCWORK): Baseline demographics and prevalence of mental health disorders. *Front Psychiatry* 13:. <https://doi.org/10.3389/fpsy.2022.874997>.
10. Verhaeghen P (2021) There is virtue in mindfulness: The relationship between the mindfulness manifold, virtues, and eudemonic wellbeing. *Pers Individ Dif* 176:110767. <https://doi.org/10.1016/j.paid.2021.110767>.
11. Steptoe A, Wardle J (2017) Life skills, wealth, health, and wellbeing in later life. *Proc Natl Acad Sci* 114:4354–4359. <https://doi.org/10.1073/pnas.1616011114>.
12. Tonetti MS, Jepsen S, Jin L, Otomo-Corgel J (2017) Impact of the global burden of periodontal diseases on health, nutrition and wellbeing of mankind: A call for global action. *J Clin Periodontol* 44:456–462. <https://doi.org/10.1111/jcpe.12732>.
13. Marsden P (2020) What is Digital Wellbeing? A List of Definitions.
14. Hamlett PW (2003) Technology Theory and Deliberative Democracy. *Sci Technol Hum Values* 28:112–140. <https://doi.org/10.1177/0162243902238498>.
15. Harley D (2022) Digital Wellbeing: Making Sense of Digital Dependency. In: *Mindfulness in a Digital World*. Springer International Publishing, Cham, pp 1–23.
16. Bourrat P, Atkinson QD, Dunbar RIM (2011) Supernatural punishment and individual social compliance across cultures. *Relig Brain Behav*. <https://doi.org/10.1080/2153599X.2011.598325>.
17. Azhar A (2017) Sains Islam Vs Sains Barat: Analisis Amalan dan Perbandingan. *Ulum Islam*. <https://doi.org/10.33102/uij.vol21no0.21>.
18. Green J (2011) Printing and prophecy: Prognostication and media change 1450–1550.
19. Maimon D, Kuhl DC (2008) Social control and youth suicidality: Situating Durkheim's ideas in a multilevel framework. *Am Sociol Rev*. <https://doi.org/10.1177/000312240807300603>.
20. Amanullah M (2021) Islam and Rationalism: A Comprehensive Analysis from the Quran and Sunnah. *Pakistan Soc Sci Rev*. [https://doi.org/10.35484/pssr.2021\(5-ii\)56](https://doi.org/10.35484/pssr.2021(5-ii)56).
21. Arrey AE, Bilsen J, Lacor P, Deschepper R (2016) Spirituality/religiosity: Acultural and psychological resource among sub-saharan african migrant women with HIV/AIDS in Belgium. *PLoS One*. <https://doi.org/10.1371/journal.pone.0159488>.
22. Gorichanaz T (2022) Smartphone apps for spiritual wellness. *Open Inf Sci* 6:106–115. <https://doi.org/10.1515/opis-2022-0134>.
23. Fisher J (2011) The Four Domains Model: Connecting Spirituality, Health and Well-Being. *Religions* 2.

24. Nafis AW (2020) Islam, Peradaban Masa Depan. *J Al-Hikmah* 18:117–134. <https://doi.org/10.35719/alhikmah.v18i2.29>.
25. Sobaihi MMA (2019) The Role of Faith Systems and Religions in the Future of Sustainable Development: An Islamic Outlook. *J Sustain Dev*. <https://doi.org/10.5539/jsd.v12n5p23>.
26. Qureshi AJ (2011) Islam and the concept of vicegerency on earth. *Eur J Sci Res*.
27. O'Reilly D, Rosato M (2015) Religion and the risk of suicide: Longitudinal study of over 1 million people. *Br J Psychiatry*. <https://doi.org/10.1192/bjp.bp.113.128694>.
28. Moh saepudin D, Ahmad N, Anwar R (2020) Makna Semantik Hamba dan Saleh dalam Alquran. *J Online Stud Al-Qur'an*. <https://doi.org/10.21009/jsq.016.2.07>.
29. Reda A (2019) Human Vicegerency and the Golden Rule: The Islamic Case Against Exclusion. *Am J Econ Sociol*. <https://doi.org/10.1111/ajes.12290>.
30. Azram M (2012) Epistemology -An Islamic Perspective. *IIUM Eng J*. <https://doi.org/10.31436/iiumej.v12i5.240>.
31. Dogan R (2013) The Position of Human Being in the Universe according to Islam. *Sociol Anthropol*. <https://doi.org/10.13189/sa.2013.010302>.
32. Wahab MA (2022) Islamic Spiritual and Emotional Intelligence and Its Relationship to Eternal Happiness: A Conceptual Paper. *J Relig Health*. <https://doi.org/10.1007/s10943-021-01485-2>.
33. Khan M The Quranic Arabic Corpus. <https://corpus.quran.com/translation.jsp?chapter=2&verse=256>. Accessed 31 Dec 2022.
34. Nor MRM, Khan I, Elius M (2018) Analysing the conceptual framework of religious freedom and interreligious relationship in Islam. *Indones J Islam Muslim Soc*. <https://doi.org/10.18326/ijims.v8i2.309-334>.
35. Watts LK, Wagner J, Velasquez B, Behrens PI (2017) Cyberbullying in higher education: A literature review. *Comput Human Behav* 69:268–274. <https://doi.org/10.1016/j.chb.2016.12.038>.
36. Shaari AH, Kamaluddin MR, Paizi@Fauzi WF, Mohd M (2019) Online-Dating Romance Scam in Malaysia: An Analysis of Online Conversations between Scammers and Victims. *GEMA Online@ J Lang Stud* 19:97–115. <https://doi.org/10.17576/gema-2019-1901-06>.
37. Arumugam N, Mohamad F, Shanthi A, Dharinee S (2021) A Study on Online Shopping Scams. *Int J Soc Sci Res* 10:22. <https://doi.org/10.5296/ijssr.v10i1.19290>.
38. Lee CS (2020) Toward Mitigating, Minimizing, and Preventing Cybercrimes and Cybersecurity Risks. *Int J Cybersecurity Intell Cybercrime* 3:1–3. <https://doi.org/10.52306/03020120JOFX1754>.
39. Kurniawan DW (2012) Human responsibility towards the environment in the Quran. *Indones J Islam Muslim Soc*. <https://doi.org/10.18326/ijims.v2i2.293-322>.
40. Safitri L, Nuskhi M, Muatip K, et al (2019) The Relationship between Human Being and Animal: The Study of the Concepts of Khalifah and the Animals in the Quran. *Anim Prod*. <https://doi.org/10.20884/1.jap.2018.20.3.742>.
41. Siddiqi A (1993) Islam and Ecology. *Am J Islam Soc*. <https://doi.org/10.35632/ajis.v10i2.2513>.
42. Skilbred-Fjeld S, Reme SE, Mossige S (2020) Cyberbullying involvement and mental health problems among late adolescents. *Cyberpsychology J Psychosoc Res Cybersp* 14. <https://doi.org/10.5817/CP2020-1-5>.
43. John A, Glendenning AC, Marchant A, et al (2018) Self-Harm, Suicidal Behaviours, and Cyberbullying in Children and Young People: Systematic Review. *J Med Internet Res* 20:e129. <https://doi.org/10.2196/jmir.9044>.
44. Haand R, Shuwang Z (2020) The relationship between social media addiction and depression: a quantitative study among university students in Khost, Afghanistan. *Int J Adolesc Youth* 25:780–786. <https://doi.org/10.1080/02673843.2020.1741407>.
45. Rahardjo M (2021) REASON, EXPERIENCE, AND LANGUAGE TO ACQUIRE KNOWLEDGE (IN WESTERN AND ISLAMIC PERSPECTIVES). *Ling J Ilmu Bhs dan Sastra*. <https://doi.org/10.18860/ling.v16i1.12629>.

# Islamic Banks and Their *Zakat* Distribution Practices



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**Abstract** Islamic banks in Malaysia have been actively paying, reporting, and distributing their own *zakat*, albeit a few are not doing so. These three types of information can be found in the banks' published documents, which are the financial statements. However, the disclosure of information on *zakat* distribution is limited. Thus, this study's objective is to determine how Islamic banks that pay *zakat* in Malaysia distribute their *zakat*. This study was conducted using semi-structured interviews where bank officers in charge of *zakat* funds were interviewed to gather their insights regarding how banks distribute *zakat*. The data collected were analysed using computer-assisted qualitative analysis software (CAQDAS) named ATLAS.ti. Then, codified data was generated in table form using the Thematic Analysis Matrix (TAM). This study found that insufficient information was disclosed in the financial statements and annual reports of Islamic banks, particularly on *zakat* distribution practices. Hence, this study suggests that the information in Islamic banks' financial statements be further enriched with more extensive *zakat* disclosures.

**Keywords** ATLAS.ti · Islamic banks · Malaysia · *Zakat* distribution

## 1 Introduction

Islamic banks are among the financial institutions licensed by Bank Negara Malaysia (BNM) [1]. These institutions are required by BNM to disclose their *zakat* information, among others [2]. They must disclose whether they are paying *zakat* or otherwise in the financial statements. If they do pay *zakat*, the information that must be disclosed are as follows:

- (i) the bank's responsibility towards *zakat* payment, either on the business and/or on behalf of the shareholders;

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- (ii) the method applied in determining the *zakat* base, e.g., growth method, working capital method; and
- (iii) the beneficiaries of the *zakat* fund, e.g., *Baitul Mal*, the poor, and others. It is important that Islamic banks state their *zakat* distribution method, i.e., whether they self-distribute their *zakat*, or pay to *zakat* institutions, or both [3]. By choosing self-distribution, Islamic banks actually act as *zakat* distributors [4].

In the case where Islamic banks pay *zakat* to *zakat* institutions, they are eligible to participate in the *wakalah zakat* programme arranged by *zakat* institutions. This programme entails *zakat* institutions returning a portion of *zakat* funds to entities that pay *zakat* to the *zakat* institutions for distribution to eligible *asnaf* (a group worthy of receiving the tithes in Islam).

Entities that are allowed to apply for a refund of *zakat* money are individuals, companies or organisations (including banks), employers, and higher learning institutions [5, 6]. Hence, the *wakalah* programme provides another method for *zakat* distribution.

However, little attention has been given to research on *zakat* distribution practices by Islamic banks because banks are not deemed as key *zakat* distributors in Malaysia. Only a few authors have written about banks and their *zakat* distribution practices, which are [3, 7–9]. This paper is a continuation of the research written by Zaaba and Hassan [9].

## 2 Methodology

This study applied the semi-structured interview method where Islamic bank officers who were directly involved in the management of *zakat* were interviewed to explore their banks' *zakat* distribution practices. The interview method was chosen since it is the most commonly used method for discovering information that is not publicly available [10].

There are 16 Islamic banks in Malaysia that are licensed by BNM, consisting of 11 local and five foreign banks. The list was obtained from BNM's website [11] and used as the sample size for this study.

Four foreign banks were excluded from this study as they either did not pay *zakat* in Malaysia, or they were not liable to do so. Another bank rejected to be interviewed because the information was classified and cannot be disclosed to external parties. Thus, only 11 banks were interviewed for this study.

Since the information was considered private and confidential, the authors codified each bank with an alphabet. All the data collected in the interviews were transcribed and sent back to the participants for information verification.

Then, the transcribed data were transferred into ATLAS.ti, a computer-assisted qualitative analysis software (CAQDAS) to help with codifying the data. Then, the information was generated in MS Excel using Thematic Analysis Matrix (TAM) that was introduced by Noor [12], as shown in Table 3.

### 3 *Zakat* Distribution Practices by Islamic Banks

From the interviews, this study discovered four major themes of *zakat* distribution practices by Islamic banks, as shown in Table 1.

The table above shows that Islamic banks applied four approaches in distributing *zakat*, namely, (1) self-distribution, (2) payment to *zakat* authority, (3) both former methods, and (4) *wakalah zakat*.

#### 3.1 Theme 1: Self-Distribution

Only one bank, Bank G, distributed *zakat* using the self-distribution method. This method was chosen mainly because their *zakat* distribution objective required *zakat* to be channelled to impactful programmes. Thus, the bank carried out its own *zakat* distribution programmes so that it could gather feedback directly from the *asnaf*. The feedback facilitated the bank’s effort of measuring the impact of their *zakat* fund.

#### 3.2 Theme 2: Payment Made to a Zakat Authority

Six out of the 11 interviewed banks responded that they paid their entire *zakat* amount to *zakat* authorities without retaining any for their own distribution. These banks chose which *zakat* institutions to receive their *zakat* payments and then, decided how much they would pay to the *zakat* institutions. This meant that not all 14 *zakat* institutions in Malaysia would receive *zakat* from the Islamic banks and the amounts the institutions receive were not necessarily the same.

**Table 1** Islamic banks’ *zakat* distribution practices

Bank	<i>Zakat</i> payment method for the year 2020
A	Both methods, <i>wakalah</i>
B	Both methods, <i>wakalah</i>
C	<i>Zakat</i> institution, <i>wakalah</i>
D	<i>Zakat</i> institution, <i>wakalah</i>
E	Both methods, <i>wakalah</i>
F	Both methods, <i>wakalah</i>
G	Self-distribution/directly to <i>asnaf</i>
H	<i>Zakat</i> institution, <i>wakalah</i>
I	<i>Zakat</i> institution, <i>wakalah</i>
J	<i>Zakat</i> institution, <i>wakalah</i>
K	<i>Zakat</i> institution



### 3.3 Theme 3: Both Methods

Four banks, namely A, B, E, and F, divided their *zakat* funds into amounts to be paid to *zakat* authorities and amounts for their own distribution. The management team of each bank decided the proportion, and usually, a bigger portion was allocated for self-distribution. Some banks chose to distribute their *zakat* to all *zakat* institutions in Malaysia.

Like Bank G, all these banks had their own *zakat* distribution objectives. For example, if a bank decided to channel its *zakat* to empower *asnaf* through entrepreneurship programmes, the bank would carry out more programmes that were aligned with this objective. Some banks are focused on several categories of *asnaf*, namely, *fakir*, *miskin*, and *fi sabilillah*.

### 3.4 Theme 4: Wakalah Zakat

All banks, except two banks, were eligible to apply for the *wakalah zakat* programme, as shown in Table 2.

Participation in the *wakalah* programme is subject to certain terms and conditions, with some *zakat* authorities imposing tighter restrictions than others. As a result, some banks choose *zakat* institutions that impose lesser restrictions. Banks that abide by the terms and conditions of the *wakalah* contract can use the *wakalah* fund without restrictions.

Table 3 above shows how the information obtained from the interviewees were codified using the Thematic Analysis Matrix (TAM).

**Table 2** Islamic banks' participation in the *wakalah zakat* programme

Bank	<i>Zakat</i> payment method for the year 2020
A	<i>Wakalah</i>
B	<i>Wakalah</i>
C	<i>Wakalah</i>
D	<i>Wakalah</i>
E	<i>Wakalah</i>
F	<i>Wakalah</i>
G	Not eligible for <i>wakalah</i>
H	<i>Wakalah</i>
I	<i>Wakalah</i>
J	<i>Wakalah</i>
K	Not eligible for <i>wakalah</i>

**Table 3** Thematic analysis matrix (TAM) for Islamic banks' *zakat* distribution practices

Question to participants	Deductive codes	Bank	Inductive codes		Final themes
			Codes	Categories	
How does your bank distribute your <i>zakat</i> ?	Self-distribution <i>Zakat</i> authority <i>Wakalah zakat</i>	A	<ul style="list-style-type: none"> <li>- 40% to <i>zakat</i> authorities, 60% for self-distribution</li> <li>- Pays to all <i>zakat</i> authorities</li> <li>- Amounts differ according to the income generated per state and incidents of poverty</li> <li>- 4 pillars: education, humanitarian aid, Islamic social finance, <i>ihsan</i></li> <li>- Gets <i>wakalah</i> refund</li> <li>- Perlis <i>zakat</i> authority gives 50% <i>wakalah</i> refund</li> </ul>	<ul style="list-style-type: none"> <li>- Both methods</li> <li>- <i>Wakalah</i></li> </ul>	(1) Self-distribution authority (2) <i>Zakat</i> (3) Both methods (4) <i>Wakalah zakat</i>
		B	<ul style="list-style-type: none"> <li>- Half to all state <i>zakat</i> authorities</li> <li>- Another half is retained for self-distribution to the military</li> <li>- Gets <i>wakalah</i> refund</li> <li>- For the <i>wakalah</i>, some of the <i>zakat</i> authorities may give back 1/8 or 3/8</li> <li>- The <i>asnaf</i> categories that are allowed to receive <i>wakalah zakat</i> are mainly <i>fakir miskin</i> and <i>fi sabitillah</i> in their respective states</li> </ul>	<ul style="list-style-type: none"> <li>- Both methods</li> <li>- <i>Wakalah</i></li> </ul>	
		C	<ul style="list-style-type: none"> <li>- Pays to the state <i>zakat</i> authority only</li> <li>- The amount is different as decided by senior management</li> <li>- Gets <i>wakalah</i> refund, a maximum of 3/8</li> <li>- Follows the <i>wakalah</i> refund guidelines for <i>asnaf</i> categories:</li> <li>- MAIWP: all except <i>amil</i></li> </ul>	<ul style="list-style-type: none"> <li>- <i>Zakat</i> authority</li> <li>- <i>Wakalah</i></li> </ul>	

(continued)

Table 3 (continued)

Question to participants	Deductive codes	Bank	Inductive codes		Final themes
			Codes	Categories	
			<p>LZS; <i>fakir, miskin, muallaf, fi sabilillah</i>, and <i>gharimin</i></p> <ul style="list-style-type: none"> <li>– Pays to the state <i>zakat</i> authority only</li> <li>– <i>Wakalah</i> refund: 12.5% to 37.5%</li> </ul>		
		D	<ul style="list-style-type: none"> <li>– Pays <i>zakat</i> to all <i>zakat</i> authorities</li> <li>– Does not retain any <i>zakat</i></li> <li>– Amounts differ according to the deposits in each state</li> <li>– <i>Wakalah zakat</i>: ranges from 1/8, 3/8, and up to 4/8</li> </ul>	<ul style="list-style-type: none"> <li>– <i>Zakat</i> authority</li> <li>– <i>Wakalah</i></li> </ul>	
		E	<ul style="list-style-type: none"> <li>– Pays to all 14 <i>zakat</i> institutions; prioritises Wilayah Persekutuan Kuala Lumpur, Selangor, Johor, and Sarawak depending on business activities</li> <li>– Retains a bigger portion for self-distribution</li> <li>– <i>Wakalah zakat</i> with MAIWP</li> </ul>	<ul style="list-style-type: none"> <li>– Both methods</li> <li>– <i>Wakalah</i></li> </ul>	

(continued)

**Table 3** (continued)

Question to participants	Deductive codes	Bank	Inductive codes		Final themes
			Codes	Categories	
		F	<ul style="list-style-type: none"> <li>- 70% for self-distribution and 30% to <i>Pusat Pungutan Zakat (PPZ)</i>-MAIWP</li> <li>- Repair <i>asnaf</i>'s houses during floods</li> <li>- Through applications or suggestions by the <i>Shariah</i> Department</li> </ul>	<ul style="list-style-type: none"> <li>- Both methods</li> <li>- <i>Wakalah</i></li> </ul>	
		G	<ul style="list-style-type: none"> <li>- Mainly self-distribution</li> <li>- Aims for impactful <i>zakat</i> distribution</li> <li>- Partners that have impact measurements</li> <li>- Three categories: economic empowerment (sustainable income growth), education empowerment (fees, classes for students), and general (<i>fakir miskin/one-off</i>)</li> <li>- Remainder (if available) will be given to the <i>zakat</i> authority and will receive <i>wakalah</i> of 1/8</li> </ul>	<ul style="list-style-type: none"> <li>- Self-distribution</li> </ul>	

(continued)

**Table 3** (continued)

Question to participants	Deductive codes	Bank	Inductive codes		Final themes
			Codes	Categories	
		H	<ul style="list-style-type: none"> <li>- Pays <i>zakat</i> to all <i>zakat</i> authorities</li> <li>- Does not retain <i>zakat</i></li> <li>- Amounts differ according to the business activities of each state</li> <li>- Priority given to <i>zakat</i> authorities that give more <i>wakalah</i> refund with lesser restrictions, such as MAIWP and <i>Majlis Islam Sarawak</i></li> <li>- <i>Wakalah</i> refund, ranging from 2/8 to 3/8</li> </ul>	<ul style="list-style-type: none"> <li>- <i>Zakat</i> authority</li> <li>- <i>Wakalah</i></li> </ul>	
			<ul style="list-style-type: none"> <li>- Relevant states that have business activities/branches</li> <li>- Gets <i>wakalah</i> refund</li> <li>- Does not retain for self-distribution</li> </ul>	<ul style="list-style-type: none"> <li>- <i>Zakat</i> authority</li> <li>- <i>Wakalah</i></li> </ul>	
			<ul style="list-style-type: none"> <li>- Through the regional office</li> <li>- <i>Wakalah</i></li> <li>- Three <i>asnaf</i> categories</li> <li>- 3/8</li> </ul>	<ul style="list-style-type: none"> <li>- <i>Zakat</i> authority</li> <li>- <i>Wakalah</i></li> </ul>	
			<ul style="list-style-type: none"> <li>- Does not retain for self-distribution</li> <li>- Pays <i>zakat</i> to <i>Lembaga Zakat Selangor</i></li> </ul>	<ul style="list-style-type: none"> <li>- <i>Zakat</i> authority</li> </ul>	

## 4 Discussion

In a previous study by Zaaba and Hassan [9], it was found from the banks' financial statements that two banks paid their *zakat* to *zakat* authorities, two banks used the self-distribution approach, and five banks used both methods. Their findings are different from this study's findings that one bank self-distributed their *zakat*, six banks paid their *zakat* to *zakat* authorities, and four banks used both methods.

The information on how Islamic banks distribute their *zakat* is important so that information asymmetry like this can be avoided. Although BNM does not require banks to disclose this information, banks are always welcomed to disclose more. In doing so, they can set a good example for other banks to emulate.

Like the aforementioned methods, disclosing information on *wakalah zakat* can further enrich the non-numerical information provided in the financial statements of Islamic banks.

## 5 Conclusion and Recommendation

The objective of this study was to explore how Islamic banks distribute their *zakat*. Information obtained from the interviews conducted with Islamic banks' representatives showed that self-distribution was the least popular and payment to *zakat* authorities was the most frequently used distribution method. Even though BNM specified the minimum requirement for the disclosure of information, it is up to the banks to disclose more information than required. It is important to note that this study is a continuation of Zaaba and Hassan [9], and part and parcel of Zaaba and Hassan [13].

## References

1. Bank Negara Malaysia. Financial Sector Participants Directory. <https://www.bnm.gov.my/regulations/fsp-directory>. Accessed 7 Oct 2022.
2. BNM (2022) Financial Reporting for Islamic Banking Institutions. [https://www.bnm.gov.my/documents/20124/938039/PD\\_Financial\\_Reporting\\_Islamic\\_Banks.pdf](https://www.bnm.gov.my/documents/20124/938039/PD_Financial_Reporting_Islamic_Banks.pdf). Accessed 2 Nov 2022.
3. Rahman AA (2012) The Role of *Zakat* in Islamic Banking Institutions in Developing the Economy of the Poor and Needy in Malaysia. *Tazkia Islam Finance Bus Rev* 7.2:256–276. <https://doi.org/10.30993/TIFBR.V7I2.16>.
4. Jusoh WNH, Ibrahim U (2017) Corporate Social Responsibility of Islamic Banks in Malaysia: Arising Issues. *Islam Econ Stud* 25:155–172. <https://doi.org/10.12816/0036188>.
5. PPZ-MAIWP WAKALAH. <https://www.zakat.com.my/info-zakat/wakalah/>. Accessed 7 Oct 2022.
6. Osmera SH, Wahid H, Mohd Noor MA (2021) Sustainable *Zakat* Distribution through *Wakalah Contract*. *Int J Zakat* 6:49–70.

7. Pauzi NBM, Wahid H, Ahmad S (2014) Pengagihan Zakat oleh Institusi Kewangan: Kajian terhadap Bank Kerjasama Rakyat Malaysia Berhad (Bank Rakyat). In: 3rd International Conference on Accounting, Business and Economics (ICABEC2014). Terengganu, pp 1–9.
8. Ismail MY, Wahid H, Karim ZA (2016) Pengagihan Zakat Perubatan di Malaysia: Peranan Bank Rakyat. In: 3rd Conference on Malaysian Islamic Economics and Finance (CMIEF). Universiti Kebangsaan Malaysia, Selangor.
9. Zaaba NIBMA, Hassan R (2020) Calculation, Distribution and Disclosure of *Zakat* in Malaysian Islamic Banks. *J Islam Asia Spec Issue Islam Bank Financ* 17:162–181.
10. Herrity J (2022) How to Get the Most Benefit from an Informational Interview. In: indeed. <https://www.indeed.com/career-advice/interviewing/what-to-expect-in-informational-interview>. Accessed 7 Oct 2022.
11. BNM List of Islamic Banks. <https://www.bnm.gov.my/regulations/fsp-directory>. Accessed 2 Nov 2022.
12. Noor MZM (2021) *Ilustrasi Ringkas Analisa Tematik (TA) Menggunakan Perisian ATLAS.ti 8*, 1st ed. Universiti Putra Malaysia, Serdang.
13. Zaaba NIBMA, Hassan R (2022) The Practice of Islamic Bank in *Zakat* Distribution: The Case of Malaysia. In: Alareeni B, Hamdan A (eds) *Innovation of Businesses, and Digitalization during COVID-19 Pandemic*. Springer, pp 183–193.

# Role of Leadership Style as a Mediator on the Relationship Between Workplace Conditions on Job Stress Among Hotel Administrative Staff in Klang Valley



Ikmal Malik and Rudzi Munap

**Abstract** In this study, leadership style was used as a mediating variable to investigate the relationship between workplace conditions and jobs stress among administrative hotel personnel in Klang Valley. The determinants examined in this study include heavy workload, lack of recognition, and lack of opportunity to grow. A survey instrument in the form of a close-ended questionnaire was developed for the data collection process. Based on an examination of 131 respondents with a 65.5% response rate, heavy workload and lack of recognition demonstrated a weak but significant relationship with job stress. A high correlation was found between job stress and a lack of growth opportunities. Further findings revealed that the relationship between heavy workload, lack of recognition, and a lack of growth opportunities is fully mediated by leadership style. Overall, it is usual for hotel staff members to experience deadline pressure, lengthy workdays, shift work, unforeseen visitor interactions, and conflicts with superiors. While leadership plays a crucial role for the employees in their work environment, the hospitality industry's administrative staff would experience less job stress if the relationship between these aspects could be identified.

**Keywords** Job stress · Heavy workload · Lack of recognition · Lack of opportunity to grow · Leadership · Hotel industry

## 1 Introduction

Job stress is an escapable and normal phenomenon that is costly for organisations [1]. This problem occurs due to conflicts experienced by employees with their supervisors, company or customers, thereby creating friction between both parties [2].

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The working style is evolving and increasing demands culminate into job stress and poses a threat to employees' health, productivity, and the organisation's reputation. In the hospitality industry, employees always face challenges pertaining to job stress including unstable bureaucracy, organisational politics, job demands, and exorbitant anxiety and frustration that leads to poor performance. Although job stress has been addressed and depicted a reduction in expenses for employers, the underlying relationship remains unclear. Research related to job stress among administrative staff in the hospitality industry is still understudied [3]. On the other hand, leadership plays an important role and is critical in addressing job stress [4]. Previous studies found that leadership impacted job stress among employees due to a lack of encouragement from superiors, lack of support from others at work, and dealing with ambiguous situations [4]. Leadership is considered a potential mediator and one of the critical elements in the organisational context. The present study used the model of job stress by Cooper and Marshall (1976), who postulated that there are five sources of job stress. Specifically, high stress happened at the workplace due to intrinsic job activities, roles in the organisation, career development, relationship at work, and organisational structure and climate. However, given the limited information on job stress and well-being in the hospitality industry, this study focused on the relationship between job stress and heavy workload, lack of recognition, and lack of opportunity to grow among administrative staff in the hospitality industry. The research hypothesis is as follows:

*H1: There is a significant relationship between heavy workload on occupational stress among hotel administrative staff.*

## ***1.1 The Hospitality and Hotel Industries***

One of the challenges in the hospitality industry is to reduce employee turnover rates instead of finding suitable candidates to fill the vacancies. Due to role pressure, work overload, and long working hours, hospitality employees easily feel anxious and nervous, leading to dissatisfaction and negative emotions towards work [5]. According to [6], the tendency for employees to resign and get easily exhausted and irritated is due to frequently changing circumstances, facing a strenuous workload, and a lack of performance feedback. Therefore, the working environment in the hospitality industry can be stressful and elicit poor working conditions [7]. It was reported that employee turnover in the hospitality industry is near twice the average rate for all other sectors [8]. The economic downturn has made employee turnover more complicated and is expected to rise. On the other hand, poor leadership in the hospitality industry could cost the organisation hundreds of dollars due to employee turnover and the need to replace their position. A survey reported by [9] revealed that hotel staff experience stresses for 40 to 60% of the workday, leading to a drop in productivity. In the hotel industry, productive staff may lead to optimal financial

performance, customer satisfaction, and loyalty. Hence, a significant difference could be achieved by proper management.

### ***1.2 Heavy Workload and Job Stress***

Staff shortages refer to the increase in workload among employees [10]. A study found that a heavy workload is one of the most stressful work factors faced by employees at the workplace (Geuens, Franck, and Van Bogaert, 2018). Heavy workload has an impact on job stress [11]. In a study conducted by [12], 50% of employees felt stressed due to heavy workloads. Work overload was found as a cause of stress [13]. Therefore, pressure due to heavy workloads resulted in a severely stressful situation. The second hypothesis is thus stated as follows:

*H1: There is a significant relationship between heavy workload and job stress among hotel administrative staff.*

### ***1.3 Lack of Recognition and Job Stress***

Scholars argued that the hotel is a very sensitive or fragile industry [14]. The lack of recognition from supervisors is another contributing factor to job stress at the workplace [15]. With the absence of recognition, employees feel insecure about their position other than boredom and repetitiveness [16]. Cho et al. [8] emphasise that with no rewards given to employees, their outstanding performance would obviously result in job stress. Employees felt that their supervisors did not recognise their hard work towards the effectiveness and efficiency of the business operation. The following hypothesis will be tested in this study:

*H2: There is a significant relationship between lack of recognition and job stress among hotel administrative staff.*

### ***1.4 Lack of Opportunity to Grow and Job Stress***

A study conducted by Putri et al. [17] stated that the opportunity to grow is one of the highest drivers of engagement. Contrarily, the lack of opportunity to grow was the second-highest reason for employees to quit their job. This finding was also supported by Raina and Kalse [18] in which 26% of the employees opined leaving their jobs due to a lack of growth opportunities. The lack of growth opportunities produces uncertain and competitive work environments tributary to worry about [19]. Instead, stress at the workplace might be due to a lack of training, lack of promotion, and job insecurity [20]. Hawthorne's study indicated that gumminess would increase

employee satisfaction. The lack of gumminess will create a conflict where it can be a potential stressor for employees’ stress at the workplace [21]. Based on the reviewed studies, the following hypothesis will be explored in this study:

*H3: There is a positive relationship between lack of opportunity to grow and job stress among hotel administrative staff.*

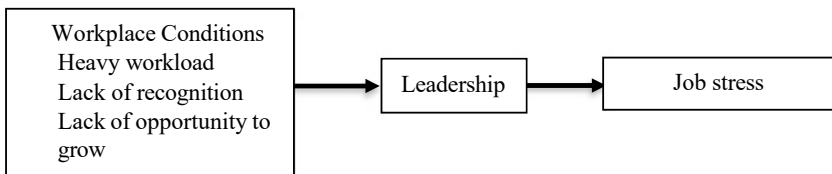
### 1.5 Leadership and Job Stress

As cited by [22], the most influential factor in the workplace for employees is the leader. Leadership can affect employees’ well-being. Besides, ineffective leadership can negatively undermine employees’ ability and self-efficacy to perform their job [23]. Ineffective leadership and job stress are the major concerns for organisations and the global economy. Leadership has been noted as the most influential psychosocial factor for many employees because it affects psychological well-being and decreases performance (Jacob, 2019). The final hypothesis to be investigated in this study is given below:

*H4: Leadership mediates the relationship between workplace conditions towards job stress (Fig. 1).*

## 2 Research Methodology

This study employed a quantitative research method by exploring the relationship between independent variables (heavy workload, lack of recognition, and lack of opportunity to grow) and dependent variables (job stress), with leadership as the mediating variable. The questionnaires were distributed via online platforms to the administrative staff of 3-star hotels in Klang Valley. The inclusion criteria for the sample of respondents entailed employees from the administrative department and specifically those dealing directly with hotel customers. A total of 200 employees were invited to participate but only 131 staff completed the questionnaire. Thus, the overall response rate was 65.5%. The remaining incomplete questionnaires were removed from the data set due to low factor loading values.



**Fig. 1.** Proposed framework of workplace conditions towards job stress, mediated by leadership

**Table 1** Convergent validity analysis

Construct	Composite Reliabilities	Cronbach's Alphas	AVE
Heavy workload	0.927	0.910	0.615
Lack of recognition	0.943	0.931	0.647
Lack of opportunity to grow	0.950	0.941	0.681
Leadership	0.828	0.761	0.581
Job stress	0.893	0.864	0.662

### 3 Findings

#### 3.1 Convergent Validity Analysis

Convergent and discriminant validity was employed in this study to ascertain how well the measurement items relate to the construct. The convergent validity used three tests, Composite Reliability, Item Reliability, and Average Variance Extracted (AVE). All the tests were performed in SMART PLS. As shown in Table 1, all the Cronbach Alphas and Composite Reliabilities were above 0.7. Hence, the measurement scale items used in this study have good reliability and good internal consistency. The AVE measures the level of variance captured by a construct versus the measurement error. The values above 0.7 are considered very good, whereas those ranging from 0.5 to 0.7 are acceptable [24]. Since all the constructs in this study are above the recommended value of 0.5, they are considered acceptable (Table 1).

#### 3.2 Factor Loading Analysis

Table 2 depicts the item loading for this study. Overall, the loading must be equal to or greater than 0.5 to represent the adequacy of the reliability of the measurement items. As indicated in Table 2, all the items had a loading above 0.5. This study used bootstrapping to test the significance of the loading since PLS is a non-parametric procedure.

#### 3.3 Correlation Analysis

As reflected in Table 3, the heavy workload was found to have a significantly weak relationship (0.261,  $p$ -value—0.003) with job stress. Similarly, the lack of opportunity to grow revealed a significantly weak relationship (0.360,  $p$ -value 0.000).

**Table 2** Factor loading analysis

Factor	Variables in the factor	Factor loading
Work overload	I experience excessive work pressure	0.724
	I work for long hours, overtime and even on holidays	0.755
	I am unable to meet the demands of my job	0.826
	I spend so long at work that my outside relationships are suffering	0.803
	I am so busy, and I find it increasingly difficult to concentrate on the job in front of me	0.833
	I feel tired during the day due to the excessive workload	0.830
	My job involved an excessive amount of work	0.814
	My job involved a lot of repetitive work	0.676
Lack of recognition	I feel appreciated when I complete a task	0.663
	My superior always thanks me for a job done	0.759
	I received adequate recognition for doing my job well	0.850
	I am made to feel that I am an asset to this organisation	0.801
	When I perform an outstanding task, the organisation recognises it	0.834
	I received recognition from colleagues when my job performance is good	0.823
	My manager always thanks me for a job well done	0.838
	I find the workplace is conducive when my manager recognises my work	0.818
Lack of opportunity to grow	This organisation has a recognition programme in place	0.833
	The leadership in my organisation strongly supports the career development of staff	0.855
	Staff understand the capabilities that the organisation requires in the next 5 years	0.747
	The performance appraisal process in this organisation places sufficient emphasis on career development	0.845
	Staff understand what their role is in their career development	0.808
	High-quality technical training is available to support staff development	0.877
	Staff perceive that there is a fair process for filling open positions	0.840
	This organisation usually promotes qualified internal people before hiring from outside	0.860
	Supervisors are adequately trained to support the career development a policy of staff	0.716
Leadership	My manager assists me to find meaning in my work	0.604

(continued)

**Table 2** (continued)

Factor	Variables in the factor	Factor loading
	My manager assists me in my personal development	0.690
	I received personal attention from my manager when I feel rejected	0.731
	My manager tells me what to do if I want to be rewarded for the work	0.584
	I received recognition from my manager when I reach my goals	0.790
	My manager calls attention to what I can get for what I accomplish	0.621
	My manager is satisfied when I meet agreed-upon standards	0.728
	I know the standards required from my manager when I carry out tasks assigned to me	0.641

**Table 3** Correlation analysis

	OS	LOR	LOTG	HW	
OS	Pearson correlation	1	0.650 <sup>a</sup>	0.360 <sup>a</sup>	0.261 <sup>a</sup>
	Sig. (2-tailed)		0.000	0.000	0.003
	N	131	131	131	131
LOR	Pearson correlation	0.650 <sup>a</sup>	1	0.163	0.150
	Sig. (2-tailed)	0.000		0.063	0.087
	N	131	131	131	131
LOTG	Pearson correlation	0.360 <sup>a</sup>	0.163	1	0.718 <sup>a</sup>
	Sig. (2-tailed)	0.000	0.063		0.000
	N	131	131	131	131
HW	Pearson correlation	0.261 <sup>a</sup>	0.150	0.718 <sup>a</sup>	1
Sig. (2-tailed)	0.003	0.087	0.000		
N	131	131	131	131	

<sup>a</sup> Correlation is significant at the 0.01 level (2-tailed)

Meanwhile, the lack of recognition (0.650, *p*-value—0.000) demonstrated a strong relationship with job stress [25].

### 3.4 Mediation Analysis

The study assessed the mediating role of leadership style on the relationship between workplace conditions (heavy workload, lack of recognition, lack of opportunity to grow) and job stress. The results revealed a significant indirect effect of the impact

**Table 4** Mediation analysis

Relationship	Total Effect	Direct Effect	Indirect Effects	Confidence Interval		<i>t</i> - statistics	Conclusion
				Lower Bound	Upper Bound		
HW → L → OS	0.5431 (0.0000)	0.2841 (0.0000)	0.2591	0.1541	0.3666	9.7891	Partial mediation
LOR → L → OS	0.2290 (0.0026)	-0.1361 (0.0275)	0.3651	0.2374	0.4985	3.0692	Full mediation
LOTG → L → OS	0.3077 (0.0000)	-0.2933 (0.0001)	0.6010	0.4616	0.7675	4.3808	Full mediation

of workplace conditions (heavy workload, lack of recognition, lack of opportunity to grow) on job stress. Furthermore, there is a direct effect of workplace conditions (heavy workload) on job stress. The finding was still significant in the presence of the mediator, leadership style. However, lack of recognition and lack of opportunity to grow was found insignificant. Hence, heavy workload partially mediated the relationship between workplace conditions and occupational stress while others reflected completely mediating effects. As presented in Table 4.

## 4 Discussion and Conclusion

### 4.1 Discussion on Findings of the Study

Based on the findings, all independent variables, work overload, lack of recognition and lack of opportunity to grow indicated a significant relationship with job stress. Leadership depicted full mediating effects on the relationship between the independent variables and the dependent variable (Table 5).

**Table 5** Result of hypotheses test

Structural paths	<i>P</i> -Value	Decision
Heavy workload → Job stress	0.000	Supported
Lack of recognition → Job stress	0.027	Supported
Lack of opportunity to grow → Job stress	0.000	Supported
Heavy workload → Leadership → Job stress	0.000	Partially mediate
Lack of recognition → Leadership → Job stress	0.002	Fully mediate
Lack of opportunity to grow → Leadership → Job stress	0.000	Fully mediate

## 5 Conclusion

This study provided in-depth insight for employees and managers in the hospitality industry. Stakeholders in this industry need to understand and emphasise how job stress impacts the performance of the administrative staff. This could trigger higher staff absenteeism and work productivity. It is suggested that managers and organisations take several actions or strategies to address stress issues among employees, such as flexible work schedules, specific counselling programmes, and mentoring or coaching sessions. Furthermore, it is essential to develop a supportive work environment where employees can help each other in dealing with the negative effect of job stress. In these challenging times, more so with the global hit of COVID-19, stress has become a significant buzzword and legitimate concern. Thus, it is the management's responsibility to provide stress avoidance and coping techniques to help employees handle job stress effectively and efficiently.

## References

1. Jarupathirun, S., & De Gennaro, M. (2018). Factors of work satisfaction and their influence on employee turnover in Bangkok, Thailand. *International Journal of Technology*, 9(7), 1460-1468.
2. Assella, A. P. N., & Arachchi, R. S. S. W. (2020). Relationship Between Job Role Stress And Performance Of Non-Manual Employees In Travel Agencies In Sri Lanka. *Journal homepage: <http://tourismleaderssummit.org/jtear>*, 4(1).
3. O'Neill, J. W., & Davis, K. (2011). Work stress and well-being in the hotel industry. *International journal of hospitality management*, 30(2), 385-390.
4. Abbasi, S. G. (2018). Leadership styles: Moderating impact on job stress and health. *Journal of Human Resources Management Research*, 2018, 1-11.
5. O'Neill, J. W., & Follmer, K. (2020). A multilevel review of hospitality industry work-family conflict research and a strategy for future research. *Journal of Hospitality & Tourism Research*, 44(1), 3-44.
6. Belete, A. (2018). Turnover intention influencing factors of employees: an empirical work review. *Journal of Entrepreneurship & Organisation Management*, 7(5), 1000253, 23-31.
7. Wu, X., & Zhang, T. (2017). Work Stress and Job Satisfaction of Employees in Hospitality: A Comparative Study of the Casino Hotels and Non-Casino Hotels in Macau. *International Journal of Advanced Engineering and Management Research*, 2(3), 646-657.
8. Cicerale, V. (2020). Turnover Rates in the Hospitality Industry and the Factors Contributing to Employee Loss or Retention. *Hospitality Graduate Student Scholarship*. 5.
9. Zamyatina, N. A., & Solntseva, O. G. (2019, December). Hotel tech ecosystem: adaptations to online distribution. In *Institute of Scientific Communications Conference* (pp. 194-204). Springer, Cham.
10. Deeb, A., Alananzeh, O. A., Tarhini, A., & Masa'deh, R. E. (2020). Factors affecting job performance: the case of Jordanian hotels' kitchen staff. *International Journal of Public Sector Performance Management*, 6(3), 340-360.
11. Fernandes, W., & Nirmala, R. (2017). Workplace Stress and Coping Strategies among Indian Nurses: Literature Review. *Asian Journal of Nursing Education and Research*, 7, 449-454.
12. Lee, M., Coutts, R., Fielden, J., Hutchinson, M., Lakeman, R., Mathisen, B., ... & Phillips, N. (2021). Occupational stress in University academics in Australia and New Zealand. *Journal of Higher Education Policy and Management*, 1-15.



13. Mittal, M., & Bhakar, S. S. (2018). Examining the impact of role overload on job stress, job satisfaction and job performance-a study among married working women in the banking sector. *International Journal of Management Studies*, 2(7), 1- 11.
14. Kaushal, V., & Srivastava, S. (2021). Hospitality and tourism industry amid COVID-19 pandemic: Perspectives on challenges and learnings from India. *International Journal of Hospitality Management*, 92, 102-107.
15. Brewster, M. E., Velez, B. L., Geiger, E. F., & Sawyer, J. S. (2020). It's like herding cats: Atheist minority stress, group involvement, and psychological outcomes. *Journal of counselling psychology*, 67(1), 1-13.
16. Stillwell, S. B., Vermeesch, A. L., & Scott, J. G. (2017). Interventions to reduce perceived stress among graduate students: A systematic review with implications for evidence-based practice. *Worldviews on Evidence-Based Nursing*, 14(6), 507-513.
17. Putri, N. E., Nimran, U., Rahardjo, K., & Wilopo, W. (2021, August). The Impact of Organisational Culture on Employee Engagement and Organisational Citizenship Behavior. In *International Conference on Economics, Business, Social, and Humanities (ICEBSH 2021)* (pp. 456–463). Atlantis Press.
18. Raina, B., & Kalse, A. (2018). A study of human resource practices on employee work engagement in hospitality industry. *BVIMSR's Journal of Management Research*, 10(2), 194-206.
19. Sankar, P. (2019). Medical tourism in India: issues, opportunities and designing strategies for growth and development. *Sociology of Medical Tourism*, 227.
20. Ade, S. (2020). Factors Related to Perceived Stress and Stress Responses among Indonesian Migrant Workers in South Korea (Doctoral dissertation, Seoul National University).
21. Satyaningrum, D. I., & Djastuti, I. (2020). Relationship between emotional labour, work stress, employee creativity, and turnover intention: study on Indonesian bank frontliners. *International Journal of Business*, 3(1), 1-16.
22. Osborne, S., & Hammoud, M. S. (2017). Effective employee engagement in the workplace. *International Journal of Applied Management and Technology*, 16(1), 50-67.
23. Offergelt, F., Spörrle, M., Moser, K., & Shaw, J. D. (2019). Leader-signalled knowledge hiding: effects on employees' job attitudes and empowerment. *Journal of Organisational Behavior*, 40(7), 819-833.
24. Aguinis, H., Edwards, J. R., & Bradley, K. J. (2017). Improving our understanding of moderation and mediation in strategic management research. *Organisational Research Methods*, 20(4), 665-685.
25. Tests & measurement for people who (think they) hate tests & measurement
26. Ahmed, O. M. (2019). Academics wellbeing in public universities, Nigeria: the role of transformational leadership, perceived stress, organisational justice and self-efficacy (Doctoral dissertation, Universiti Utara Malaysia).
27. Cho, M., Bonn, M. A., Han, S. J., & Kang, S. (2018). Partnership strength and diversity with suppliers: Effects upon independent restaurant product innovation and performance. *International Journal of Contemporary Hospitality Management*.
28. Celik, M. (2018). The effect of psychological capital level of employees on workplace stress and employee turnover intention. *innovar*, 28(68), 67–75.
29. George, R., Chiba, M., & Scheepers, C. B. (2017). An investigation into the effect of leadership style on stress-related presenteeism in South African knowledge workers. *SA Journal of Human Resource Management*, 15(1), 1-13.
30. Geuens, N., Franck, E., & Van Bogaert, P. (2018). Stress Resistance Strategies. In *The Organisational Context of Nursing Practice*, 279–293.
31. Jacobs, C. M. (2019). Ineffective-leader-induced occupational stress. *SAGE Open*, 9(2), 2158244019855858, 1–15.
32. Lockwood, G., Henderson, C., & Stansfeld, S. (2017). An assessment of employer liability for workplace stress. *International Journal of Law and Management*, 59(2), 202-216.
33. Mansour, S., & Mohanna, D. (2018). The mediating role of job stress between work-family conflict, work-leisure conflict, and employees' perception of service quality in the hotel industry in France. *Journal of Human Resources in Hospitality & Tourism*, 17(2), 154-174.

34. Manyamba, V. (2017). The Effort Reward Imbalance model and work-related stress in 3-5 Star hotels in Zimbabwe. *African Journal of Hospitality, Tourism and Leisure*, 6(2), 1-12.
35. Nikipour, A. (2017). The impact of organisational culture on organisational performance: The mediating role of employee's organisational commitment. *International Journal of Organisational Leadership*, 6, 65-72.
36. Qian, J., Song, B., & Wang, B. (2017). Abusive supervision and job dissatisfaction: the moderating effects of feedback avoidance and critical thinking. *Frontiers in Psychology*, 8, 496.

# A Survey on Community Felda Residents' Preferences for Purchasing Family Takaful



Hasannuddiin Hassan , Siti Rohana Mohamad , Mohd Ikhwan Aziz , and Rozana Saedon

**Abstract** The goal of this research is to identify and analyze the variables that predict if the residents of a Felda community have the aim and tendency to acquire family takaful. This review analyzed prior research on the factors that influence people's decisions to purchase family takaful. People's tendency to invest in family takaful is affected by their perspective, level of education, level of trust, and level of religion. A quantitative approach was employed for the data in this investigation. From the residents of Felda Keratong 1, a total of 361. The correlation analysis was conducted using SPSS. The research showed that there is a significant positive association between attitude, knowledge, trust, and religion and the intention to buy a family takaful policy. The study's results will help Islamic financial institutions, especially takaful firms, improve their marketing strategies in response to changing customer preferences. Takaful providers might increase product sales and market share by learning more about the factors that influence customers' decisions to purchase family takaful.

**Keywords** Intentions · Attitudes · Knowledge · Trust · Religiosity

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## 1 Introduction

Takaful Malaysia is a firm that offers insurance products in accordance with Shariah, known as takaful. Takaful businesses provide a variety of takaful products, including medical takaful, automobile takaful, investment takaful, and other Shariah-compliant takaful products (Azman, M. N. S. N et al). Malaysia is one of the first countries in the world to establish a capital structure based on risk for takaful. In a family takaful, participants mutually agree to contribute a certain amount to the takaful fund, in the form of *tabarru'* or participative contribution. Participants receive financial benefits should they be met with death or permanent disability before the maturity of the takaful. This study looks at elements impacting an individual's desire to acquire family takaful in one of Felda settlements in Malaysia. Felda settlements are made of low to middle-income families, with rubber and palm oil as the main sources of income. This research discovered that many individuals assume takaful and insurance to be similar, although, they are not. Every product has its own identity and reason for being made and sold to clients. They provide advantages and benefits as written in their policies. As for takaful products, their benefits succumb to ignorance, due to lack of information. Its utmost reason for being formulated is to avoid the involvement of Muslims with unislamic practices such as *riba*, *gharar*, and *may-sir*. The majority of FELDA settlers are yet to own takaful, either for themselves or their families. This is explained by the poor knowledge of it among Felda settlers. The majority of them has somehow formed a kind of mistrust with takaful bodies.

The objective of this study is to determine the effects of four factors on individuals: attitude, religion, knowledge, and trust. This study also aims to examine the relationships between people's perceptions, knowledge, and individual motivations to purchase takaful; as well as the role of trust, individual motivations, and religious beliefs in driving Felda settlers to buy family takaful. This study discusses the viewpoints that include the factors that influence the expectations of Felda settlers in family takaful. Takaful is an example of a Shariah-based framework used to mitigate risks of calamities such as accidents, thefts, fire, and even death, providing security to its owners in times of trouble. Concerning strategies to increase the uptake of takaful products, it is essential to raise local consumer interests and awareness in family takaful.

## 2 Literature Review

This study uses the Theory of Planned Behavior (TPB) as a guide. Created by Icek Ajzen in 1991, its goal is to forecast closely human behavior. The concept of planned behavior posits that actions are directly influenced by behavioral motivations and that they may also predict behavior in a particular situation. It is a method used to understand and predict human behavior. In the simplest form, this idea explains that an individual's actions are intimately tied to their goals (Azman, M. N. S. N et al).

According to Ajzen (2008), attitude toward a behavior, the subjective norm, and the sense of control over the behavior, all affect the intention to behave. Applicable to many situations, this theory explains human behavior in a way that is easy to understand. Earlier, in 1957, Ajzen and Fishbein developed the Theory of Reasoned Action (TRA), focusing on attitudes and subjective standards to explain human behavior. More recently, in 2008, Ajzen introduced two more factors to TPB theory, giving a clearer explanation of human behavior. The Theory of Planned Behavior is presently known as the Theory of Perceived Behavioral Control and the Theory of Belief-Based Structure. He explained that an individual's behavior may be seen through the perspective of their behavioral intents, which comprise attitude, subjective standards, and perceived behavioral control.

## ***2.1 Intentions***

Intention, as defined by Ajzen [2], is the condition of being mentally prepared to act. His previous research has also shown that intentions influence future behavior. If a person has behavioral intentions, they are open to giving the behavior a chance and are prepared to make some sacrifices to make it happen. The intent to act in response to a certain circumstance or set of circumstances is what we mean when we talk about behavioral intentions. The researcher's role in this study is to inquire about the buyer's motivations. In the words of Shao et al. (2004), a person's purchasing intention is their propensity to buy a certain good or service. Intention and the probability of making a purchase are strongly correlated. One's genuine nature toward a certain scenario or situation may be reflected through their intentions [4]. The more powerful the intention, the more likely a person's genuine character and behavior are to be discovered and executed.

## ***2.2 Attitudes***

The term "attitude" refers to a relatively stable structure of beliefs, sentiments, and behavioral tendencies with regard to socially important things, organizations, events, or symbols. The best way to describe an attitude is as a propensity to behave in a certain way (Hogg and Vaughan, 2005). People's attitudes are benchmarks in predicting the intentions and behavior of humans (Phau, Sequeira, and Dix, 2009). Customers with good attitudes bring the possibility of intention to purchase products or services offered. Humans may show favorable or unfavorable behavior toward a particular product or service that could affect their intention in purchasing them (Suki, 2010). Attitude is also known as a psychological tendency formed by assessing products or services with feelings of favor or disfavor (Eagly and Chaiken, 1993). However, whenever human encounters various options or choices, their intention is normally affected by better persuasion and marketing technique, leading to a

purchase. People tend to choose a product or service based on its quality. However, many a time, it is hard to elicit, whether a product is of good quality unless it has been tried for a while. Thus, a form of trust is somehow developed during good sales pitches, supported by customers' attitudes, leading to intention to buy in customers. When people are presented with different options, they tend to choose the one closest to their attitude (Arvola et al., 1999).

**H1: Attitudes have a positive influence on people's intentions to purchase family takaful schemes.**

### **2.3 Knowledge**

Product knowledge is defined as awareness in consumers of specific information concerning a product [10]. The source of product knowledge can be attributed to the consumer's experience with actual or similar products and advertisements aimed at persuading consumers to purchase a product (Rao and Monroe, 1988). The main wellspring of knowledge is the genuine encounter with the item and the notices that influence consumers' decisions.<sup>1</sup> Product knowledge can be measured subjectively, which is acquired via the consumer's experience with the product, and objectively, which are in terms of cost knowledge and quality knowledge (Rao and Monroe, 1988). Cost knowledge surrounding takaful is about consumers' understanding of, among others, contributions set to be paid monthly during its tenure and the coverage amount involved is more than the total contributions paid. Research finds that lower price is a key determinant of greater perceived value (Zeithaml, 1988). In the settings of takaful and insurance products, lower contribution yet higher coverage amounts are perceived as the ideals. Quality knowledge, on the other hand, is about the degree of ambiguity associated with a particular product (Hazen et al., 2011). Consumers' decision for a particular product can be linked to their preference for known risk, rather than ambiguous one (Ellsberg, 1961). In the takaful product settings, ambiguity maybe associated with the ease of applying for the claim and actually succeeding in their claim. The rise of social media and the internet has been detrimental to many products since people are able to research and learn of others' accounts of any product they seek to learn, influencing consumers' perception of the whole industry at times. Unfortunately, bad publicity may affect people's perception of takaful, leading to misguided judgment among consumers, and disarming them of the advantages that takaful may actually offer.

**H2: Knowledge have a positive influence on people's intentions to purchase family takaful schemes.**

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<sup>1</sup> Brucks, M. (1985), "The effects of product class knowledge on information search behavior", *Journal of Consumer Research*, pp. 1–16.

## 2.4 *Trust*

There are several elements that might influence trust, and they can change over time. A requirement for making a buying decision Several elements have been shown to affect users' first levels of trust. The credibility of the organization, the scale of the company, the corporate image they project, and the availability of third-party sellers, such as online bookstores, are all important factors. Family takaful is not widely accepted among Felda Keratong 1 settler because they do not perceive it as a pressing issue. They believe that tragic events, such as death or permanent disability, are very unlikely to occur in their lifetimes. Many are suspicious of takaful because of negative stereotypes, such as the difficulty of making a claim. Information about takaful is just one more item that may be researched on the internet in this age of globalization. Talking to a takaful representative is recommended since contributions and coverage levels change according to age, gender, and risk factors. As a result, agents are crucial in getting clients to feel comfortable making a purchase and develop a desire to make that purchase.

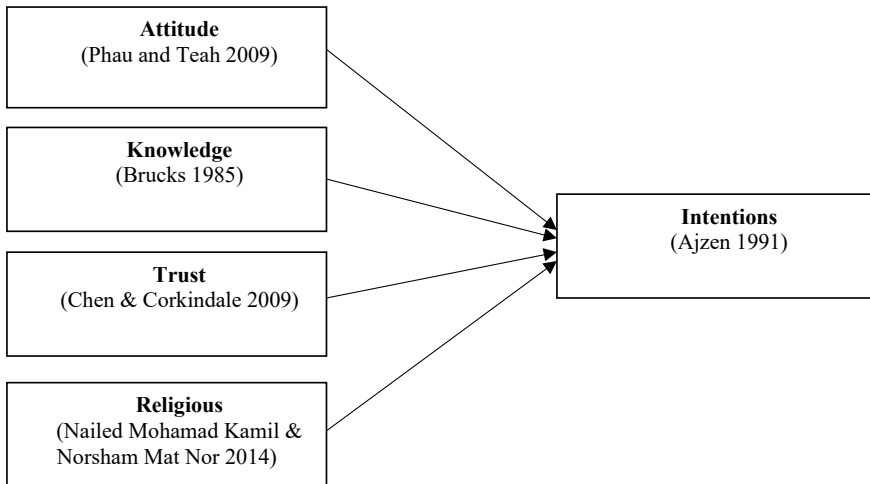
**H3: Trust have a positive influence on people's intentions to purchase family takaful schemes.**

## 2.5 *Religiosity*

In a way that is in accordance with Islamic teachings and does not make the product less competitive than its conventional insurance equivalent, takaful is an innovative approach to meeting the requirements of the Muslim community with regard to their need for insurance. According to Zelizer (1979), religion has been a major source of resistance to life insurance throughout history. This is due to the fact that life insurance contradicts the belief that God is the one who creates one's fate. The definition of religion that can be found in the Merriam-Webster dictionary describes it as an "affiliation with displaying dedication to divine truth, concentrating on religious ideas or warnings attentively and honestly." Islam, Christianity, Buddhism, and a number of other faiths are only some of the varieties of religion that are followed by people in Malaysia. Takaful was primarily developed to provide Muslims with insurance that did not include the practices of *riba* (usury), *gharar* (uncertainty), or *maisir* (compound interest) (gambling).

**H4: Religiosity have a positive influence on people's intentions to purchase family takaful schemes.**

This research framework is shown in Fig. 1, which can be seen below. It is comprised of the study's dependent variable as well as its independent factors. Intentions are being studied as a dependent variable in this study, whereas attitude, knowledge, religious practice, and trust are being investigated as independent factors. The link



**Fig. 1** Individuals' intentions to purchase family takaful in Felda Keratong 1 and the elements that affect such intentions

between the elements that impact individual intentions to acquire family takaful among the community in Felda Keratong 1 is shown in this figure.

### 3 Methodology

Methodology for conducting research is essential to the success of any investigation. The quantitative method of gathering information was selected for this study. By gathering and evaluating numerical data, researchers conducting quantitative studies examine and describe concrete phenomena (Nana, 2005; Chua, 2006; Fraenkel, 2007). In order to shed light on a mystery or establish a causal relationship between two or more variables, researchers often resort to statistical tests. When it comes to reasoning and critical thinking, the quantitative approach is a reliable and effective way.

Questionnaires were used to collect data from participants in this research. In this case, the people of Felda Keratong 1 are being sought. Before any conclusions can be drawn from the questionnaire data, a suite of analyses was performed on the raw data.

The information was processed and put into the Social Science Software (SPSS) version 26.0 statistical program. The data were analyzed using SPSS for descriptive purposes, reliability, and inferential analysis. The demographics of the respondents were characterized using descriptive statistics, including means, medians, and modes. Inferential analysis using the Pearson correlation was used to examine the connection between the dependent and explanatory variables. Descriptive statistics are used to



**Table 1** Cronbach's alpha value of variables

	Variables	Number of item	Cronbach's alpha value
DV	Intentions	4	0.884
IV	Attitude	4	0.858
IV	Knowledge	4	0.880
IV	Trust	4	0.880
IV	Religiosity	5	0.911

make broad inferences about the respondents' demographics. T-tests were used to see whether there was a statistically significant difference in the causal and regression studies.

## 4 Result

### 4.1 Reability Analysis

The reliability test is used to determine whether a scale is free of random error. Reliability indicates the degree to which it is free from bias, ensuring consistent measurement over time and across various items in the instruments. The Cronbach's alpha coefficient test was used to determine the reliability of the scale instrument used in this study.

Cronbach's alpha coefficient was used in this study to determine the internal consistency of the scales used in the survey. Each variable's Cronbach's alpha value is listed in Table 1.

The table above shows the independent and dependent reliability coefficients for this study based on the rules of thumb of Cronbach's alpha. According to Sekaran and Bougie [18], the reliability of a variable construct is said to be good if it has a Cronbach's Alpha value > 0.70.<sup>2</sup> The table shows that all variables are highly reliable which Cronbach's Alpha value > 0.80. In short, the findings of the reliability tests support the appropriateness of the instruments used throughout this study and the concept tested is suitable for the study. Therefore, the outcome of the instruments is suitable for a higher level of analysis.

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<sup>2</sup> Sekaran, U. & Bougie, R. (2016). Research methods for business: a skill-building approach (7th ed.), United Kingdom: Wiley.

## 4.2 Descriptive Analysis

The mean of 20 items, tested according to each variable, is presented in Table 2 below. All items have mean scores above 3.00. This indicates that the majority of the respondents, which represent the community of Felda Keratong 1, agreed with the items' statements of each variable and considered those items as major antecedents of intentions to family takaful.

**Table 2** Summary of the means of items according to variable ( $N = 361$ )

	Variables	Importance	
		Mean	S.D
<b>Intentions (DV)</b>			
I1	I am likely to choose family takaful scheme in the future	4.38	0.772
I2	I expect to choose family takaful scheme	4.29	0.682
I3	I plan to purchase a family takaful plan	4.31	0.769
I4	Given the chance, I predict I will purchase family takaful scheme in the future	4.26	0.753
<b>Attitude (IV1)</b>			
A1	I think purchase of family takaful scheme is a good thing to do	4.36	0.706
A2	I believe the purchase of family takaful is useful	4.31	0.777
A3	I believe that purchasing family takaful insurance is a smart decision	4.32	0.667
<b>Knowledge (IV2)</b>			
K1	I just want to look into the idea of purchasing a family takaful scheme	4.28	0.751
K2	I'd like to know what contract is needed to purchase a family takaful scheme	4.24	0.696
K3	I would like to know What benefits are covered if I buy family takaful	4.30	0.739
K4	I want to know how family takaful schemes are better to regular insurance	4.28	0.729
<b>Trust (IV3)</b>			
T1	Based on my knowledge of family takaful, I believe it is genuine	4.25	0.779
T2	Based on my experience with family takaful, I believe it values its customers	4.22	0.746
T3	Relying on my knowledge of family takaful, I believe it is reliable	4.25	0.765
T4	Based on my interpretation of family takaful, I believe it is consistent	4.16	0.770
<b>Religious (IV4)</b>			
R1	I think family takaful is consistent with the Islamic philosophy of performing takaful business.	4.32	0.767
R2	Family takaful, through my viewpoint, is established on the Islamic principle of business implementation	4.26	0.694

(continued)

**Table 2** (continued)

	Variables	Importance	
		Mean	S.D
R3	I think the concept of takaful is formed on the Quran and Hadith	4.29	0.761
R4	I genuinely think family takaful is riba-free (usury)	4.25	0.752
R5	Family takaful, in my perception, is exempt of fraud (gharar)	4.26	0.718

Table 2 above contains a summary of the generated values for all variables. Average the responses to the applicable questions provided the total score for each variable.

### 4.3 Correlation Analysis

This section analyzed Pearson’s correlation between independent variables (Ivs) and dependent variables (DV). This section tests the mediator’s connection as a dependent variable. The direction and strength of the linear relationship between the Ivs and DVs were calculated using correlation coefficients. Pearson’s correlation coefficients ® indicate a positive or negative correlation with a range from -1 to +1. According to Pallant (2007), the absolute va’ue’s size provides information on the strength of the relationship. The table below summarizes the results of the correlations between the independent and the dependent variables (Table 3).

The table showed all factors connected positively. Table 4 summarizes and explains this study’s main hypotheses.

**Table 3** The correlation between the independent variables and the dependent variables (N=361)

Dependent variables		Customer value, DV1
Attitude, IV <sub>1</sub>	Pearson correlation	0.794 <sup>a</sup>
	Sig. (2-tailed)	0.000
Knowledge, IV <sub>2</sub>	Pearson correlation	0.800 <sup>a</sup>
	Sig. (2-tailed)	0.000
Trust, IV <sub>3</sub>	Pearson correlation	0.809 <sup>a</sup>

<sup>a</sup>Correlation is significant at 0.01 level (2-tailed)

**Table 4** Summary of results of the study hypotheses

	Hypothesis		Pearson correlation	Result
1	H <sup>1</sup> :	Attitude have a positive influence on people's intentions to purchase family takaful schemes	0.794	Supported
2	H <sup>2</sup> :	Knowledge have a positive influence on people's intentions to purchase family takaful schemes	0.800	Supported
3	H <sup>3</sup> :	Trust have a positive influence on people's intentions to purchase family takaful schemes	0.809	Supported
4	H <sup>4</sup> :	Religiosity have a positive influence on people's intentions to purchase family takaful schemes	0.867	Supported

#### 4.4 t-Test

A t-test is a type of inferential statistic used to determine if there is a significant difference between the means of two groups, which may be related to certain features. Table 5 shows the results of the t-test.

Table 5 indicates that there are 372 people in the entire sample, of whom 180 are men and 192 are women. Although the problem statement assumes that the level of awareness in Felda Keratong 1 is low, the results show that the level of awareness there is high. In addition, the problem statement claims that takaful coverage is lower in rural than in urban areas, but the findings of this study show that residents of Felda Keratong 1, whether they are men or women, have a positive attitude toward takaful and a strong desire to purchase it. They also have a high level of knowledge about

**Table 5** The results of t-test

Group statistics					
	Gender	N	Mean	Std. deviation	Std. error mean
Attitude	Male	180	4.3524	0.65253	0.04868
	Female	192	4.3045	0.55529	0.04125
Knowledge	Male	180	4.3067	0.66015	0.04943
	Female	192	4.2584	0.58974	0.04381
Trust	Male	180	4.2694	0.68438	0.05106
	Female	192	4.1836	0.62561	0.04628
Religiouss	Male	180	4.3091	0.68567	0.05116
	Female	192	4.2435	0.58136	0.043
Intentions	Male	180	4.3575	0.6582	0.04827
	Female	192	4.2562	0.61098	0.04503

takaful and a strong sense of faith in it. A mean score of over 4.0 indicates knowledge of takaful.

## 5 Discussion

In this section, the results of the t-test analysis are discussed for each hypothesis. The primary focus of this section is on the factors that influence an individual's intention to purchase family takaful in the Felda Keratong 1 community. The concept of family takaful is not new to the fields of marketing and research; however, there is a lack of empirical evidence referring to it. After saying all of that, the researcher came to the conclusion that the results are both significant and supported. According to the findings of the analysis of the data, all four of the research objective are being supported to the extent that these factors play a significant role in the desire of an individual to acquire family takaful. The table that follows elucidates the research objectives, questions, and hypotheses, as well as the results that were collected (Table 6).

The research was conducted in fulfillment of these four objectives, which are associated with the factors that could potentially influence an individual's desire to buy a family takaful. Family takaful aims to protect heirs or beneficiaries of the insured against the unexpected turn of events that may jeopardize financial security. From the result above, attitude indeed plays an important role in triggering the intention to purchase. In simple words, the best portrayal of attitude among takaful agents, full disclosure of information about the family may indeed spark intention among customers to purchase. This is also true for the attitude shown by the settlers of Felda Keratong 1, which could help them to be more open to recommendations, leading to the intention to purchase. Attitudes associated with openness to suggestions, the urge to learn, and showing interest are positive attitudes that may lead to intention to purchase takaful.

The findings showed that there is a positive correlation between individuals' levels of knowledge and their intentions to purchase family takaful policies. Product knowledge is awareness of information related to a particular product [10]. A genuine experience with the product or one similar and information provided by takaful experts or by relevant sources may influence consumers' decisions. Knowledge can further be increased by asking relevant questions to the experts, improving insight into the matter. The clearer the picture, the more likely consumer to decide to purchase a family takaful.

According to the findings, the hypothesis that trusts positively influences individual intention is supported. This indicates that trust performs a role in the decision that consumers make regarding whether or not to make a purchase. Early trust is essential to user behavior because it marks the beginning of the trust-building process and because numerous factors have the potential to have an effect on it. This gives credibility to the statement made by Chen Corkindale [11], which asserts that trust

**Table 6** Summary of research objective, research questions and key findings

Research objective	Research questions	Research hypothesis		Result
1. To study the relationship between the attitude and people's intentions to purchase family takaful schemes	1. What is the relationship between the attitude in people's intentions to purchase family takaful schemes	H <sup>1</sup> :	Attitude has a positive influence on people's intentions to purchase family takaful schemes	Supported
2. To study the relationship between knowledge in the community of Felda Keratong 1 and people's intentions to purchase family takaful schemes	2. What is the relationship between knowledge and people's intentions to purchase family takaful schemes	H <sup>2</sup> :	Knowledge have a positive influence on people's intentions to purchase family takaful schemes	Supported
3. To study the relationship between trust in the community of Felda Keratong 1 people's intentions to purchase family takaful schemes	3. What is the relationship between trust in people's intentions to purchase family takaful schemes	H <sup>3</sup> :	Trust have a positive influence on people's intentions to purchase family takaful schemes	Supported
4. To study the relationship between religious belief in the community of Felda Keratong 1 and people's intentions to purchase family takaful schemes	4. What is the relationship between religious belief in people's intentions to purchase family takaful schemes	H <sup>4</sup> :	Religious have a positive influence on people's intentions to purchase family takaful schemes	Supported

is a complicated and multi-faceted idea that encompasses a wide range of conditions that are in a state of constant flux.

Hypothesis, religious belief positively influences individual intention in purchasing family takaful among Felda Keratong 1 settlers, is supported. This is agreed by Waseem et al. (2017) in their study on the religious aspect influencing contributions in takaful memberships. Since takaful prevents Muslims from illegal practices namely riba (interest), gharar (uncertainties), and maysir (gambling), religious belief does affect Muslim consumers to decide on takaful, and not conventional insurance. The majority of the settlers in Felda Keratong 1 are Muslims, and they tend to believe they should purchase takaful. Religious belief results in trust in family takaful among Muslim consumers. Religious belief too makes Muslims aware of their responsibilities to provide for the family, and ensure their welfare should death takes away the sole breadwinner.

## 6 Conclusion

People in Felda Keratong 1 are interested in buying family takaful in a big way, according to the results. To recap, the findings of this study shed light on the reasons that motivate residents in Felda Keratong 1 to buy family takaful. The purpose of this study is to examine the variables that motivate residents in Felda Keratong 1 to acquire family takaful insurance. Analysis of the data shows that there are positive correlations between the independent variables of attitude, knowledge, trust, and religion and the intention of individuals to acquire family takaful. Given its significance in ensuring a family's financial stability, this issue merits more investigation in the future. Instilling the proper mindset, offering information in the best and easiest manner to understand, establishing trust in the process, and emphasizing the spiritual side of takaful should be at the center of takaful providers' marketing efforts.

In this study, it is suggested that, for the sake of long-term economic stability, future research should add consumer health knowledge, educational attainment, and disposable income to the factors that affect customer purchase intent. According to the research, all three of these things make people more likely to make a purchase. The propensity of takaful and insurance agents to make sales is another area that should be investigated in future research.

The culture of takaful businesses could be looked at in the future as a second area to study. It is widely believed that takaful operators offer a wide variety of products, but in practice, agents typically only highlight a subset of these products to customers, typically those that require a higher monthly contribution, and thus discourage customers with lower incomes from purchasing insurance. As a further step, maybe raising agents' consciousness of the need to protect all families, not just those with more disposable cash, above commissions would be a good idea. High-quality research results are provided to the end user thanks to the study's use of a causal analysis technique, which allows the researcher to identify and assess the cause and effect of the variables within themselves. This research confirmed all four ideas. In order to ensure a better and safer future for their customers, takaful operators, and agents should work to change their mindsets by improving their education, expanding their information networks, and fostering an environment of trust and faith.

## References



1. Abdullah, N. I. (2012). Analysis of demand for family takaful and life insurance: a comparative study in Malaysia. *Journal of Islamic Economics, Banking and Finance*, 113(470), 1–20.
2. Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179–211.
3. Ajzen, I. (2002), "Residual effects of past on later behavior: habituation and reasoned action perspectives", *Personality and Social Psychology Review*, Vol. 6 No. 2, pp. 107–122. Factors that influence individuals' intentions.
4. Ajzen, I. and Fishbein, M. (1975), "Belief, attitude, intention and behavior: an introduction to theory and research".

5. Aziz, A. P. D. A. A. (2017). Leveraging on religious and ethical aspects in marketing takaful products-Malaysian experience. *European Journal of Social Science Education and Research*, 4(3), 57–62.
6. Aziz, S., Husin, M. M., Hussin, N., & Afaq, Z. (2019). Factors that influence individuals' intentions to purchase family takaful mediating role of perceived trust. *Asia Pacific Journal of Marketing and Logistics*.
7. Aziz, S., Md Husin, M., & Hussin, N. (2017). Conceptual framework of factors determining intentions towards the adoption of family takaful-An extension of decomposed theory of planned behaviour. *International Journal of Organizational Leadership*, 6, 385–399.
8. Azman, M. N. S. N., Basri, N. S. M., Judi, N. F., & Bakar, S. H. A. (2022). *The factors that influence individual's intention to purchase family takaful among the community at Felda Keratong 1* (Bachelor's dissertation, Universiti Malaysia Kelantan).
9. Bhatti, T., & Husin, M. M. (2019). An investigation of the effect of customer beliefs on the intention to participate in family Takaful schemes. *Journal of Islamic Marketing*.
10. Brucks, M. (1985), "The effects of product class knowledge on information search behavior", *Journal of Consumer Research*, pp. 1–16.
11. Chen and Corkindale (2009) Towards an understanding of the behavioral intention to use online news services: An exploratory study.
12. Czellar, S. (2003), "Consumer attitude toward brand extensions: an integrative model and research propositions", *International Journal of Research in Marketing*, Vol. 20 No. 1, pp. 97–115.
13. Grabner-Kräuter, S., & Kaluscha, E. A. (2003). Empirical research in on-line trust: a review and critical assessment. *International journal of human-computer studies*, 58(6), 783–812.
14. Hassan, Rusni & Salman, Syed & Kassim, Salina & Majdi, Hafiz. (2018). Awareness and Knowledge of Takaful in Malaysia: A Survey of Malaysian Consumers. *International Journal of Business and Social Science*. 9. 45–53. <https://doi.org/10.30845/ijbss.v9n11p6>.
15. Jiang, P., & Rosenbloom, B. (2014). Consumer knowledge and external pre-purchase information search: A meta-analysis of the evidence. In *Consumer Culture Theory: Emerald Group Publishing Limited*.
16. Kim, K., & Prabhakar, B. (2000). Initial trust, perceived risk, and the adoption of internet banking. *ICIS 2000 Proceedings*, 55.
17. Morgan, R.M. and Hunt, S.D. (1994), "The commitment-trust theory of relationship marketing", *The Journal of Marketing*, Vol. 58, pp. 20–38.
18. Sekaran, U., & Bougie, R. (2016). *Research methods for business: a skill-building approach* (7th ed.), United Kingdom: Wiley.
19. Van Deventer, M. (2015). Generation Y students' perceived utility and trust in mobile banking. North-West University (South Africa), Vaal Triangle Campus.



# Sustaining Commodity Technology Practise: Persuasive Packaging Approach for Fermented Dried Salted Fish of *Ikan Bekok*



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**Abstract** The technology of cured fish that relies on recipes of local organoleptic preferences has gained popularity in local gastronomic products. In Malaysia, post-handling of catch has been processed into several products such as *budu* (fermented anchovies), *belacan*, *cencalok* (fermented shrimps), *pekasam*, *ikan bekok* (fermented salted fish), fish crackers, etc. As ascending demand, it has been recognised from domestic to global. These products have been packed with conventional methods to prevent stinky rotten smells. Besides, the unstructured promotion of local products turns to vanish the commodities' identity with irresponsible claims. Therefore, this study aims to propose persuasive packaging for better storage, marketing, and commercialisation. This paper uses qualitative descriptive methods by reviewing documents on the fermented, dried salted fish technology, merging with the fieldwork observations, and interviewing the processor. Based on the outcome, salt and water were the main ingredients to cure *ikan bekok*. The processors tend to put the ready stock in the freezer, wrapped in plastic, or stored in containers. Once purchased, they

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are wrapped with newspaper and plastic bags. This paper proposes packaging that can enhance the conventional storage methods and sanitation quality, and be visually persuasive. In conclusion, the cross-sectional methods give a holistic approach to the technology. It has the potential to extend into the chain of systematic operations, methods of storage, and commercialization, as well as a convincing identity for local products.

**Keywords** Commodity technology · Fermented dried salted fish · *Ikan bekok* · Brand · Packaging · Local products

## 1 Introduction

### 1.1 Future Sustainability

Future sustainability on commodity technology practises is interested in technological transformation system to revitalise cured fish products and their production practises. Technological innovation can positively accelerate and enhance the evolution of a better sustainable food system [1]. Thus far, the understanding of local knowledge consists of practise and technologies related to commodity beliefs and daily activities [2]. Meanwhile, packaging can be interpreted as a combination of art, science, and technology that represents a brand. Therefore, this study aims to merge the technology practise with local knowledge of producing *ikan bekok* and designing the development of product packaging. Undeniably, these elements are interrelated as a strategy to enhance the quality of perishable products, which tends to seek market attention, constantly produce local products, and represent the local gastronomic commodity identity.

Interestingly, the package food industry or durable food has experienced a surge in demand during the ongoing COVID-19 pandemic [3]. Insight package food products from local or Small and Medium Enterprises (SMEs) can get an advantage and wide market demand other than seasonal demand. As introduced, packaging plays a vital role as a tool of communication, product protector, and attraction for commercialisation purposes [4]. However, low-quality output or image of SME products impairs the actual quality of the taste due to the first consumer's sight [5, 6]. Fortunately, the Malaysia Agricultural Research and Development Institute (MARDI) and Packaging Council of Malaysia (PACMA) are among several agencies that contribute to consulting and transforming SME products into appropriate standards to get marketable domestically and internationally. The influence can be derived from packaging, and it includes the packaging design [4], information display [7], font style and packaging materials [8], and introducing and reminding the local production into a broad market competition. Therefore, this study tends to approach local products of fermented salted fish or *ikan bekok* to be applied to a persuasive package design.

This paper focuses on the handmade process of fermented salted, dried fish or *ikan bekok* by the Tumpat residents in Kelantan and the purposing of appropriate packaging for the product. *ikan bekok* is one of the authentic traditional dishes in the form of ‘ready to cook’; made, sold, and consumed by the locals, especially in Kampung Geting, Tumpat, Kelantan. *ikan bekok* undergoes the overnight fermentation process with salt water, rinsed thoroughly with clean water, and basked dry under the sun for approximately two hours. This is carried out as a community activity situated close to the shore of Pantai Sri Tujuh, and it was found that most of the family heads are fishermen and their spouses are the ones who do the processing (processors) of local products. Even though there is higher demand on the external market, there are several constraints to marketing the products due to solid scent and poor management of packaging. Thus far, *ikan bekok* has become the identity and icon recognised for gastronomic attention in Tumpat, Kelantan. It can contribute to sustaining local knowledge of the process and technology of fermented, salted, and dried fish. Therefore, it is very significant to study the technology practised by the locals, identify the packaging used, and propose persuasive packaging to enhance the quality during *ikan bekok* commercialisation.

## 2 Literature Review

This literature review section prompts to introduce the topic of the local food preservation process, the technology preferences involved, and the packaging of perishable local products. Generally, it is a glance of concern related to the issue of sustaining the local commodity technology practises, indeed a wise choice in suggesting the persuasive packaging. This section consists of two (2) subtopics, discussing (1) technology properties in post-harvest handling of catch, and (2) the element of packaging inducement for perishable local products.

### 2.1 *Food Preservation Approach and Technology Properties Involved in Post-Harvest Handling of Catch*

Food is a basic need for human beings. Consuming food is one of humanity’s most fundamental requirements. The fact that it imparts to has strong influences by religious, racial, and ethnic groups is what makes it significant. Then, there is trigger action for every region and its community to have their own authentic dietary habits based on their culture and accessibility to edible raw resources [9]. In the tropical climate region of the world, there are numerous discussions on the perishable products based on fisheries, that also aim to fulfil the daily need and contribute to stable commodities income [10]. The past study shows that there are several traditional processes to cure perishable products by salting, smoking, and drying [11]. Then,

it comes with various intelligent technology approach and preparation like canning, sous-vide cooking, and many more [11].

Generally, technology includes the physical element of techniques, tools, and machines created by the human. The basic component of technology frequently relates to knowledge or technique and doing things [12]. Meanwhile, in traditional technology, the method usually uses the simple, cheapest, and most convenient tools invented by the surrounding as it was customised to occupy with daily routine or activities. The preservation of food activities carried out by the locals provides insight into the fact that knowledge and technology are naturally acquired via a lengthy period of experience, practices, and experimentation based on trial and error in order to preserve and provide shelf-life protection for food that is prone to spoilage. Therefore, the definition of technology in this paper refers to 'a set of exploring activities including practises, process, and tools used to produce an output'. The recognition of this valuable traditional knowledge and technology significantly be an indication for today's technology and machinery development.

Through a survey of prior studies related to the perishable products inspired by local food consumption and its traditional making process, the collated details can be categorised into two, namely (1) the exploration approach and (2) the process that involves the post-harvest handling of catch. The exploration approach refers to the activities that involve either traditional or laboratory practises. Meanwhile, the process in post-harvest handling of catch can be categorised into five (5) elements for preparing the perishable products, which are (1) provision of raw material resources, (2) soaking, (3) rinse or drain, (4) storage, and (5) packaging.

## 2.2 *The Packaging*

The preservation technology of *ikan bekok* or related to perishable products gains its popularity towards the study of enhancing every stage of the involved processes. The research is interested in traditional technology up to advanced technology, however, there are several obstacles for coastal and riparian communities, who are producing seafood-based products due to small capital, low technological investment, and low management of labour, skills, and finance [5]. In addition, it drives to lack emphasis on the quality of packaging elements for the produced products, thus affecting the consumers buying decisions [13]. Therefore, based on the elements of technology identified, the least possible investment appropriate for local and small business enterprise products might be its packaging. A survey has been conducted among the entrepreneurship in United States regarding packaging, and 80% agreed that packaging is one of the important elements to ensure the success of brands and products [14].

Packaging is a process or operation of wrapping, packing, or putting a product into a unit or container purposely for protecting the products from physical or biological damage. It is adequate for packaging to have three (3) key roles: ensuring the quality of the products, good sales appeal, and satisfaction to consumers. Packaging

serves the purpose of preventing damage to the product, helping to sell the goods, and making it easier to utilize the product [15]. Besides, packaging also acts as marketing communication and first-sight attraction for consumers' purchased desire [6]. Packaging would also play a critical role in preserving food production from primary packaging treatment until the secondary packaging treatment. Previous studies show that the main discussion on packaging is for shelf-life extension and attractive display (Table 1).

Table 1 shows the summary of the packaging issues by a previous scholar that has been discussed by times. Therefore, by considering the closest and controllable

**Table 1** The extension and development of previous discussions on packaging issues

Item	Category	Role play	Packaging issues	References
Packaging	Primary products packaging	Shelf-life extension	Modified atmosphere storage Vacuum packaging Ethanol vapour generators The use of oxygen absorbent-generators	[16, 17]
			Active packaging	[18, 19]
Packaging	Secondary products packaging	Appealing packaging	Design elements for packaging Shape of packaging	[13, 20]
			Interactive Packaging Augmented Reality (AR) Webcam-based augmented reality Smart phone/ tablet-based augmented reality	[21]
			Smart packaging Animated graphics using lenticular labels Animated graphics using optical effects Colour change labels for freshness and ripeness alerts Electronic animated lighting effect on packaging Electronic animated graphic and sound on packaging Electronic animation with integrated wireless power	[21]

factors in handling the end products, putting awareness about the packaging among local practitioners would give the concern on enhancing the quality of preservation and distribution of local products for domestic or international market demand.

Packaging has a considerable influence on the consumer's decision to purchase a product. Small and Medium Enterprises (SMEs) vigorously produce and have a high demand for authentically organoleptic local goods. Unfortunately, its market positioning is limited due to a lack of attention to packaging elements that can persuasively communicate the product's quality, cleanliness, and shelf-life. According to Rundh (2016), packaging design should take into account the consumer's mindset, the continuity of their daily activities, and the value they receive in return. Whilst, the packaging is also a way of non-verbal communication that represents the image, identity, and specific information for prospective buyers [23]. Therefore, the packaging concept for local product packaging has been determined to influence customers' buying decisions. Consumers obviously prefer to purchase the items with attractive and timely packed products rather than customary packaging, which does not provide adequate information needed. As consumers are keen on the element that are embodied with the products, packaging design elements not only offer informative details on the food specifications, but they can also accelerate sales with attractive design innovations.

### 3 Methodology

This study uses primary and secondary data to get adequate results in identifying the preservation technology of *ikan bekok*, which is traditionally produced and practised by the local community in the coastal area of Tumpat, Kelantan, Malaysia. The strategy of an ethnographic approach involving the participant observation and interviews was conducted starting from December 2019 until March 2021. A semi-structured interview protocol was used to facilitate the interview sessions with *ikan bekok* practitioners and the researcher also has personal visits to their workplaces. All the interviews were audiotaped and the process of making *ikan bekok* was photographed and videographed for documentation and analysis. Meanwhile, secondary information was collected from books, online databases, and reports. The use of multiple sources and methods was intended to increase the construct validity of this research. The data collection technique for this study was performed through purposive sampling by interviewing, observing, and participating with *ikan bekok* practitioners.

### 4 Analysis and Results

Analysis and results consist of the descriptive results on proposing the persuasive packaging for *ikan bekok*.

## 4.1 Packaging of Ikey Bekok Tumpat

The packaging process and presentation may tend to influence the consumer's purchase decisions up to the consideration towards long-time transmission and transportation, consuming time, hygienic, freshness, and its appeal attraction. This study emphasised three criteria which include (1) the packaging design, (2) the packaging materials, and (3) the packing operations, signifying the persuasive packaging for *Ikey Bekok Tumpat* that has been proposed and used by practitioners. Table 2 indicates the criteria and explanation of the practices and implementation of the criteria.

**Table 2** The preferable criteria of the packaging for the local production of *ikan bekok* and its explanations

Criteria	Explanations
1. Packaging design (see Figs. 1 and 2)	There are two (2) types of proposed packaging design for <i>ikan bekok</i> , which are (1) plastic pack and (2) wrapping paper. Plastic pack boosts the transparent elements that is important to show the freshness of the products. This pack also provides the nutritious information and ingredients used for <i>ikan bekok</i> . It is suitable to pack up to 500 g to 1000 g <i>ikan bekok</i> per pack. Meanwhile, wrapping paper for <i>ikan bekok</i> can be used to pack for closest residence or oversized fish. It also one of the alternatives used to replace the newspaper that priorly used.
2. Packaging materials	Description: Printed Laminated 3 side-sealed bag Material: Nylon/LLDPE 90 $\mu$ m Size: (W)220 mm x (L) 320 mm Printing: 7 colours
3. Packing operations (see Fig. 3)	The proposed plastic pack for <i>ikan bekok</i> is suitable for use with a sealing machine or vacuum sealing machine. However, this study operationally prefers and suggests the use of vacuum sealing machine as it has more advantages. The advantages of sealing vacuum packing operation are determined as it offers— (1) Freshness: to prevent <i>ikan bekok</i> from mouldy, slimy and bad odour (2) Quality: to keep <i>ikan bekok</i> flavour taste better (3) Protection: stay fresh for longer time, can avoid freezer burn, and prevent food from breaking (4) Hygiene and food safety: it helps minimise the risk of bacterial growth (5) Organise: More organise for storage



**Fig. 1** Plastic pack packaging design for local products that are purposely created to enhance the packing process of *ikan bekok*



**Fig. 2** Wrapping paper with the brand of *Ikey Bekok Tumpat* is also used to promote *ikan bekok* instead of using newspaper





Fig. 3 Ready to cook *ikan bekok* product in vacuumed plastic packed

#### 4.2 Brand of Ikey Bekok, Tumpat

The brand of *Ikey Bekok Tumpat* represents the concept of coastal community products for promotion and recognition exclusively from Tumpat, Kelantan, Malaysia. *Ikey Bekok Tumpat* means fermented dried salted fish produced in Tumpat. It uses a local dialect of *ikey* mean *ikan* or fish. The logo comes with an illustration inspired by yellow croaker fish and customised Myriad Pro font for *Ikey Bekok Tumpat*. Yellow croaker fish or locally known as *Ikan Gelama Rampang* has yellow corvina on its body and most of the practitioners used this croaker fish as the main source to process the fermented dried salted fish. Figure 4 shows the logo used as the *Ikey Bekok Tumpat* with the flat colour code.

The brand and packaging play a significant role in optimising the values of gastronomic delight for wider market demand domestically and internationally. It is essential to establish a response, which entails providing the general public with authentic food and boosting the economy by mobilizing the provided resources with the intention of preserving local knowledge as its products and the associated process. Besides, the development and implementation of social enterprise products may alleviate the



**Fig. 4** *Ikey Bekok Tumpat* logo with its flat colour code used as a brand to represent Tumpat's local product of *ikan bekok*

generational poverty trap. Therefore, the knowledge of packaging issues and local knowledge of *ikan bekok* process richly gives a positive impact on the involvement of communities' awareness and willingness to invest in certain criteria and processes. It could lead to consistent product quality control and attractive packaging, as both act as potential marketing strategies to expand local products.

## 5 Conclusion

In conclusion, this study states that appreciating local knowledge, embracing the technology, and controlling the products' quality can give an impact on commodification with the potential to increase domestic economic growth and human capital. Through the traditional technological process of preserving fish, *ikan bekok* is practically produced by the coastal and riparian communities. Although there is a tremendous demand for local food nowadays, *ikan bekok* is still ambiguously identified due to small productions and less attractive on its labels. In this study, the list of technology for the traditional process of *ikan bekok* has been categorised into the following: (1) preparing raw materials, (2) soaking process, (3) drying process, (4) storage, and (5) packaging. Meanwhile, as *ikan bekok* represents the local gastronomic products of Tumpat, Kelantan, it is significant to propose persuasive packaging as a response to the problem of packaging the local products. Therefore, persuasive packaging provides the brand of *Ikey Bekok Tumpat*, which emphasised on three (3) criteria, namely (1) packaging design, (2) packaging materials, and (3) packaging operational process.

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## References

1. Herrero, M., *et al.*: Innovation can accelerate the transition towards a sustainable food system. *Nat. Food* 1(5), 266–272 (2020), <https://doi.org/10.1038/s43016-020-0074-1>.
2. Dixit, U. and Goyal, V. Goyal.: Traditional Knowledge from and for Elderly. *Indian J. Tradit. Knowl.*10,(3), 29–438 (2011).
3. Rees, T.: Covid-19 Effect on Packaged Food (2020). [Online]. Available: file:///C:/Users/H P/Downloads/EuroMonitor\_wpCovidPackagedFood\_0.4.pdf
4. Abidin, S. Z., Effendi, R. A. A. R. A., Ibrahim, R., and Idris, M. Z.: A Semantic Approach in Perception for Packaging in the SME's Food Industries in Malaysia: A Case Study of Malaysia Food Product Baranding in United Kingdom in *Procedia - Social and Behavioral Sciences*, pp. 115–130E (2014).
5. Ali, H. and Shahadan, F.: *Pendahuluan in Industri Kecil Malaysia, Isu Pembiayaan, Teknologi dan Pemasaran*, R. Ismail, Ed. Bangi: Universiti Kebangsaan Malaysia (1995).
6. Amat, M. and Ishak, S.: Faktor PSiKKIT: Pendorong Inovasi Pembungkusan dalam Kalangan Industri Kecil dan Sederhana Berasaskan Perusahaan Makanan. *Geogr. Malaysian J. Soc. Sp.*, (3), pp. 90–103 (2019).
7. Adnan @ Nasir, Z. S., Nafi, S. N. M., and Mohamed, Z.: Technology Sharing in SME Product Packaging: Barriers and Opportunity in Asian Business Seminar Circuit (ABSC2012), pp. 359–383 (2012).
8. Asri, A. F., Chik, C. T., Rais, M. H. M., and Othman, N.: SME Product Packaging: How to Attract Consumers? *Int. J. Bus. Soc.* 4(7), 102–109 (2020).
9. Tamang, J. P. *et al.*: Fermented Foods in a Global Age: East Meets West. *Compr. Rev. Food Sci. Food Saf.* pp. 1–34 (2020), <https://doi.org/10.1111/1541-4337.12520>.
10. Erkan, N.: The Effect of Active and Vacuum Packaging on the Quality of Turkish Traditional Salted Dried Fish Çiroz. *J. Food Heal. Sci.* 3(1), 29–35 (2017), <https://doi.org/10.3153/jfhs17004>.
11. Samples, S.: The Effects of Processing Technologies and Preparation on the Final Quality of Fish Products. *Trends Food Sci. Technol.* 44(2),131–146 (2015).
12. Wahab, S. A., Rose, R. C., and Osman, S. I. W.: Defining the Concepts of Technology and Technology Transfer: A Literature Analysis,” *Int. Bus. Res.*5(1) (2011), <https://doi.org/10.5539/ibr.v5n1p61>.
13. Ying, C. S. and Anuar.: Packaging Innovation as a Commodification Excellence Factor for Small and Medium Enterprises (SMEs) Case Study: Frozen Keropok Lekor Packaging in Kelantan. *Int. J. Entrep. Manag. Pract.* 2(5) 01–15 (2019).
14. Henkes, T.: Packaging Survey Analysis Executive Insights 2018 Brand Owner Packaging Survey (2018). [Online]. Available:<https://www.lek.com/sites/default/files/insights/pdf-attachments/20XX-Packaging-Survey.pdf>
15. Lanier, T. C.: *Packaging in The Seafood Industry*, Martin, R. E. and Flick, G. J. Eds. Boston: Springer, pp. 194. (1990).
17. Ashie, I. N. A., Smith, J. P., Simpsin, B. K., and Hasrd N. F.: Spoilage and Shelf-life Extension of Fresh Fish and Shellfish. *Crit. Rev. Food Sci. Nutr.*36(1–2), pp. 87–121 (1996).
18. Kontominas, M. G., Badeka, A. V., Kosma, I. S., and Nathanailides, C. I.: Recent Developments in Seafood Packaging Technologies. *Foods* 10(5), p. 940 (2021), <https://doi.org/10.3390/foods10050940>.
19. Ahmad, I. *et al.*: A Comprehensive Review on Application of Active Packaging Technology to Muscle Food. *Food Control* pp. 163–178 (2017). <https://doi.org/10.1016/j.foodcont.2017.06.009>.
20. Alfiana, S. H. and Latief, A. D. R.: The Potential of Active Packaging for Tuna. *Int. Conf. Anim. Sci. Technol.* (2021). <https://doi.org/10.1088/1755-1315/788/1/012227>.
21. Wijaya, D., Rachel, F., and Aziz, S.: Packaging Local Identity: Redesigning the Brand and Package of Tenteng Malino of South Sulawesi. *Int. Conf. Sustain. Eng. Creat. Comput.* pp. 403–407 (2019), <https://doi.org/10.1109/ICSECC.2019.8907098>.

22. Butler, P.: Smart and Interactive Packaging Developments for Enhanced Communication at the Packaging/User Interface in Trends in Packaging of Food, Beverages and Other Fast-Moving Consumer Goods (FMCG) pp. 261–287 (2013). <https://doi.org/10.1533/9780857098979.261>.
23. Rundh, B.: The Role of Packaging within Marketing and Value Creation. *Br. Food J.*, 118(10) (2016).
24. Kumar Agariya, A., Johari, A., Sharma, H. K., Chandraul, U. N. S., and Singh, D.: The Role of Packaging in Brand Communication. *Int. J. Sci. Eng. Res.* 3(1) 2229–5518 (2012)

# Testing the Predictive Power of Machine Learning Algorithms for Stock Market Movements Based on Air Pollution Data



Kelvin Lee Yong Ming

**Abstract** Air pollution has seriously threatened the lives of mankind. Governments throughout the world are taking several steps to reduce the impact of air pollution. Several recent studies found that variations in air pollution adversely affect the stock market movement by using the conventional statistical model, such as the fixed effect model and quantile regression. This study attempts to narrow down the methodological gap by testing the predictive power of machine learning algorithms for Singapore stock market movements based on air pollution data. Specifically, this study tested five machine learning algorithms—(i) Random Forest, (ii) XGBoost, (iii) ADaBoost, (iv) Support Vector Machine, and (v) K-Nearest Neighbour. The input data for the prediction comprised the closing prices, and index for PM<sub>2.5</sub> and PM<sub>10</sub>. The accuracy of prediction was further measured by using MAE, MAPE, MSE, and RMSE. The results indicated that XGBoost has the highest accuracy in predicting Singapore's stock price movements. The findings also suggest that the 1 day average (value from the previous day) of the closing price, and the index for PM<sub>2.5</sub> and PM<sub>10</sub> are suitable for the prediction of stock market movements. These findings serve as a guideline for stock market prediction among market participants when considering air pollution.

**Keywords** Stock Market · Machine Learning · Air Pollution · Digital Technology

## 1 Introduction

Air pollution is a major environmental and public health issue, which requires further attention from the scientific community [15]. It heavily affects the amount of carbon dioxide in the atmosphere, affecting how ultraviolet radiation and photosynthesis combine to generate global warming [13]. Air pollution may occur due to particulate matter (PM), ground-level ozone (O<sub>3</sub>), carbon monoxide (CO), sulphur dioxide (SO<sub>2</sub>), and nitrogen dioxide (NO<sub>2</sub>) [6]. However, the two most frequently used

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descriptors for particulate matter are  $PM_{2.5}$  and  $PM_{10}$ . Both simply refer to the mass of all particles with an aerodynamic diameter of less than 2.5  $\mu m$  and 10  $\mu m$ , respectively. Thus, the present study employs  $PM_{2.5}$  and  $PM_{10}$  as the proxy of air pollution.

Previous studies also revealed that air pollution tends to adversely affect the stock market movements [8, 12]. However, the relationship between air pollution and stock market movements is inconsistent with the findings of previous studies as depicted in Figs. 1 and 2. Figure 1 illustrates the movements of the Straits Times Index (STI) over the period from 9 January 2018 to 5 September 2022. This study considered the STI movements as the proxy of Singapore stock market movements. Generally, the Singapore stock market experienced a downward trend from 2018 to November 2022 and rebound to the current level of about 3,200. Meanwhile, Fig. 2 depicts that Singapore's  $PM_{2.5}$  and  $PM_{10}$  levels were consistently below the level of 100, thus indicating an acceptable or low risk of air pollution. Controlling air pollution is also highly related to sustainable development goals (SDG), specifically SDG 13. Achieving the SDG goals may assist to improve human life and reduce the potential costs of air pollution.

Previous studies applied different statistical models to predict the impact of air pollution on stock market movements. For instance, the fixed effect model was used to explore the relationship between air pollution and stock market movements [8]. In another study, quantile regression was employed to estimate the impact of air pollution on the stock market under different market conditions [12]. Nevertheless, the stock market data are complex. In contrast, the use of machine learning algorithms tends to analyse complex stock market data easily and generate stock market predictions with higher accuracy [21]. Thus, this study addresses the gap by including the

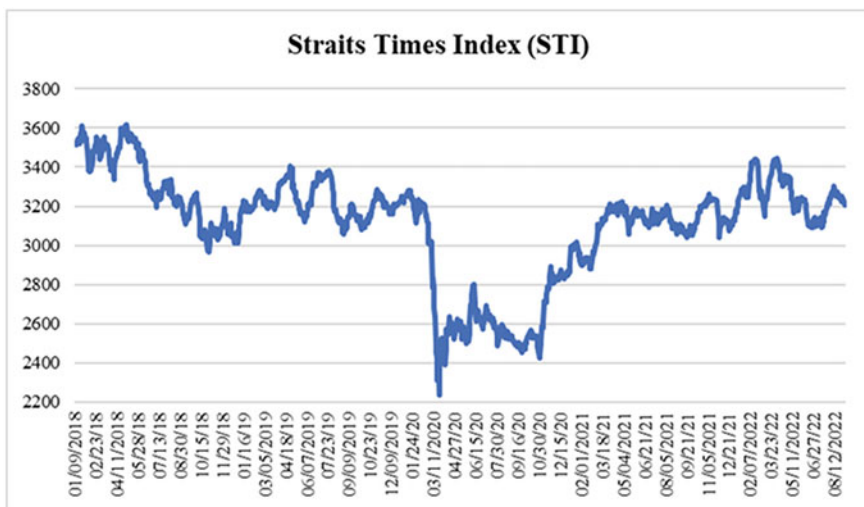
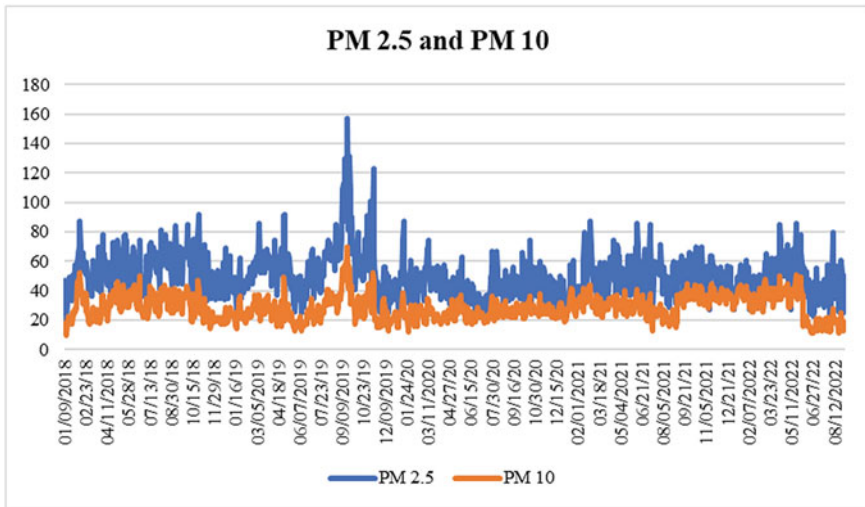


Fig. 1 Straits Times Index (9 January 2018–5 September 2022). Sources <https://www.wsj.com>



**Fig. 2** PM2.5 and PM10 in Singapore (9 January 2018–5 September 2022). *Sources* <https://aqicn.org/city/singapore/central/>

historical closing prices of STI, PM<sub>2.5</sub> and PM<sub>10</sub> as the input data for five different machine learning models. The main aim of this study is to identify the suitable period of STI, PM<sub>2.5</sub> and PM<sub>10</sub> to be included in machine learning models. In addition, this study attempts to identify the best machine learning model for predicting the Singapore stock market movements.

## 2 Literature Review

Air pollution is a constant threat to the life of mankind. Regardless of the time that an individual is exposed to air pollution, the probability of developing the related disease increases indirectly [17, 25]. On the other hand, previous psychological studies revealed that air pollution can lead to several side effects, such as anxiety and mood disorders [11, 20]. However, technological advancement allows individuals to access air pollution-related data easily through several websites [28]. Thus, the current growing environmental consciousness appears to have a greater influence on an individual’s mood and emotions [24]. To some extent, air pollution also affects investors’ moods, thereby causing them to trade irrationally [26].

With the rising severity of air pollution and people becoming more mindful of environmental protection, researchers are beginning to focus on the relationship between air pollution and the stock market [22, 23]. Previous studies almost reached a consensus that air pollution adversely affects stock market movements. In the context of developed countries, air pollution has been documented to adversely affect

stock market returns [16]. Similar results were reported in developing countries, specifically in China [29]. Furthermore, investors become risk-averse when they are faced with air pollution [10], while fund managers may feel depressed and engage in inappropriate trading decisions [27].

A recent study also revealed that stock returns decline as air pollution increases [8]. The researchers also posited that the negative impact of air pollution was greater for the younger firms with low institutional ownership. On the other hand, another study provided evidence that the impact of air pollution on the stock market was greater during the bullish market condition [12]. Furthermore, air pollution tends to adversely affect financial analysts forecasting [7]. Notably, previous studies only applied conventional linear statistical models to analyse the impact of air pollution on the stock market. [9] argued that the assumptions and restrictions of these statistical models may cause the model to fail in capturing stock data features. [9] also suggested that the machine learning models could work effectively in stock market prediction since they lack any presumptions.

Previous studies also successfully applied machine learning models to predict stock market movements. For instance, [14] used the AdaBoost, Random Forest (RF), and Support Vector Machine (SVM) to predict stock market movements in the Bombay Stock Exchange (BSE). The researchers included historical stock prices, commodity prices, and foreign exchange rates as the input features. The results indicated that the AdaBoost model had the highest accuracy of 76.79% in predicting stock market movements. Besides, [1] included historical prices and technical indicators as the input features for the prediction of 10 selected stocks. They also concluded that tree-based ensemble models, such as RF and XGBoost, had higher prediction accuracy than the other models.

In summary, this study investigated the impact of air pollution on the stock market using conventional statistical models. Despite several studies predicting stock market movements by using a machine learning approach, only limited studies have attempted to include air pollution as the input feature. This study aims to fill the research gap by including the proxy of air pollution as the input feature. The predictive power of a few models is then tested. The next section further discusses the data and methodology applied in this study.

### 3 Data and Methodology

This study considered PM2.5 and PM10 as the proxy of air pollution. The daily PM2.5 and PM10 of Singapore were collected from the website link: <https://aqi.cn.org>. The Straits Times Index (STI) was also collected from Investing.com. The sample period was covered from 9 January 2018 to 5 September 2022. Thereafter, the historical prices of STI, PM2.5 and PM10 were included as the input features for prediction. Five different machine learning models, namely, (i) Random Forest (RF), (ii) AdaBoost, (iii) XGBoost, (iv) Support Vector Machine (SVM), and (v) k-Nearest Neighbour were then tested. The accuracy of different machine learning



models was determined based on four metrics, comprising Mean Absolute Error (MAE), Mean Absolute Percentage Error (MAPE), Mean Square Error (MSE), and Root Mean Square Error (RMSE).

### 3.1 Types of Machine Learning Models

**Random Forest:** Random Forest (RF) developed by [2] has attracted significant attention from researchers and is widely used in several studies. RF are normally robust to overfitting as each forest is only presented with a subset of all the available features [3].

**AdaBoost:** AdaBoost model combined multiple weak learners linearly to enhance the ability of leaned rewards [22]. Weighted majority voting is used in the AdaBoost algorithm to give the weak learner with a small learning error rate a larger weight, and simultaneously decrease the weight of the weak learner with a large learning error rate [4].

**XGBoost:** XGBoost model proposed by [5] is another type of gradient boosting method with excellent scalability. This method has a fast-learning speed and higher prediction accuracy in comparison to the existing tree-based algorithms [9].

**Support Vector Machine (SVM) and K-Nearest Neighbour (KNN):** SVM mainly used the concept of the margin, which is the smallest distance between the decision boundary and any of the samples [19]. Meanwhile, KNN is a method used to identify the k-nearest neighbour closest to the testing sample data. Specifically, the distance between every test data and training data was first measured. The prediction is the average of the k-nearest neighbours' output value [18].

## 4 Result and Discussion

This section compares the performance of the five different machine learning models. The accuracy of the prediction is then determined using four metrics, namely MAE, MAPE, MSE, and RMSE. Table 1 depicts the MAE, MAPE, MSE, and RMSE for the prediction. Generally, the prediction accuracy was higher when the closing prices, PM2.5 and PM10 from the previous day were used as the input data. Figure 3 further illustrates the prediction of stock market movements by using the previous day's closing price, PM2.5 and PM10 as the input data.

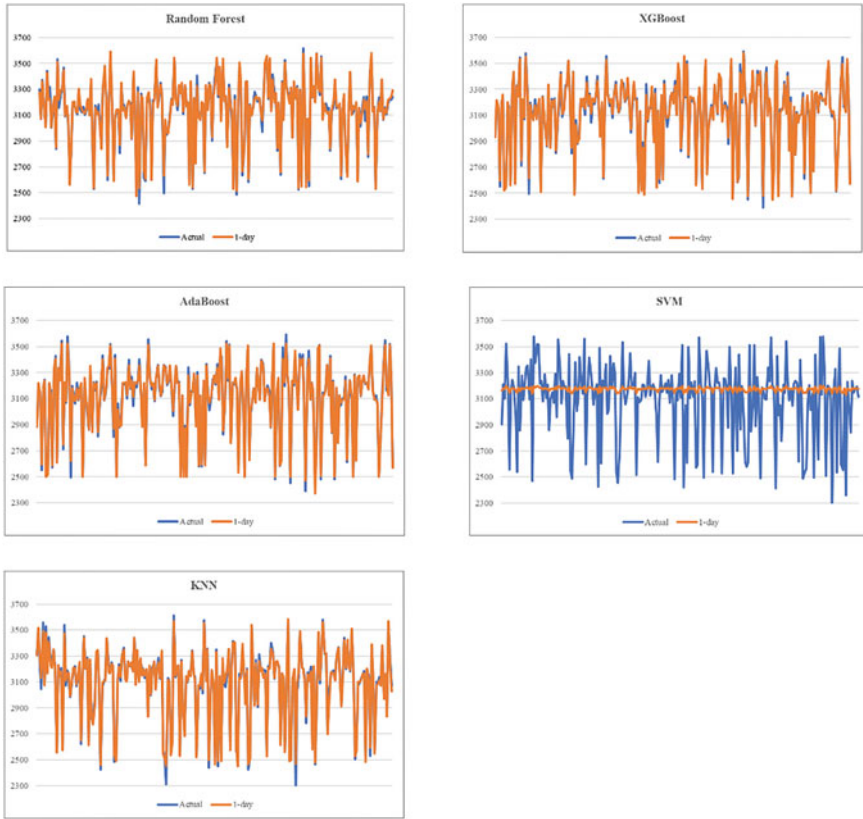
Consistent with [1], the XGBoost appeared to be the best prediction model. Among the five different models tested, the results indicated that XGBoost was the best prediction model for the STI. Furthermore, this study found that the proxies of air pollution and closing prices from the previous day were better input data in comparison to the previous day's data. The research findings are also consistent

**Table 1** Mean Absolute Error, Mean Absolute Percentage Error, Mean Square Error, and Root Mean Square Error for Five Selected Prediction Models

		MAE	MAPE	MSE	RMSE
RF	1 day	23.7502	0.0077	1055.7171	32.4918
	2 days	23.3996	0.0077	1014.9668	31.8585
	3 days	27.9238	0.0092	1623.7223	40.2954
	4 days	29.5162	0.0099	1782.5818	42.2206
	5 days	28.1876	0.0091	1346.4920	36.6946
XGB	1 day	<b>21.7494</b>	<b>0.0071</b>	<b>797.3670</b>	<b>28.2377</b>
	2 days	29.5881	0.0098	1693.3532	41.1504
	3 days	26.8656	0.0088	1315.3618	36.2679
	4 days	31.3001	0.0101	1707.3226	41.3198
	5 days	35.0788	0.0114	2488.2915	49.8828
Ada	1 day	22.6073	0.0074	954.5522	30.8958
	2 days	30.3216	0.0101	1787.6611	42.2807
	3 days	28.3291	0.0093	1405.1175	37.4849
	4 days	32.2826	0.0104	1766.0745	42.0247
	5 days	40.1393	0.0131	2670.9904	51.6816
SVR	1 day	204.0372	0.0722	86687.6354	294.4276
	2 days	166.5904	0.0574	60627.3614	246.2262
	3 days	194.9908	0.0693	82792.4343	287.7367
	4 days	179.5113	0.0631	71352.0904	267.1181
	5 days	184.1425	0.0651	73,935.8451	271.9115
KNN	1 day	22.2331	0.0075	1081.5333	32.8867
	2 days	25.5209	0.0085	1368.0686	36.9874
	3 days	27.1723	0.0089	1668.7107	40.8499
	4 days	30.7944	0.0101	1700.7078	41.2396
	5 days	34.9058	0.0116	2431.2371	49.3076

*Notes* RF refers to the random forest, XGB refers to the XGBoost, Ada refers to the AdaBoost, SVM refers to the support vector machine, and KNN refers to the k-nearest neighbour. MAE refers to Mean Absolute Error, MAPE refers to Mean Absolute Percentage Error, MSE refers to Mean Square Error, and RMSE refers to Root Mean Square Error. 1 day to 5 days refers to the n-days moving average of historical closing prices, PM2.5 and PM10. For instance, 2 days simply refer to the situation when the 2 days moving average of historical closing prices, PM2.5 and PM10 are included as input data for five different machine learning methods

with previous studies in which air pollution was useful in predicting stock market movements [16, 29]. Thus, controlling air pollution levels may help to improve stock market movements. Investors are recommended to prevent themselves from exposure to air pollution and observe the level before making any investment decision.



**Fig. 3** Actual and Predicted Movements of STI

The present findings reflect the importance to raise the public’s awareness of air pollution given its negative impact on human health and stock market movements. Controlling air pollution may assist to reduce or avoid some potential costs to the companies and boost financial performance. In addition, the SDGs goals can be achieved by controlling the air pollution level. Governments are encouraged to organise more campaigns to educate the citizens about the potential costs of air pollution. Likewise, it is highly recommended to implement more environmental policies to maintain the low air pollution level.

## 5 Conclusion

Air pollution is currently a serious issue that needs to be addressed globally. Unlike previous studies, this study applied the machine learning approach to analyse stock market data. The machine learning approach was able to cope with the complex

nature of stock market data. This study aimed to forecast the STI by including the closing prices of Singapore's STI, PM2.5 and PM10 as the input data. First, five different periods of moving average were calculated for the closing prices of STI, PM2.5 and PM10. Resultantly, the previous day (or 1 day average) tends to produce the lowest MAE, MAPE, MSE, and RMSE. Meanwhile, this study also found that XGBoost was the best model for predicting STI movements in comparison to the other four models.

These findings have several practical implications. First, investors planning to predict STI movements should use the XGBoost algorithms. Second, any future study attempting to investigate the impact of air pollution on the stock market is recommended to use the previous day's PM2.5 and PM10 for prediction purposes. The present findings also underscore the importance of monitoring air pollution on the previous day given its predictive power for stock market movements. Third, this study also provides some insights to policymakers on the potential impact of air pollution on the stock market. Such insight can assist policymakers in formulating effective policies to reduce air pollution levels, thereby promoting a healthier and more sustainable investment environment for investors. Nevertheless, the limitations of this study are well-acknowledged. Studies may consider other potential factors, such as political factors and investment sentiments. This study is limited to a single context: Singapore Stock Index, STI. Thus, the generalisation of the results may improve by including samples from other markets.

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## References

1. Basak, S., Kar, S., Saha, S., Khaidem, L., Dey, S.: Predicting the direction of stock market prices using tree-based classifiers. *North American Journal of Economics and Finance* 47, 552-567 (2019).
2. Breiman, L.: Random forests. *Machine learning* 45(1), 5-32 (2001).
3. Chatzis, S., Siakoulis, V., Petropoulos, A., Stavroulakis, E., Vlachogiannakis, N.: Forecasting stock market crisis events using deep and statistical machine learning techniques. *Expert Systems with Applications* 112, 353-371 (2018).
4. Chen, Y., Hao, Y.: A feature weighted support vector machine and k-nearest neighbour algorithm for stock market indices prediction. *Expert Systems with Applications* 80, 340-355 (2017).
5. Chen, T., Guestrin, C.: Xgboost: A scalable tree boosting system. In Krishnapuram, B., Shah, M. (eds.), *Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, pp. 785-794. ACM (2016).
6. Dominski, F., Branco, J., Buonanno, G., Stabile, L., Silva, M., Andrade, A.: Effects of air pollution on health: A mapping review of systematic reviews and meta-analyses. *Environmental Research* 201, 111487 (2021).
7. Dong, R., Fisman, R., Wang, Y., Xu, N.: Air pollution, affect, and forecasting bias: Evidence from Chinese financial analysts. *Journal of Financial Economics* 139(3), 971-984 (2021).

8. Ding, X., Guo, M., Yang, T.: Air Pollution, Local Bias, and Stock Returns. *Finance Research Letter* 39, 101576 (2021).
9. Han, Y., Kim, J., Enke, D.: A machine learning trading system for the stock market based on N-period Min-Max labelling using XGBoost. *Expert Systems with Applications* 211, 118581 (2023).
10. Huang, J., Xu, N., Yu, H.: Pollution and performance: do investors make worse trades on hazy days? *Management Science* 66(10), 4455- 4476 (2020).
11. Jia, Z., Wei, Y. J., Li, X. Q., Yang, L. X., Liu, H. J., Guo, C., Zhang, L. L., Li, N. N., Guo, S. J., Qian, Y., Li, Z. G.: Exposure to ambient air particles increases the risk of mental disorder: Findings from a natural experiment in Beijing. *International Journal of Environmental Res Public Health* 15(1), 160 (2018).
12. Jiang, Z., Gupta, R., Subramaniam, S., Yoon, S.: The effect of air quality and weather on the Chinese stock: Evidence from Shenzhen stock exchange. *Sustainability* 13(5), 2931 (2021).
13. Kelp, M. M., Andrew, P., Grieshop, C., Reynolds, Jill, B., Grishma J., Karthik S., Julian D. M.: Real-time indoor measurement of health and climate-relevant air pollution concentrations during a carbon finance-approved cookstove intervention in rural India. *Development Engineering* 3, 125–32 (2018).
14. Kohli, P. P. S., Zargar, S., Arora, S., Gupta, P.: Stock prediction using machine learning algorithms. In Malik, H., Srivastava, S., Sood, Y. R., Ahmad, A. (eds.), *Applications of Artificial Intelligence Techniques in Engineering*, pp. 405–414. Springer (2018).
15. Landrigan, P., Fuller, R., Hu, H., Caravanos, J., Cropper, M., Hanrahan, D., Sandilya, K., Chiles, T., Pushpam, K., Suk, W.: Pollution and global health – An agenda for prevention. *Environmental Health Perspectives* 126(8), 084501 (2018).
16. Lepori, G. M.: Air pollution and stock returns: Evidence from a natural experiment. *Journal of Empirical Finance* 35, 25-42 (2016).
17. Munzel, T., Hahad, O., Daiber, A.: Running in polluted air is a two-edged sword – physical exercise in low air pollution areas is cardioprotective but detrimental for the heart in high air pollution areas. *European Heart Journal* 42(25), 2498-2500 (2021).
18. Nayak, R., Mishra, D., Rath, A.: A Naïve SVM-KNN based stock market trend reversal analysis for Indian benchmark indices. *Applied Soft Computing* 35, 670-680 (2015).
19. Puspitasari, D., Rustam, Z.: Application of SVM-KNN using SVR as feature selection on stock analysis for Indonesia stock exchange. In *AIP Conference Proceedings 2023*, vol. 020207, pp. 1–7. AIP Publishing (2023).
20. Rautio, N., Filatova, S., Lehtiniemi, H., Miettunen, J.: Living environment and its relationship to depressive mood: A systematic review. *International Journal of Social Psychiatry* 64(1), 92-103 (2018).
21. Rouf, N., Malik, M., Arif, T., Sharma, S., Singh, S. Aich, S., Kim, H.: Stock market prediction using machine learning techniques: A decade survey on methodologies, recent developments, and future directions. *Electronics* 10, 2717 (2021).
22. Song, L., Li, D., Wang, X., Xu, X.: AdaBoost maximum entropy deep inverse reinforcement learning with truncated gradient. *Information Sciences* 602, 328-350 (2022).
23. Su, Y., Lu, X., Zeng, Q., Huang, D.: Good air quality and stock market returns. *Research in International Business and Finance* 62, 101723 (2022).
24. Teng, M., He, X.: Air quality levels, environmental awareness, and investor trading behaviour: evidence from the stock market in China. *Journal of Cleaner Production* 244, 118663 (2020).
25. Vidale, S., Campana, C.: Ambient air pollution and cardiovascular diseases: From bench to bedside. *European Journal of Preventive Cardiology* 25(8), 818-825 (2018).
26. Wu, Q., Chou, R.K., Lu, J.: How does air pollution-induced fund-manager mood affect stock markets in China? *Journal of Behavioral and Experimental Finance* 28, 100399 (2020).

27. Wu, Q., Hao, Y., Lu, J.: Air pollution, stock returns, and trading activities in China. *Pacific Basin Finance Journal* 51, 342–365 (2018).
28. Xu, M., Wang, Y., Tu, Y.: Uncovering the invisible effect of air pollution on stock returns: a moderation and mediation analysis. *Finance Research Letters* 39, 10166 (2021).
29. Zhang, Q., Zheng, Y., Tong, D., Hao, J.: Drivers of improved PM<sub>2.5</sub> air quality in China from 2013 to 2017. *PNAS* 116(49), 24463–24469 (2019).