



A Review Paper on The New Business Factors for The Malaysian Edible Bird Nest Swiftlet Ranching Industry

¹ Anis Aniza Abdul Hadi*, ² Puspa Liza Ghazali, ³ Nik Hazimi Mohamad Foziah, ⁴ Roslida Abdul Razak and
⁵ Juliana Arifin

Faculty of Business and Management, Universiti Sultan Zainal Abidin, 21300 Kuala Nerus, Terengganu, Malaysia

Email: ²puspaliza@unisza.edu.my, ³nikhazimi@unisza.edu.my, ⁴roslida@unisza.edu.my, ⁵julianaarifin@unisza.edu.my

*Corresponding Author E-mail: anisaaniza@gmail.com

Received: 15th February 2022

Accepted: 05th May 2022

Published: 27th May 2022

ABSTRACT

The overall goal of this research is to understand on by equating characteristics of starting a business in previous research, its items of creating a bird nest for manufacturers. The 10 characteristics of the new business factors include invention, knowledge, resources, state subsidies, manpower, marketing program, geographical position, swiftlet risks, and Edible Bird's Nest (EBN) farming tools. The majority of entrepreneurs lacked basic management skills when they first begun. Giving up on the process can lead to many of them failing, resulting in further losses. Furthermore, to compete in today's market, a beginning firm needs highly skilled, dedicated personnel as well as innovative management. As a result, the elements that affect the overall performance of this research focuses on new businesses in the Edible Bird's Nest (EBN) industry. In this study, a few ways will be used to offer feedback on whether certain techniques are effective or poor for creating bird nests, as evaluated by a bird nest method entrepreneur. This research helps to a deeper knowledge of the entire new economic features of the Edible Bird's Nest (EBN) Swiftlet Output value Industry. Furthermore, these discoveries will have the effect of expanding Edible Bird's Nest (EBN) output, particularly for export, as well as the ranching industry's economy

Keywords: New Business Factors, Entrepreneur, Edible Bird's Nest (EBN), and Swiftlet Ranching Industry.

OPEN ACCESS

INTRODUCTION

Malaysia is a country in Southeast Asia that swiftlet nests seem to be a valuable agricultural commodity. As of the end of 2007, there were more than 20,000 sites of this bird throughout Malaysia (Idris, Abdullah and Abd-Rehman, 2014). Entrepreneurs have always been compelled to increase production in order to meet expanding customer needs and expensive input prices. As a result, they build nests in man-made environments to encourage birds (Martin, 1993). In the 1980s, that the very first swiftlet buildings were erected in Indonesia in response to increased demand and rising prices in China's retail market (Connolly, 2016). One of the driving factors of this development was China's open foreign capital policy, that would've been implemented at the era under Chinese ruler Deng Xio Peng. One of the main sources of this increase in demand was China's open economic policy, which was implemented through Chinese leader Deng Xio Peng at the time (Hao and Rahman, 2016). As a result of this initiative, Chinese government salaries have soared, as has the country's money supply. Significantly over the past half-century, China's per capita spending has increased by around sixteen times (Vaiappuri and colleagues).

However, many entrepreneurs in the existing products and new nest farming industry confront difficulties, resulting in significant losses (Rafi et al., 2015). Most owners have struggled in their businesses due to problems such as a lack of assistance in swiftlet farming. This is due to the fact that some entrepreneurs have limited experience and are more likely to entrust design and management to company vendors or experts (Kamaruddin, Ismail and Ahmad, 2019). Qualified experts on effectively understand swiftlet care have readily duplicated a lot of entrepreneurs.

A variety of environmental factors, including complex methods and farm treatment, influence the establishment of swiftlet breeding (Rabu, Abidin and Nazmi, 2013). The expansion of swiftlet populations close to major and normal downtown activity has also impeded swiftlet farming (Hong, Choy and Kiat, 2005). Many residents have heard the noise and faces of birds interfering with their routine activities as a result of this. They further say that several swiftlet breeders let tweeters (speakers that attract swiftlets) to operation without the permission of the local community (Creighton C., 2016). As the government grew increasingly aware of the equipment failure and bad environmental consequences of swiftlet food

production, it began to implement suitable legal standards and regulations to educate and expand the swiftlet industry in Malaysia. Consequently, the most important problem in the Edible Bird Nest Swiftlet Ranching Venture is that 80 percent of entrepreneurs fail because they don't comprehend the early costs. Because this industry entails a high level of risk, the initial investment required to get started is a significant issue (Wan Khairy, 2016). Similarly, the Malays' lack of entrepreneurial and personal expertise are seen as roadblocks to the things that go into beginning (Wan Khairy, 2016). Lack of competition in businesses is one of the reasons why some entrepreneurs struggle to reach their objectives when they first start their company.

It is critical to manage a new business during its early stages of development before starting a firm or becoming an entrepreneur. This is because the concept of a start-up is intrinsically related to entrepreneurship and entrepreneurs. Furthermore, as described by Schumpeter, it is the implementation of new configurations of company setting such as new items, new programs, alternative sources of raw goods, new manufacturing techniques, market expansion, and alternative forms of organisation. Furthermore, in the twenty-first generation, the perspective, abilities, skills, and information that encourage entrepreneurship may be found in individuals around the world, but especially in today's youth. This is a change from previous times, when the mechanics of economic expansion benefited more established in business.

Several things must come together in order to begin and create a successful beginning business. When faced with its initial challenge, a company without a clear direction and goals, including a company plan or a marketing approach, seems to be more likely to fail. Some entrepreneurs start their enterprises without a clear business strategy or defined target market, but also without conducting significant market research. If an entrepreneurial does not perform data analysis, he or she will be unable to establish a viable business model and approach since they will have no awareness of trend in the market, threats and opportunities, corporate structure, or how to marketing communication wants and expectations.

LITERATURE REVIEW

The initial objective is to find out more about at academic research on how Malaysian enterprises comprehend the EBN swiftlets food production sector, as well as the factors that influence the new firms in this industry.

Overview EBN Swiftlets Ranching Industry in Malaysia

Malaysia's swiftlet farming industry has expanded in the recent decade. Malaysia was supposed to already have 900 swiftlet homes or farms before 1998. By the end of 2013, Malaysia was expected to have 60,000 units of swiftlet plantations in operation. (Looi, Q. H., & Omar, A. R., 2016).

Driven by technological attempts on the part of numerous companies, bird's nest farming and the EBN business continue to confront a number of serious roadblocks that hamper swiftlet development. Prices for finished and semi-finished EBN including both exports and imports fluctuate as a result of these flaws. Adulteration of EBN, population decline of swiftlets, and insufficiently accessible and undetermined

quality standards of finished and semi-finished EBN from various sources are just a few examples of such problems.

EBN certification and process is controlled have evolved greatly over time as a result of technology improvements and availability. EBN manufacturers frequently utilise colour and texture inspections to classify EBN and discover adulteration. Individual experience informed such a subjective strategy. Since then, using a mix of elemental composition, micro observations, and genetic data, has developed a number of methods for grading EBN and identifying phony or contaminated EBN (Ma, F., & Liu, D., 2012). Each approach, on the other hand, has its own set of benefits and drawbacks, and no single method can accurately quantify quality.

EBN forgery, swiftlet growth, and processed and unprocessed key performance indicators and are far less recognizable and cannot be assessed by EBN from multiple sources are among the issues faced by entrepreneurs (Rafi et al., 2015). Because of the advancement and availability of technology, EBN evaluation and validation procedures have changed dramatically over time. Previous EBN makers used colour and texture observations to analyze EBNs and detect counterfeiting, but this method is subjective and reliant on personal experience. Researchers began creating several methods for assessing EBNs and identifying EBNs that were either fabricated or violated, depending on EBN component analysis, microscopic inspections, and genetic analysis. Despite the fact that numerous approaches have been tested, each approach has its own set of benefits and drawbacks, and none of them can establish the level of EBN.

Various beginning business factors must be adapted for the entrepreneur to maintain consistency business practices in the EBN swiftlet ranching industry, but also the overall value operations for manufacturing EBN as benefit meet the needs and wants of both domestic and international markets, in establishing a long-term swiftlet ranching and EBN industry.

Factors Of Start-Up Business For Ebn Swiftlets Ranching Industry In Malaysia

Articles in JMTP publications can have multi levels of headings. Top-level headings appear in bold uppercase. The next level of sub-headings is bold and italic. These template guidelines use the heading structure for articles. To assist the copyediting and typesetting process, please use headings formatted in those ways.

In the past study, there were numerous aspects of new enterprises in Malaysia's Edible Bird Nest Swiftlets Ranching Industry, but the significant factors were picked to enhance output. Invention, expertise, resources, state subsidies, manpower, marketing program, geographical position, swiftlet risks, and EBN farming tools are among of considerations.

Invention

Several more entrepreneurs in the Edible Bird's Nest industry have had trouble starting or expanding their firms. Most of them understand that many methods are the same, and they desire something unique. They can find incredibly profitable niche industries to innovate in without having to make capital

stakes (Kim, Kim and Jeon, 2018). This prompted a slew of enterprises to enter the realm of product design for invention. While this is generally associated with product aesthetics, it is the primary goal in order to achieve optimum well-being in people's lives.

In order to expand the quantity of products and services, the innovation process allows for a variety of approaches, tools, and strategies to be applied at various stages (Badziska, 2016). People will no longer buy solely on the basis of visual appeal, but about the basis of optimal results such as soft skills, morals, strategic, behavioural, and convenience. To differentiate individual apart from the competition, consider designing bird's nest goods and/or services with a number of unique features.

Knowledge

Knowledge wields power in this new era because it can govern access to opportunities and growth. In actuality, people virtually exclusively use advanced knowledge, business, and technological advancements in their daily lives (Kamaruddin et al., 2019). To be competitive, firms must adapt to new trends as quickly, economically, and pleasantly as possible as a result of globalisation. Individual and organisational knowledge is now a key strategic element (Vaiappuri et al., 2012). After realising the value of intellectual resources, businesses started to improve and maintain them. As something other than a result of this, competencies and understanding such as a definition of organizational knowledge focused on the establishment of relevant principles to make quality judgments have become increasingly vital. In this concept, people play a critical role. Income charitable donations from services and goods, the maintenance and improvement of track record, the slight decrease of overhead expenses, the existence of barriers to trade for competing products, and the creation of innovation are all examples of how intangible assets and first-class knowledge benefit the company (Wan Khairy, Yacob and Abdullah, 2015). Organizational success is heavily dependent on increasing contribution in gaining new information in order to build new enterprises and improve existing ones. In these operations, the balanced scorecard is particularly valuable as a short or medium source of competitive advantage.

Resources

One of the most crucial parts of a new company's structure is its capital structure. Today's businesses are confronted with a slew of difficulties that have an impact on their market worth. Small enterprises play a critical role in the economy in both domestic and international countries' economic development. Malaysia, like other developing countries, needs to listen closely to the SME sector in order to tap into its immense ability to synthesize jobs, enhancing local technologies, diversifying output, encouraging native innovation, and merging with large-scale enterprises. Despite the reality that SMEs in Malaysia represent for some more than 90% of EBN firms and provide just under 10% of the country's GDP, they have underperformed in EBN industries. A challenging business environment, insufficient money, poor managerial skills, and a lack of grasp of modern technology are all issues that contribute to SMEs' low contribution to Malaysia's GDP.

In order to execute enterprises in a resource and efficient manner, a solution is now necessary, but changing market climates have provided to the disadvantages and limits. As a result, solutions and approaches diverge either from norm (Ehrenfield, J. R., 2008). In the corporate sector, fundamental and technical improvements are required, and these changes occurred as well as in cost structure but also in business model culture. Private investment, then according (Keuschnigg, 2004), helps start-ups create innovative ways to grow smoother and produce value. Furthermore, the work and development outputs provided outperform typical business processes. The financial industry is an important component of the system of company continuity. Before investing in start-up companies, investigators or institutional growth equity parties will examine and pick them. Venture capital funding differs from that of other financial organisations, and it is regarded high risk, needing further investigation before investing in start-up businesses.

State Subsidies

The state's assistance is critical to industry. SMEs contribute significantly to a country's economic growth by starting new firms and growing existing enterprises into new markets. As per the statistics, this type of firm system leading half percentage to the United States' gross domestic production (Astrachan and Shanker, 2003). Predictably, small enterprises are really the driving force behind Malaysia's economic development, accounting for 37% of the nation's gross Domestic product in 2010. Kumar (2009) is a writer who has written a number of books on the subject. Small enterprises are expected to account for 40% of any nation's economy by 2020. (New Sabah Times, 2011) Small business are frequently generally viewed as a critical tool for addressing prevailing climate constraints like those of work participation and weak production (Fakhrul and Wan Norhayate, 2011).

Manpower

When a company has valued and well-organized manpower, it might gain a competitive advantage. Companies that excel at managing their manpower by expanding their knowledge, growing their talents, and boosting their skills add value to the company (Gunjal B., 2005). Managers must devise techniques for identifying and hiring the best available personnel. They must make these manpower valuable abilities to the company once they have hired them. They must then train these manpower in methods that are tailored to the company's needs, encouraging them to come up with fresh ideas while also familiarising them with the company's strategies. The manpower management is both a typical and, more importantly, a strategic function within a company. A company's organisational goals and strategy must be understood before it can plan for its needs. Managers must focus on how to boost skill levels in order to increase production, cut expenses, and improve their organization's competitive advantage (Isa, Ugheoke and Noor, 2016). They must build a successful bonus program, focus on inspiring workforce, develop great leaders, recruit and retain talented personnel, develop successful training programmes, reward and care for their workforce, improve things, and create a supportive environment.

Marketing Program

The marketing program's aim is to obtain a protracted commercial advantage (SCA) and increase as a result of the operating value (Bharadwaj, 1993). The improvement of an intermediate and long financial success is one of the key goals of marketing strategy. As a result, by establishing long-term competitive advantages, a strategic marketing company can assist a company in improving its financial performance. A resource/skill must meet four requirements to be considered a supply of SCA (Barney J., 1991). It should also be recognized; it must be unique among competitors; that must be partially repeatable; and it must have no strategic alternatives. SCA sources result in a competitiveness (differentiation and low cost). Maintaining positioning advantages helps to improve brief market and economic conditions.

Recognizing groups around elements of the promotional balance, and even some explored the effect of rivals and market conditions on marketing mix formation, is required for developing competitive marketing strategies. The link in both production degree of quality, digital marketing operating costs, and pricing was built in a classifier (Carpenter, 1987) that examined the task of segments on the structure of marketing mix. By altering the effect of current competition circumstances on the promotional mix composition, relationship marketing functions as a moderator for maintaining positioning advantages.

Geographical Position

The aspect of geographical position gives *Bumiputera* entrepreneurs a competitive advantage in this field while they still dominate several critical areas or have *Bumiputera* privilege status in terms of landholdings and decision (Zedadra et al., 2019). Additionally, one of the most significant aspects for advancement within the organization is location selection. As per the frequency of these variables, location can be split down into many features such as decent place, saturated location, and weather (Wan Ibrahim and Yaacob, 2019).

Swiftlets Risks

Analysing the threat of wallet birds is very important in this company. In this industry, analysing the threat of swiftlets birds is critical. High land and building material prices are among the challenges that must be addressed. The cost of land has risen dramatically, making it difficult for swallow nest entrepreneurs to establish a firm (Tarburton, 2009). Then there's the potential of widespread swiftlets bird nest theft. Because of the quick growth of swallowing nests, there is a high rate of theft and robbery/nest bird's building/swallow building in the area where swallow building is common. Furthermore, there is the risk of shifting currency rates. The shifting exchange rate of the currency has an impact on the selling price of swiftlet nests, especially those sold overseas, which fluctuates rather than settles on a consistent basis.

Methods of harvesting are also among the risks that must be identified. Some people were still able to find a way to harvest run out. Because the nests were harvested more and the quality was good, the respondents completed the harvest to ensure that the harvest was maximised. If this is done on a regular basis, the population of swallows will decrease (Tarburton, 2009). Because it affects the population of

swallows, the technique of harvesting can affect the sustainability of subsequent production. Harvesting could also provide an idea of how many populations of swallows are in a building, when harvesting in 1 year with the age of the building has been built for more than 5 years. Take a look at the amount of swallow nests that are produced.

EBN Farming Tools

Swiftlet reproduction is a challenging task. The birds are hyper delicate to humans and require specific care in order to construct an increased nest and improve growth (Zedadra et al., 2019). In Sarawak, Malaysia, more than 1,500 swiftlet farms have been built, yet none of them seem to have actual supervision (Han et al., 2019). As a result, items like filtration systems, audio equipment, timers, temperatures, and humidity testers are necessary to stay in business (Wan Ibrahim and Yaacob, 2019).

CONCLUSION

The parameters for creating a new business for entrepreneurs in the EBN swiftlets ranching industry are investigated in this study. According to this study, the sustainability of the organization idea and the establishment of a practical business model are two critical new business success criteria. Many businesses struggle in the early stages of their businesses due to a lack of or ineffective business strategy. In order to thrive in their businesses, entrepreneurs must have or establish a specific profile, which is a set of facts, skills/know-how, and personality traits. We will leverage the question and answer session with the EBN enterprises and the instructors on these variables to fulfil the study's aims. Even if we are very concerned about the new firm in the edible bird nest swiftlet ranching industry, entrepreneurs must have a backup mechanism in place, such as insurance or takaful protection (Ghazali et. al, 2019a, 2019b, 2017, 2012a, 2012b & 2012c).

ACKNOWLEDGEMENT

The authors acknowledge the financial and technical support for this project provided by the Ministry of Higher Education Malaysia under the grant FRGS/1/2020/STG06/UNISZA/02/1/RR-373.

REFERENCES

- Astrachan, J. H., & Shanker, M. C. (2003). Family Businesses' Contribution To The US Economy: A Closer Look. *Family business review*, 16(3), 211-219.
- Barney, J. (1991). Firm Resources And Sustained Competitive Advantage. *Journal of management*, 17(1), 99-120.
- Carpenter, G. S. (1987). Modeling Competitive Marketing Strategies: The Impact of Marketing-Mix Relationships And Industry Structure. *Marketing Science*, 6(2), 208-221.
- Ceria, B. K. L. A. B., Auliaturredha, W. S., Budiwati, N., Anjardiani, L., & Desa, P. B. P. U. Emiyati. (2010). Skripsi Strategi Pemberdayaan Masyarakat Melalui Program Pemberdayaan Masyarakat Kelurahan (PPMK) di Kelurahan Sempur Barat. Jakarta Utara. Han, ES, & Goleman, Daniel Boyatzis, Richard; Mckee, A., 2019. *Journal of Chemical Information and Modeling*, 53 (9), 1689–1699.
- Connolly, Creighton. (2016). 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.
- Ehrenfeld, J. R. (2008). Sustainability Needs To Be Attained, Not Managed. *Sustainability: Science, Practice and Policy*, 4(2), 1-3.

- Fakhrul, A.Z., & Wan Norhayate, W.D. (2011). Indigenous ('Bumiputera') Malay Entrepreneurs In Malaysia: Government Supports, Entrepreneurial Orientation And Firms Performances. *International Business and Management*, 2(1), 86-99.
- Ghazali, P., Ghazali, B., Mamat, M., Omar, L., Hazimi, N., Mohammed Foziah, N.H., Guci, D., Abdullah, Y., Emmiey, N., Sazali, S., & Java, W. (2017). Medical Integration Model of FamilyTakaful For Blue Collar. *Far East Journal of Mathematical Sciences*, 101, 1197-1205. <https://doi.org/10.17654/MS101061197>
- Ghazali, P., Mohd, I., Ahmad, W.M.A.W., & Mamat, M. (2012b). Integration Model Of Education Plan Takaful: A Case Study For Terengganu, Kelantan And Perlis, States In Malaysia. *Far East journal of mathematical sciences*, 65(1), 97-117
- Ghazali, P.L., Foziah, H., Mamat, M., Razak, R.A., Omar, L., Afthanorhan, A., & Wan Daud, W.M.N. (2019b). Mathematical Concept in Integration Model of Education Plan Takaful. *International Journal of Recent Technology and Engineering*, 7(5), 594-599.
- Ghazali, P.L., Mohd, I., Ahmad, W.M.A.W., & Mamat, M. (2012a). Implementation Of Integration Model For All. *Journal of applied sciences research*, 8(3), 1802-1812.
- Ghazali, P.L., Mohd, I., Ahmad, W.M.A.W., & Mamat, M. (2012c). Comparison Of Premium Life Tables Between Existing Model And Integration Model In Family Takaful. *Journal of Applied Sciences Research*, 8(7), 3754-3762.
- Ghazali, P.L., Syed Jaaffar, S.A., Mohammed Foziah, N.H., A Tambi, A.M., Md Nawi, F.A., Mamat, M., Mohammad, S.B., Wan Daud, W.M.N., & Mahmud, M.S. (2019a). The Construction of a New Mathematical Model for Islamic Home Financing. *Asian Academy of Management Journal*, 24(Supp.1), 33-41. <https://doi.org/10.21315/aamj2019.24.s1.3>
- Gunjal, B. (2005). Knowledge Management: Why Do We Need It For Corporates. *Malaysian Journal of Library & Amp*, 37-50.
- Hao, Qi, and Abdul Rahman. (2016). Swiftlets and Edible Bird's Nest Industry in Asia. *Pertanika Journal of Scholarly Research Reviews* 2(1):32-48.
- Hong, Tan Kok, Chia Fah Choy, and Alan Ong Han Kiat. (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.
- 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., & 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.
- Kamaruddin, R., C. E. M. Engk. Ismail, and S. A. Ahmad. (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.
- Kelly, L., & Kumar, R. (2009). Impact Of Knowledge Management On The Self-Efficacy Of Entrepreneurs: Mexican SME Context. *International Journal of Management and Decision Making*, 10(1-2), 111-124.
- Keuschnigg, C., & Nielsen, S. B. (2004). Start-Ups, Venture Capitalists, And The Capital Gains Tax. *Journal of Public Economics*, 88(5), 1011-1042.
- Looi, Q. H., & Omar, A. R. (2016). Swiftlets and edible bird's nest industry in Asia. *Pertanika Journal of Scholarly Research Reviews*, 2(1).
- Ma, F., & Liu, D. (2012). Sketch of The Edible Bird's Nest And Its Important Bioactivities. *Food Research International*, 48(2), 559-567. <https://doi.org/10.1016/j.foodres.2012.06.001>
- Martin, T. E. (1993). Nest Predation and Nest Sites. *BioScience*, 43(8), 523-532. <https://doi.org/10.2307/1311947>
- New Sabah Times. (2011). SMEs' contribution to GDP rises to 40 pct by 2020. 14th December, 2011.
- Qi Hao, LOOI & Abdul Rahman, and OMAR. (2016). Swiftlets and Edible Bird's Nest Industry in Asia. *Pertanika Journal of Scholarly Research Reviews* <http://www.pjsrr.upm.edu.my/>
- Rabu, Mohd. Rashid, Ahmad Zairy Zainol Abidin, and Mohd. Syauqi Nazmi. (2013). Prospek Dan Cabaran Industri Sarang Burung Walit Negara. *Buletin Teknologi MARDI* 3(2013):57-69.
- Rafi, Mohd, Fakulti Keusahawanan, Wan Khairy, and Fakulti Keusahawanan. (2015). Ilmu Pengurusan Rumah Burung Walit Penentu Kelestarian Usahawan Bumiputera. 10(September):142-51.
- Szymanski, D. M., Bharadwaj, S. G., & Varadarajan, P. R. (1993). Standardization Versus Adaptation of International Marketing Strategy: An Empirical Investigation. *Journal of marketing*, 57(4), 1-17.
- Tarburton, M. K. (2009). Swiftlet Behaviour Responses to Predators In Proximity To Their Nests. *Corella*, 33(4), 99-102.
- Vaiappuri, S. K. N., H. K. Nitty, a L. Ismail, and M. I. Kamaruddin. (2012). Ranchers ' Knowledge towards Sustainable Swiftlet Ranching. *Malaysian Journal of Animal Science* 15(2012):27-35.
- Wan Ibrahim, Wan Khairy, and Mohd Rafi Yaacob. (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.
- Wan Khairy, Wan Ibrahim, Mohd Rafi Yacob, and Azwan Abdullah. (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.
- Wan Khairy, Wan Ibrahim. (2016). Kelestarian Usahawan Melayu Kelantan: Kajian Ke Atas Industri Sarang Burung Walit. 539.
- Zedadra, O., Guerrieri, A., Jouandeau, N., Spezzano, G., Seridi, H., & Fortino, G. (2019). Swarm Intelligence and IoT-Based Smart Cities: A Review. *The internet of things for smart urban ecosystems*, 177-200.