



INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES



Weighting a Start-up Business Index for Edible Bird Nest Swiftlet Ranching Industry: A Qualitative Method Approach

Puspa Liza Ghazali, Anis Aniza Abdul Hadi, Siti Nadhirah Mohamad Fauzi, Salman Lambak, Mohd Sadad Mahmud, Nik Hazimi Mohammed Foziah, Mohamad Afendee Mohamed, Eni Noreni Mohamad Zain

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v13-i4/16870> DOI:10.6007/IJARBSS/v13-i4/16870

Received: 05 February 2023, **Revised:** 10 March 2023, **Accepted:** 29 March 2023

Published Online: 07 April 2023

In-Text Citation: (Ghazali et al., 2023)

To Cite this Article: Ghazali, P. L., Hadi, A. A. A., Fauzi, S. N. M., Lambak, S., Mahmud, M. S., Foziah, N. H. M., Mohamed, M. A., & Zain, E. N. M. (2023). Weighting a Start-up Business Index for Edible Bird Nest Swiftlet Ranching Industry: A Qualitative Method Approach. *International Journal of Academic Research in Business and Social Sciences*, 13(4), 451 – 468.

Copyright: © 2023 The Author(s)

Published by Human Resource Management Academic Research Society (www.hrmars.com)

This article is published under the Creative Commons Attribution (CC BY 4.0) license. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this license may be seen at: <http://creativecommons.org/licenses/by/4.0/legalcode>

Vol. 13, No. 4, 2023, Pg. 451 – 468

<http://hrmars.com/index.php/pages/detail/IJARBSS>

JOURNAL HOMEPAGE

Full Terms & Conditions of access and use can be found at
<http://hrmars.com/index.php/pages/detail/publication-ethics>



INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES



Weighting a Start-up Business Index for Edible Bird Nest Swiftlet Ranching Industry: A Qualitative Method Approach

¹Puspa Liza Ghazali, ²Anis Aniza Abdul Hadi, ³Siti Nadhirah Mohamad Fauzi, ⁴Salman Lambak, ⁵Mohd Sadad Mahmud, ⁶Nik Hazimi Mohammed Foziah, ⁷Mohamad Afendee Mohamed, ⁸Eni Noreni Mohamad Zain

^{1,4,5,6}Faculty of Business and Management, Universiti Sultan Zainal Abidin, 21300 Kuala Nerus, Terengganu, Malaysia, ^{2,3,7,8}Faculty of Informatics and Computing, Universiti Sultan Zainal Abidin, 22200 Besut, Terengganu, Malaysia, ⁸Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, 16100 Kota Bharu, Kelantan, Malaysia.

Corresponding Author Email: nadhirahmdfauzi@gmail.com

Abstract

Swiftlet nests are now among the main agricultural products exported from Malaysia. Numerous business owners have difficulties in the swiftlet nesting agricultural production, which results in significant expenditures. The study's goal is to determine how important startup company aspects are for the edible bird nest farming sector. The weighting of the start-up company characteristics will be determined through interviews with a complete of eight individuals from the intellectual, veterinarian, and enterprise worlds. The findings showed that insight on the significance of start-up business continuity planning is provided via surveys. The weighting of such start-up enterprises will be used to construct the platforms of start-up marketing elements in the edible bird nest agricultural production.

Keyword: Weightage, Start-Up Business Factors, Edible Bird Nest, Swiftlet Ranching Industry

Introduction

Swiftlet nests are now one of the main farm products exported from Malaysia. According to estimates by Idris et al (2014), there were over approximately 20,000 properties housing this bird in Malaysia during the close of 2007. Manufacturers have typically increased capacity because of the potential of collecting to meet continued growth and relatively high pricing. As a result, they create structures and create nests in manufactured ecosystems to entice birds (Martin, 1993). Its first swiftlet house construction began in Indonesia with in 1980s to capitalise on the growing market and growing costs in the Chinese domestic economy (Connolly, 2016). It's one of the main causes of this rise in availability, which were the free trade policies that Chairman Deng Xio Peng of China had implemented at the time (Hao and Rahman, 2016). Job expansion and, as a sequel, an increase in the purchasing power of the Chinese people's currencies are the schemes results. China's per-capita expenditure increased

by over 16 times in 20 years, from RMB1,634 in 1990 to RMB25,866 in 2009, as said by newly published financial statistics.

Consequently, several business owners throughout the swiftlet nest agriculture sector struggle, which results in significant expenditures (Rafi et al., 2015). Due to certain problems, including an absence of direction in swiftlet agriculture, numerous company owners had collapsed. This would be caused by the fact that mostly businesses lack understanding and are therefore more inclined to accept their builders or advisors with all aspects of planning and management (Kamaruddin et al., 2019). Trustworthy counsel frequently deceive large corporations about previously managed swiftlet care. A number of different issues, like technological approaches including how regions are maintained, have an impact on swiftlet populations (Rabu et al., 2013). This very same issue with swiftlet populations being established close to suburban buildings and traditional urban businesses has disrupted the swiftlet agriculture industry (Hong et al., 2005). Several neighbours have complained about the loud and appearance of birds that obstruct their normal habits as a result.

Additionally, they assert that a lot of swiftlet breeders enable microphones used to entice swiftlets—to work even without approval of the neighbourhood (Paul, 2016). The authorities started setting up legitimate security standards and requirements to inform the general public and promote the expansion of this swiftlet sector in Malaysia since there were a growing number of disasters and adverse pollution from swiftlet agriculture on society. The largest problem with in swiftlet edible bird nesting farming sector is also that 80% of company owners in this sector fail due to their being unaware of the startup costs. Given the considerable risk involved, the initial startup costs for this sector are a serious concern (Wan Khairy, 2016). Likewise to this, the Malays are perceived as impediments to beginning a firm in aspects of entrepreneurial and content (Wan Khairy, 2016). Among the reasons why certain business owners are unable to accomplish its objectives when beginning their businesses is the problem of a shortage of creativity in businesses.

It is indeed essential to oversee a beginning company throughout its beginning stages of growth before establishing a company or becoming entrepreneurs. This seems to be due to the fact that the idea of a start-up is closely related to entrepreneurship and entrepreneurs. Additionally, as indicated by Schumpeter, it refers to the implementation of unique combinations of large corporations, including new products, online platforms, novel feedstock supplies, novel manufacturing methods, innovative marketplaces, and novel institutional arrangements (1942: 81-86). Similarly, inside the current millennium, people everywhere may see the concepts, prowess, and expertise that basis of economic, but especially in another generations. Prior periods, only when underlying principles of industrial growth favoured less seasoned entrepreneurs in from financial world, are now different from that kind of.

Swiftlet ranching company owners keep failing under this line of work. Inside the bird's nest sector, there are extensive number of issues that lead to further over 30% loss (Department of Agriculture, 2019) as a consequence of inadequate knowledge regarding start-up business variables. Owners must assess their preparedness prior to actually starting this firm. Whenever owners can implement the solution or technique to assess their preparedness, the results will be better. Finding the importance of such start-up business variables is necessary first before guide or technique is designed (Adnan, 2012). Ultimately, employing the platform or software will benefit the entrepreneur by lowering the likelihood of insolvency. The objective of this thesis is to analyse past studies on the description of EBN swiftlets farming

sector founders in Malaysia including the variables impacting new enterprises in the Malaysian sector.

Literature Review

Factors Affecting the EBN Swiftlets Ranching Industry's Startup in Malaysia

The Edible Bird Nest Swiftlets Ranching Industry in Malaysia has a variety of start-up elements, but the pertinent ones have been selected to expand growth. The elements include swiftlet threats, innovation, expertise, capital, government backing, personnel, marketing plan, and equipment for EBN farming.

Innovation

Various company owners in the edible bird's nest sector having encountered difficulties when beginning or running established operations. Plurality of these individuals are aware that many processes are similar and desire to differentiate themselves from everyone else. By finding highly lucrative smaller businesses, companies may advance despite having to make significant financial commitments (Kim et al., 2018). It becomes the main goal to encourage the greatest possible fellow human in people's lives, even if exploration of the product is commonly described for its aesthetic appeal, which inspired many businesses to enter the field. To expand the quantity of innovative products, the innovation approach enables for the employment of a variety of approaches, tools, and strategies (Badziska, 2016). Businesses no longer buy products based solely on their uncontrollable urge for their attractiveness, so the modernization performed a procedure under which businesses could actually envision share some common aspects from a global angle, ensuring that a start-up is related to various constructs to highlight goods, taking configurability, social bonding, virtuous, organisational, and developmental factors (Okrah et al., 2018).

Knowledge

Throughout this modern generation, knowledge is a powerful force since it can control who has access to chances and how they develop. In practise, individuals largely rely primarily on the most valuable data, commercial, and technological advancements for everyday use (Kamaruddin et al., 2019). Globalization has sparked a number of modern advances, as well as to keep pace, firms must adjust to changes as quickly, easily, and cordially as feasible. Upon realising how important strategic assets are, businesses have started to control and improve them. Like a consequence, the concept of knowledge management—an organisational concept centred on the effective application of knowledge to produce high-quality determinations gained significance. Individuals play a significant role in this idea. Productive capacity and superior knowledge benefit the business by generating income from goods and services, preserving and enhancing the image of the business, lowering expenditures, erecting restrictions for possible rivals, and innovating new goods and services (Wan Khairy et al., 2015). Throughout able to commence new businesses and improve existing ones, organisations must continually spend in education and awareness gathering. Only as source of strategic administration, the financial perspective is quite helpful within those processes.

Capital

The profitability is among the most important factors for newly established businesses. Organisations currently deal with a wide range of issues that have an impact on their selling price. Small and medium-sized businesses stimulate both industrialised and emerging nations'

economies. Malaysia and other developing nations that need residents alike to expand steadily should give importance to the SME sector and take advantage of its enormous ability to create jobs, advance indigenous entrepreneurship, diversify production, create better innovation, and integrate with big corporations. Regrettably, even though that SMEs make up upwards of 90% of EBN enterprises in Malaysia, most SMEs for EBN sector consistently outperformed, contributing less than 10% of the country's GDP. This relatively low share of SMEs in Malaysia's GDP might be due to a variety of factors, including an unfavourable business climate, inadequate capital, weak managerial abilities, and an absence of knowledge of contemporary technologies. Therefore, an alternative is needed to carry out business actions in a way that is both convenient and economical, but shifting industry trends have increased the requirements and challenges. Mostly as reacting, unconventional techniques and approaches are used (Ehrenfield, 2008). Inside the corporate world, economic and scientific shifts are required and these changes affect both the cost base and the attitude of company models. According to Keuschnigg (2004), growth equity aids in the creation of novel paradigm enterprises that also are expected to hasten continue' growth and add esteem. Additionally, the results of the effort and innovation produced are better than traditional business practises. One important part of the chain of corporate perpetuity is investment money. While making an investment in a startup company, consultants or external angel businesses that commit will analyse and pick candidates. Ramdhan (2016) claimed that the fundraising procedure for investment capital is different compared to other major banks and is seen as significant risk, demanding more investigation before deciding to invest in start-up companies.

Government Support

Role of government is enhancing financial performance. The expansion of existing enterprises into growing sectors together with the establishment of new ones are important contributions made by SMEs to the overall prosperity of a nation. According to data, this sector of the economy contributes greatly (64%) to the US economic output (Astrachan and Shanker, 2003). Likewise to this, SMEs played a major role in Malaysia's industrial prosperity, having contributed for 37% of GDP in 2010 (Kumar, 2009). By 2020, it is anticipated that SMEs would generate 40% of the nation's GDP (New Sabah Times, 2011). SMEs are commonly regarded inside this aspect as a crucial approach to solve contemporary financial troubles including poverty and industrial growth (Fakhrul and Wan Norhayate, 2011).

Skill Employee

If a company has skilled, structured staff, they can gain a competitive advantage. Businesses who excel at controlling their staff by enhancing their knowledge, focusing their efforts, and enhancing their capacities add value to the company (Bhojaraju, 2005). Leaders must create plans for selecting and employing the best personnel available. When they have hired these people, they must turn them into systems and providing for the business. After that, companies may familiarise these employees with the organization's objectives and teach personnel in ways some of which are adapted to the needs of the entity. Employee management is a crucial job function for any organization, either historically and tactically (Management and Business n.d.). A corporation would have to be knowledgeable of its organisational objectives in order to plan for its demands. Executives must concentrate on ways to boost the skill of their workforce if they want to boost output, decrease expenses, and enhance their organisation's overall (Isa et al., 2016). Attractive remuneration plans, an

emphasis on employee motivation, proper guidance, the recruitment and retention of trained people, the development of effective training programmes, the rewarding and caring of their employees, the promotion of modification, and the creation of a system that enables the staff members are all necessary.

Marketing Strategy

Obtaining a short or medium comparative benefit (SCA) and enhancing a firm's productivity are the objectives of strategic planning (Bharadwaj, 1993). The enhancement of an intermediate and long financial success is among the primary objectives of business model. A corporation may therefore improve its profitability by earning long-term economic benefit by implementing an aggressive business plan. A commodity or ability must fulfil four requirements in order to become a provider of SCA (Barney, 1991). It needs to have a high value placed on this, it should be rare among competitors, it needs to be difficult to duplicate, and there cannot be any competitive counterparts for this unique talent. SCA holds the distinction in an edge in the marketplace (differentiation and low cost). By maintaining positional benefits, market and economic prosperity can be increased over the lengthy period. Creating promotional strategies includes identifying relationships among the components of the marketing while also assessing how the market and competitor conditions affect the composition of the business model. a sample (Carpenter, 1987) The relationship among prices, advertisement spending, and customer satisfaction was already discussed, and the impact of value chain on the creation of the target markets has really been evaluated. Through modifying the effect of market and competitive circumstances on the structure of the branding, personal selling serves as a mediator for the maintenance of standing benefits.

Strategic Location

Due to their continued dominance over numerous key areas and their advantageous Bumiputera background in terms of possession and decision, Bumiputera businesses enjoy a competitiveness inside this field (Zedadra et al., 2019). Additionally, choosing the right site represents one of the most crucial factors in this business' performance. Depending on how frequently these factors occur, position can be divided into different categories including perfect place, loaded placement, and atmosphere (Wan Ibrahim and Yaacob, 2019).

Threats of Swiftlets

Throughout this business, evaluating the pocket bird danger is crucial. The rising cost of land and construction supplies is one challenge that needs to be highlighted. Due to the scarcity of land, it is challenging for swallow nest company owners to establish their enterprises. The volume of the swiftlet groups in structures A and B varies substantially relying on estimates of the number of swiftlets impacted by wet and rainy weather. The study population of swiftlets in building A is based on the nutritional output of the 12000 crop production birds. The entire number of components throughout harvest is multiplied by 12000 fowl to determine the category in building B. Along with addition to evaluating the assortment of things under various growth circumstances by 125 grain weight, the personnel in block C is named. According to Hakim et al., the predicted total of constructions bird populations A and B drops over the course of the season (2011). This seems to be owing to the fact that during the wet months wallet bird feeders are in great supply, however during the dry season insect populations drastically decline scarcity of water in forested regions and reproductive pools.

Tools for EBN Farming

Producing swiftlets is a challenging task. Because they are so concerned about people, they actually require specific care in the process of building a superior nest and enhance employee (Zedadra et al., 2019). In Malaysia's Sarawak province, more than 1,500 swiftlet farms have been established, yet none of them includes genuine surveillance (Han et al., 2019). In order to survive in this profession, it is crucial to have the right tools and power connections, such as air purifiers, car stereos, timers, temperature, and moisture monitors (Wan Ibrahim and Yaacob, 2019).

Methodology

Interviews techniques were utilized in qualitative techniques. The aim of the interview is to determine the aspects that contribute to success in this industry and their relative weights. Three components were interviewed, including one professor, one veterinarian, and six entrepreneurs in each area. Rabiee (2004) claims that six to eight respondents are sufficient to obtain a variety of viewpoints, whereas eight participants or more is the ideal number for participation in an interview to demonstrate a stronger aptitude for interviewing a particular issue (Krueger & Casey, 2000). The sustainability of the edible bird nest swiftlets farming enterprise will be shown by the facts from the discussion on variables in starting a company and the weighting of the criteria. The quantity of the weightage outcome for every component will be used as information to determine the data analysis next course of action.

By constructing the general mathematical function of the Start-Up Business Index for the Edible Bird Nest Swiftlet Ranching Industry through using fundamental mathematical formulation of composite index.

Index Number,

$$I = Q_1 / Q_0 \times 100, \text{ where}$$

Q_0 = Quantity at base time quantity

Q_1 = Quantity quantity at a given time

Composite Index,

$$I = \frac{\sum (I_i W_i)}{\sum W_n}, \text{ Where } i = 1, 2, 3, 4, \dots, 8 \text{ and } n = 1, 2, 3, 4, \dots, 8.$$

I = Index Number

W = Weightage

Assuming that $\sum W_i = W_i$ (Al-Ahmad, S., 2020)

So that, the composite index of the general function of start-up business index for edible bird nest swiftlet ranching industry as follow.

$$I = \frac{\sum (I_i W_i)}{\sum W_n}$$

$$= \frac{[W_1 \sum (\text{Knowledge of management})_i + W_2 \sum (\text{Capital})_i + W_3 \sum (\text{Strategy Location of Edible Bird House})_i + W_4 \sum (\text{Threats of Swiftlets})_i + W_5 \sum (\text{The Role of Building Design and Maintenance})_i + W_6 \sum (\text{Government Support})_i + W_7 \sum (\text{Marketing Strategy})_i + W_8 \sum (\text{Skilled Employee})_i]}{[W_1 + W_2 + W_3 + W_4 + W_5 + W_6 + W_7 + W_8]}$$

----- (4.1)

Findings and Discussion

In accordance with an expert interview, there are a few steps that must be taken in order to succeed in the field of raising swiftlets for food. The ordering of the factors that determines

how much weight is given to the significant criteria at the beginning before considering the other aspects is also necessary. According to Table 1, interviews were done to identify the start-up business component based on this hierarchical weighted. The primary variables are expertise, money, a prime site, swiftlet threats, equipment for edible bird nests (EBN), government support, a calculated marketing strategy, skilled labour, and innovation. A few variables have been considered when starting a business, such as designing bird houses based on swiftlet habitats (based on swiftlet habitat) Swiftlet bird house construction, however the elements are incorporated into the EBN tools. Since this entrepreneur employs three to five people and they are incorporated in the employee organisation, system organisation is not crucial (Rahman et al., 2019: 2020). The study's objective is to identify the weighted components through expert interviews with six business owners, one veterinarian, and one academic. The weighting was used because the composite index formula was used to create a formula for new businesses in the swiftlet ranching sector. Accordingly, we can draw conclusions from either the interviews.

Since there are nine elements total and one element has already been eliminated, the order position one carries a weight of nine. As a result, ranking first drops to eighth place in terms of weight. Referring to Table 1, the participants' interviews were used to rate the start-up company characteristics in order of high weight to minimal mass, as seen in Table 2. In accordance with Table 2, seven participants contributed awareness for the inaugural process, seven participants chose capital for such second level, six participants chose a strategic plan for the EBN again for third phase, six participants chose swiftlet threats for such evaluation phase, and six participants chose techniques for the EDN for the fifth stage, five participants selected government support for the sixth stage, five participants selected a strategy marketing for the seventh stage, and five participants selected skill employee for the eighth stage. The participants selected around related constructs, showing that although the number is little than 50%, the start-up firm features in the construction of edible bird nests may be reduced. Innovation has no impact on their capacity to create new bird nests (Rahman et al., 2018).

Parameters for calculating the relative weight again for development company index for transitory bird founders' nest inside the livestock profession are given in Tables 1, Table 2, Table 3, and Table 4.

Table 1

Consultation With Participant Classification of Beginning Aspects of The Company.

	LIST OF PARTICIPANTS							
	EN. AB. RASHID (A)	DR SALLEH ISMAIL (B)	EN. MOHD HAFIDZ SALLEH (C)	EN. MOHAMMAD SYARIFF (D)	EN. JUARSHAD, VETERINAR (E)	MUHAMMAD AHSANUL HUSNABIN RUSLAN (F)	WAN HARITH IZUDDIN BIN WAN MOHAMMAD (G)	DR. BAHSHA RUDIN BIN MOHD SHARIF (H)
PREDICTORS UPON RELATED RANKING	1) Capital 2) Knowledge 3) Strategic location 4) Threats of Swiftlet 5) Tools for EBN farming 6) Government support 7) Strategic Marketing 8) Employee	1. Knowledge 2. Capital 3. Strategic location 4. Threats of Swiftlet 5. Tools for EBN 6. Government Support 7. Strategic Marketing 8. Employee 9. Innovation	1) Knowledge 2) Capital 3) Community 4) Swiftlet house 5) Threats of Swiftlet 6) Tools for EBN 7) Strategic Marketing 8. Support (it comes later) 8. Employee	1) Knowledge 2) Capital 3) Strategic Location 4) Design bird house (based on swiftlet habitat) 5) Tools for EBN 6) Government Support 7) Threats of swiftlet 8) Security 9) Employee	1) Knowledge 2) Capital 3) Strategic Location 4) Structure Swiftlet house 5) Habitat (Temperature, humidity, lighting, Sound) 6) Threats of swiftlet 7) Strategic marketing 8) Tools for EBN 9) System organization 10) Government Support	1. Knowledge 2. Capital 3. Strategic location 4. Tools for EBN 5. Threats of Swiftlet 6. Government Support 7. Strategic Marketing 8. Security 9. Innovation	1. Knowledge 2. Capital 3. Community 4. Swiftlet bird house 5. Threats of Swiftlet 6. Tools for EBN 7. Strategic Marketing 8. Government Support 9. Employee	1. Knowledge 2. Capital 3. Strategic location. 4. Threats of Swiftlet 5. Tools for EBN 6. Government Support 7. Strategic Marketing 8. Employee

Table 2

Beginning Company Characteristics for the Edible Bird Nest Agriculture Sector, by Proportion and Amount.

NUMBER	FACTORS AFFECTING THE START-UP OF A BUSINESS IN THE INDUSTRY OF HARVESTING BIRD NESTS	NUMBER OF INTERVIEWS	PROPORTION	WEIGHTING	UPON DEDUCTING THE INVENTION PART, THE ACTUAL RATINGS ARE ASSIGNED
1.	Knowledge	7	87.5%	9	8
2.	Capital	7	87.5%	8	7
3.	Strategy Location of Edible Bird House	6	75%	7	6
4.	Treats of Swiftlet	6	75%	6	5
5.	Tool for Edible Bird Nest	6	75%	5	4
6.	Government Support	5	62.5%	4	3
7.	Strategic Marketing	5	62.5%	3	2
8.	Employee	5	62.5.5%	2	1
9.	Innovation	2		Less than 50% = eliminate from the startup business considerations in the sector of edible bird nest industry.	Nil

The weighting of each starting-a-business-with-edible-bird-nest criteria from Table 2 is listed in Table 3 in the order of importance.

Table 3

Lists The Variables That Are Ranked in Sequence of Weighting When Starting An Edible Bird Nesting Enterprise

NUMBER	FACTORS AFFECTING THE START-UP OF A BUSINESS IN THE INDUSTRY OF HARVESTING BIRD NESTS	ORDER RANKING OF START-UP BUSINESS FACTORS	WEIGHTING
1.	Knowledge	1	8
2.	Capital	2	7
3.	Strategy Location of Edible Bird House	3	6
4.	Treats of Swiftlet	4	5
5.	The Role of Building Design and Maintenance	5	4
6.	Government Support	6	3
7.	Strategic Marketing	7	2
8.	Skilled Employee	8	2

The value in the composite index is calculated in entire or sigma form, however in Table 3 not all of the factors' weightings are total $\sum_{i=1}^n Wi$ as well as to determine the typical participant figures that choose knowledge, resources, planning, environment, swiftlet management, responsibility for building design and upkeep, financial support from the government, strategic marketing, and staff skill. The overall average weighting of each component is $\sum_{i=1}^n Wi$ discovered as shown in Table 4. Table 4 can provide updated live information for businesses looking to start an edible bird nest company.

Table 4

Depicts The Median Weighting For Microbusiness Characteristics In The Edible Bird Nesting Farming Sector

NUMBER	FACTORS AFFECTING THE START-UP OF A BUSINESS IN THE INDUSTRY OF HARVESTING BIRD NESTS	AMOUNT OF PARTICIPANTS	AVERAGE WEIGHTAGE (FRACTION) $\sum_{i=1}^n W_i / W_n$	AVERAGE WEIGHTAGE (DECIMAL) $\sum_{i=1}^n W_i / W_n$
1.	Knowledge	7 (Seven participants selected knowledge of ringing as their top priority)	7/8	0.875
2.	Capital	7 (Seven participants selected knowledge of ringing as their second priority)	7/8	0.875
3.	Strategy Location of Edible Bird House	6 (Seven participants selected knowledge of ringing as their third priority)	6/8	0.75
4.	Treats of Swiftlet	6 (Seven participants selected knowledge of ringing as their fourth priority)	6/8	0.75

5.	Tool for Edible Bird Nest	6 (Seven participants selected knowledge of ringing as their fifth priority)	6/8	0.75
6.	Government Support	5 (Five participants selected knowledge of ringing as their sixth priority)	5/8	0.625
7.	Strategic Marketing	5 (Five participants selected knowledge of ringing as their seventh priority)	5/8	0.625
8.	Employee	7 (Five participants selected knowledge of ringing as their eighth priority)	5/8	0.625

According to Table 3 , the value of every weightage factor can be used to substitute in equation 4.1 (methodology) as follow.

$$I^* = \frac{\sum(i_i W_i)}{\sum W_n}$$

$$= \frac{[W_1 \sum (\text{Knowledge of management})i + W_2 \sum (\text{Capital}) i + W_3 \sum (\text{Strategy Location of Edible Bird House}) i + W_4 \sum (\text{Threats of Swiftlets}) i + W_5 \sum (\text{The Role of Building Design and Maintenance}) i + W_6 \sum (\text{Government Support}) i + W_7 \sum (\text{Marketing Strategy}) i + W_8 \sum (\text{Skilled Employee})i]}{[W_1+W_2+W_3+W_4+W_5+W_6+W_7+W_8]}$$

$$= \frac{[8 \sum (\text{Knowledge of management})i + 7 \sum (\text{Capital}) i + 6 \sum (\text{Strategy Location of Edible Bird House}) i + 5 \sum (\text{Threats of Swiftlets}) i + 4 \sum (\text{The Role of Building Design and Maintenance}) i + 3 \sum (\text{Government Support}) i + 2 \sum (\text{Marketing Strategy}) i + 1 \sum (\text{Skilled Employee})i]}{[8+7+6+5+4+3+2+1]}$$

$$= [8 \Sigma (\text{Knowledge of management})i + 7 \Sigma (\text{Capital}) i + 6 \Sigma (\text{Strategy Location of Edible Bird House}) i + 5 \Sigma (\text{Threats of Swiftlets}) i + 4 \Sigma (\text{The Role of Building Design and Maintenance}) i + 3 \Sigma (\text{Government Support}) i + 2 \Sigma (\text{Marketing Strategy}) i + 1 \Sigma (\text{Skilled Employee})i] / [36] \quad \text{-----} \quad (4.2)$$

The other alternative average weightage also can be used in the formulation. According to Table 4, the value of every average weightage factor can be used to substitute in equation 4.1 (methodology) as follow.

$$I^- = \Sigma(I_i W_i) / \Sigma W_n$$

$$= [W_1 \Sigma (\text{Knowledge of management})i + W_2 \Sigma (\text{Capital}) i + W_3 \Sigma (\text{Strategy Location of Edible Bird House}) i + W_4 \Sigma (\text{Threats of Swiftlets}) i + W_5 \Sigma (\text{The Role of Building Design and Maintenance}) i + W_6 \Sigma (\text{Government Support}) i + W_7 \Sigma (\text{Marketing Strategy}) i + W_8 \Sigma (\text{Skilled Employee})i] / [W_1+W_2+W_3+W_4+W_5+W_6+W_7+W_8]$$

$$= [0.875 \Sigma (\text{Knowledge of management})i + 0.875 \Sigma (\text{Capital}) i + 0.75 \Sigma (\text{Strategy Location of Edible Bird House}) i + 0.75 \Sigma (\text{Threats of Swiftlets}) i + 0.75 \Sigma (\text{The Role of Building Design and Maintenance}) i + 0.625 \Sigma (\text{Government Support}) i + 0.625 \Sigma (\text{Marketing Strategy}) i + 1 \Sigma (\text{Skilled Employee})i] / [8+7+6+5+4+3+2+1]$$

$$= [8 \Sigma (\text{Knowledge of management})i + 7 \Sigma (\text{Capital}) i + 6 \Sigma (\text{Strategy Location of Edible Bird House}) i + 5 \Sigma (\text{Threats of Swiftlets}) i + 4 \Sigma (\text{The Role of Building Design and Maintenance}) i + 3 \Sigma (\text{Government Support}) i + 0.625 \Sigma (\text{Marketing Strategy}) i + 1 \Sigma (\text{Skilled Employee})i] / [5.875] \quad \text{-----} \quad (4.3)$$

Equation 4.2 and equation 4.3 can be used to develop the formulation in the index for new businesses for entrepreneur edible bird nest in ranching industry.

Conclusion

The main goal of the current study was to determine the weightage of the start-up business index for the edible bird nest swiftlet ranching industry by interviewing experts in this field. During the interview, the researcher determined what factors contribute to industry success and their relative importance. This weightage is then used in a mathematical index to measure the start-up success of edible bird nest swiftlet farms. The amount and weighting of the new corporation in the edible bird nest rancher company's contributing elements were identified for the mathematics index's development based on Tables 1 and Table 2. The edible bird nest swiftlet farming sector's mathematical index for start-up company elements will protect many entrepreneurs from losses in this industry. The overall weightage of each element in Table 3 has improved under the revised weighting scheme. Table 4 therefore provides the answer to the problem of determining the median weightage for each component in the building of the formulation of the start-up company index. The formula for the entrepreneur edible bird nest start-up company index in the rancher sector may be produced by employing weightage or average weightage as in Equations 4.2 or 4.3. The empirical findings in this study provide a new understanding of significant factors of successful start-up businesses in edible bird nest swiftlets. Additionally, formulating mathematical indexes can be used to measure the success of start-up businesses. As a reference, it can also be helpful for other business industries.

Although the system has been built, business owners still need to apply risk management when transferring risks (Ghazali et. al, 2019a, 2019b, 2017, 2015, 2012a, 2012b, 2012c and 2012d: Azhar et al., 2017). For a firm to double verify and equalize before suffering more losses, risk transfer is crucial. One way to manage risk is through managing risk, which will soon be required of anybody wishing to launch a firm.

Acknowledgement

The Ministry of Higher Education Malaysia contributed technical and financial assistance for this study under the grant FRGS/1/2020/STG06/UNISZA/02/1, which is acknowledged by the authors.

References

- Adnan, A. A. (2012). Islamic consumer behavior: A discipline or sub-discipline? Gelagat pengguna Islam: Satu disiplin atau sub-disiplin?, *Jurnal Pengurusan*, 35, pp. 139–149.
- Akram, M., and Azad, M. K. K. (2011). Attitude Towards Business Ethics: Comparison Of Public And Private Organizations In Pakistan, *International Journal of Economics and Management Sciences Vol. 1, No. 3, 2011*, pp. 73-77.
- Alfianto, E., and Kowa, K. D. (2016). Rancang Bangun Rumah Budidaya Burung Walet Dengan Sistem Pengendalian Suhu Otomatis Sederhana Menggunakan Arduino UNO, *e-Jurnal NARODROID, Vol. 2 No.1 Januari*.
- Azhar, N. N. Z. B. A., Ghazali, P. L., Mamat, M. B., Yusuf, Y. B., Mahmud, S. B., Lambak, S. B., Sulong Z. B., Foziah N. H. M., and Latif A. Z. B. A., (2017). Acceptance of Integrated Modification Model of Auto Takaful Insurance in Malaysia, *Far East Journal Mathematical Sciences*. 2017;101(8): 1771-1784.
- Badzinska, E. (2016). The Concept of Technological Entrepreneurship: The Example of Business Implementation, *Entrepreneurial Business and Economics Review* 4(3):57–72. doi: 10.15678/EBER.2016.040305.
- Bhojaraju, G. (2006). Knowledge Management: Why Do We Need It for Corporates, *Malaysian Journal of Library and Information Science* 10(2):37–50. doi: 10.2139/ssrn.3375572.
- Clercq, D. D., and Arenius, P. (2006). The Role of Knowledge in Business Start-up Activity, *International Small Business Journal*.
- Connolly, C. (2019). A Place for Everything’: Moral Landscapes of ‘Swiftlet Farming’ in George Town, Malaysia, *Geoforum* 77(October):182–91. doi: 10.1016/j.geoforum.2016.11.005.
- Daud, N. A., Sarbini, S. R., Babji, A. S., Yusop, S. M., and Lim, S. J. (2019). Characterization of Edible Swiftlet’s Nest as a Prebiotic Ingredient Using a Simulated Colon Model, *Annals of Microbiology* 69(12):1235–46. doi: 10.1007/s13213-019-01507-1.
- Dunn, P., Short, L. E., and Liang, K. (2008). Human Resource Management Importance In Small Business, *Small Business Institute Journal, Volume 2*.
- Ghazali, P. L., Jaaffar, S. A. S., Foziah, N. H. M., Tambi, A. M. A., Nawil, F. A. M., Mamat, M., Mohammad, S. B., Daud, W. M. N. W. M. M. S. (2019). The Construction of a New Mathematical Model for Islamic Home Financing, *Asian Academic Management Journal*, 24(Supp.1):33-41. doi:10.21315/aamj.
- Ghazali, P. L. B. (2020). The Validation of New Formula of Islamic Home Financing Among Finance Expertise’s, *International Journal Quantitative Research Model* ;1(1):29-34.
- Ghazali P. L., Foziah, N. H. M., Mamat, M., Razak, R. A., Omar, L., Afthanorhan A., Daud W. M. N. W. (2019). Mathematical Concept in Integration Model of Education Plan Takaful, *International Journal of Recent Technology and Engineering (IJRTE)*. 7(Issue-5S4): 595-599.
- Ghazali, P. L., Ghani, P. A., Mamat, M., Salleh, Z., Ismail, S. A. (2015). Integration Model In Auto Takaful Insurance, *Far East Journal Mathematical Sciences* ;98(5):599-611.
- Ghazali P. L., Mamat M., Omar L. B., Foziah N. H. M., Guci D. A., Yusuf Y. B., Sazali N. E. S. B.,(2017). Medical Integration Model of Family Takaful, *Far East Journal Mathematical Sciences*. 2017;101(6):1197- 1205.
- Ghazali, P. L., Mohd I., Ahmad W. M. A., and Mustafa, M. (2012). Comparison of Premium Life Tables Between Existing Model and Integration Model in Family Takaful, *Journal of Applied Science Research*. 2012;8(7):3754-3762.

- Ghazali, P. L., Mohd, I., Ahmad, W. M. A., and Mustafa, M. (2012). Implementation of Integration for all, *Journal of Applied Science Research*. 2012; 8(3): 1802- 1812.
- Ghazali, P. L., Mohd, I., Ahmad, W. M. A., and Mustafa, M. (2012). Integration Model In Premium Life Table Of Family Takaful, *Journal of Applied Science Research*. 2012; 8(7): 3763- 3776.
- Ghazali P. L., Mohd I., Ahmad W. M. A., and Mustafa, M. (2012). Integration Model of Education Plan Takaful: A case Study in Terengganu, Kelantan and Perlis, States in Malaysia, *Far East Journal Mathematical Sciences*. 2012;65(1): 97- 117.
- Han, Eunice S., and Annie, G. (2019). “濟無No Title No Title.” *Journal of Chemical Information and Modeling* 53(9):1689– 99.
- Hao, Q., and Rahman, A., (2016). Swiftlets and Edible Bird’s Nest Industry in Asia, *Pertanika Journal of Scholarly Research Reviews* 2(1):32–48.
- Hao, Q., LOOI, Rahman, A., and Omar, (2016). Swiftlets and Edible Bird’s Nest Industry in Asia, *Pertanika Journal of Scholarly Research Reviews* <http://www.pjsrr.upm.edu.my/>.
- Hong, T. K., Choy, C. F., and Kiat, A. O. H. (2005). Approach to Improve Edible Bird Nest Quality & Establishing Better Bird Nest Cleaning Process Facility through Best Value Approach, *Journal for the Advancement of Performance Information and Value* 10(1):38–50.
- Ibrahim, W. K. W. (2016). Kelestarian Usahawan Melayu Kelantan: Kajian Ke Atas Industri Sarang Burung Walit, *Doctoral thesis, Fakulti Keusahawanan dan Perniagaan*. 539.
- Ibrahim, W. K. W., Yaccob, M. R., and Abdullah, A. (2015). The Importance of Technical Knowledge in Sustainability of Malay Bird ’ s Nest Industry in Malaysia, *Journal of Applied Environmental and Biological Sciences* 5(4):190–96.
- Ibrahim, W. K., and Yaacob, M. R. (2019). Kajian Keberkesanan Pemilihan Lokasi Melalui Kaedah ‘Ceklok’ Untuk Pembinaan Rumah Burung Walet (RBW), *Journal of Entrepreneurship and Business* 7(2):1–16. doi: 10.17687/jeb.0702.01.
- Idris, A., Abdullah, A., and Abd-Rehman, M. (2014). An Overview Of The Study Of The Right Habitat And Suitable Environmental Factors That Influence The Success Of Edible Bird Nest Production In Malaysia, *Asian Journal of Agricultural Research* 8(1) 1-16.
- Isa, M. F. M., Ugheoke, S. O., and Noor, W. S. W. M. (2016). The Influence of Organizational Culture on Employees’ Performance: Evidence from Oman.”, *Journal of Entrepreneurship and Business* 4(2):1–12. doi: 10.17687/jeb.0402.01.
- Jelenic, D. (2011). The Importance Of Knowledge Management In Organizations – With Emphasis On The Balanced Scorecard Learning And Growth Perspective, *Management, Knowledge and Learning*.
- Kamaruddin, R., Ismail, C. E., and Ahmad, S. A. (2019). Key Factors for the Sustainable Production of Swiftlet Birds’ Nest Industry in Malaysia: A Case Study in Northern Peninsular Malaysia, *International Journal of Supply Chain Management* 8(1):724–33.
- Kim, B., Kim, H., and Jeon, Y., (2018). Critical Success Factors of a Design Startup Business, *Sustainability (Switzerland)* 10(9):1–15. doi: 10.3390/su10092981.
- Kiznyte, J., Welker, M., and Dechange, A., (2016). Applying Project Management Methods to Start-up Business Plan: The Case of Blendlee, *PM World Journal Vol. V, Issue V*.
- Kristandy, S. J., and Aldianto, L., (2014). Factors that Influence Student’s Decision in Starting-Up Service Franchise Business in Bandung, *The 6th Indonesia International Conference on Innovation, Entrepreneurship and Small Business, 12 – 14 August*.
- Martin, T. E. (1993). Nest Predation and Nest Sites: New Perspectives, on *Old Patterns, BioScience* 43(8):523–32.

- Moroni, I., Arruda, A., and Araujo, K. (2015). The Design And Technological Innovation: How To Understand The Growth Of Startups Companies In Competitive Business Environment, *6th International Conference on Applied Human Factors and Ergonomics (AHFE 2015) and the Affiliated Conferences, AHFE*.
- Okrah, J., Nepp, A., and Agbozo, E. (2018). Exploring the Factors of Startup Success and Growth, *The Business and Management Review* 9(3):9–10.
- Rafi, M., Fakulti Keusahawanan, Khairy, W. (2015). Ilmu Pengurusan Rumah Burung Walit : -, *Penentu Kelestarian Usahawan Bumiputera*, 10(September):142–51.
- Rahman, A. M., Ghazali, P. L., Zain, M. E. N., Razak, A. R., Sazali, N. E. S., Mamat, M. (2020). Location Area and Premise Size of Successful Edible Bird Nest (EBN) Swiftlet Houses in Terengganu, Malaysia, *International Journal of Advanced Science and Technology*. 29(3): 9356 – 9362.
- Rahman, A. M., Ghazali P. L., Ju Lian, C., Basri, N., Mamat, M., Foziah, H., Afthanorhan, A. (2019). Suitable Ranching Practices in Successful Edible Bird Nest Swiftlet Houses in Terengganu, *International Journal of Recent Technology and Engineering (IJRTE)*. 7(Issue-5S4): 600-604.
- Rahman, A. M., Ghazali, P. L., Ju Lian, C. (2018). Environmental Parameters in Successful Edible Bird Nest Swiftlet Houses in Terengganu, *Journal of Sustainability Science and Management*. 13(1): 125-129.
- Rashid, R. M., Abidin, A. Z. Z., and Nazmi, M. S., (2013). Prospek Dan Cabaran Industri Sarang Burung Walit Negara, *Buletin Teknologi MARDI* 3(2013):57–69.
- Rosa, M. C. W., Sukoharsono, E. G., and Saraswati, E. (2018). The Role of Venture Capital on Start-up Business Development in Indonesia, *Journal of Accounting and Investment*.
- Vaiappuri, S. K. N., Nitty, H. K., Ismail, L., and Kamaruddin, M. I., (2012). Ranchers' Knowledge towards Sustainable Swiftlet Ranching, *Malaysian Journal of Animal Science* 15(2012):27–35.
- Vaiappuri, S. K. N., Nitty, H. K., Ismail, A. L., and Kamaruddin, M. I., (2012). Ranchers' Knowledge Towards Sustainable Swiftlet Ranching, *Malaysian Society of Animal Production, Mal. J. Anim. Sci.* 15:27-35.