LEVERAGING TECHNOLOGY TO MAINTAIN COMPETITIVE ADVANTAGE: A PILOT STUDY

Yusni Munirah Binti Yusuf[1]
Siti Maziah Binti Ab Rahman[2]
Hasnun Anip Bin Bustaman[3]

[1] Faculty Business and Management, Universiti Teknologi MARA, 15050 Kota Bharu, Kelantan, Malaysia
[2,3] Faculty Business and Management, Universiti Teknologi MARA, 18500 Machang, Kelantan, Malaysia
*Email: maziah650@uitm.edu.my

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Abstract: *This paper represents a conceptual framework that explores the leveraging of innovated technology in today business world. In dynamic and rapidly changing market environment like food and beverages industry, small and medium enterprise need to always reflects to any changes occurred. Through the innovative technologies, the business operation are more effective and efficiency, however, the dependency on these innovative technologies to ensure the sustainability of the business are still questionable. This study examines the relationship between automation and artificial intelligence (AI), cloud computing and software-as-a-service (SaaS), digital platform marketplace and big data analytic have on achieving the sustainability of competitive advantage of SME F&B sector. The theory of disruptive innovation are echoes around the relationship, serves as framework foundation for both academic research and practical implication for the future researcher.*

Keywords*: Artificial intelligence (AI), automation technology, cloud computing, software-as-a-service (SaaS), digital platform marketplace, big data analytic, disruptive innovation technology.*
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Introduction

Being competitive advantage or also known as being outperform than competitors have various of benefits for the sustainability of the business over time. Competitive advantage can be achieved through creating dynamic business culture that are appeals to employees and customers. Retaining high quality employees can helps business to generate creative ideas that is the essential for innovation on product and services to begin. The theory of competitive advantage was developed by Michael Porter in 1995, with three main elements which is cost leadership, differentiation and focus strategy. These three elements have the capability to put company in a favorable position in the marketplace while keep maintain the quality over the cost (Alqershi et al., 2020).

Nowadays, in an increasingly competitive global market, aligning technology with competitive advantage has also increasingly important. The usage of technology for sustainability of the business not only focus on production of products and services, but also the entire of the business (Cao et al., 2021). The adoption of technology in a business can helps business to boost their sales target with a low cost (Saura et al., 2022). For example, taking the advantage of marketing tools in Facebook, a small and medium enterprise can do marketing at very convenience state, reaching more target market and scope with a low cost per day.

Consequently, the development of technology applied to the management in an organization can increase firm's efficiency and effectiveness. Through technology such as AI, chatbot, enterprise resource planning systems (ERP), customer relationship management software (CRM) and others have the capability to integrate core business processes into a single system, make it easier for the manager to control and plan for corrective action if any. Digital advancement has bridged the gap, making distances feel shorter, helps teams collaborate at any time and at any place (Krakowski et al., 2023).

This paper highlights the leveraging of technology of a small and medium enterprise in food and beverages industry can takes to enables the business to sustain a competitive advantage. The concept of differentiation in competitive advantage is integrated with usage of technology is explore to strengthen the market position of small and medium enterprise in the food and beverages industry.

Literature Review

Disruptive Innovation Theory

In 1997, Clayton Christensen developed a theory named disruptive innovation theory. This theory stressed on how a small company can win in the marketplace over the limited resource they have (Roblek et al., 2021). The key concepts of this theory are that the business must start with simple, low-cost solution to serve the niche market however must be gradually improve to take over the mainstream of the market. Then improving the performance of the business gradually to attract the mainstream customers. Finally, the market disruption where the innovation be good enough to serve the consumers, leading to industry transformation (Kivimaa et al., 2021).

This theory enables the business to grow initially inferior but cheaper and progress (Hopster, 2021). The products and services also are more accessible to niche market. This theory also need business to attract non-consumers or low-end market segments within stipulated time. The business must be improving over time and eventually displace incumbents. In F&B industry,

example of disruptive innovation has taken place like cloud kitchens, AI-driven ordering, sustainable packaging. Therefore, small and medium enterprise in food and beverages industry must strategically plan as clear goals regarding the achievement of disruptive innovation because the impact it has on business performance can lead to sustain the competitive advantage (Roblek et al., 2021).

In sustaining the competitive advantage, successful disruptive innovation technology is driven by the technology in a business (Hopster, 2021). This theory enables the business to start with offering lower prices through automation and efficiency. Small and medium enterprise can be benefits from this low startup cost by selling quality products and services to the niche market (Lee et al., 2016), for example like a cup of specifically designated tea. Creating unique value can lead business to achieve sustainability. This can be done via providing tech-based services for an example like world-famous fast-food franchise, McDonalds, where they integrate the technology in their ordering systems. This method not only increase effectiveness of the daily operation, but also helps the business to adapt faster to changes than the traditional business.

Automation and Artificial Intelligence (AI)

The usage of automation follows pre-defined rules to perform repetitive task. Artificial intelligence (AI) is more on mimic human judgement, allowing for more dynamic and flexible actions based on data analysis (Subeesh & Mehta, 2021). Combining these two technologies in business enable the business to operate based on set instructions, performing task consistently and most importantly is it need no deviation (Johnson et al., 2022). AI can optimize the automation processes by identifying patterns and making adjustments to improve outcomes (Ribeiro et al., 2021). As a result, this technology helps business to increase production and improving efficiency (Bankins et al., 2024).

For small and medium enterprise, the usage of automation and artificial intelligence (AI) can be applied through current communication application such as Whatsapps, Intagram Chat, Telegrams and others where these applications are already equipped with Chatbot to entertain customers according to set instructions which is affordable in price. In food preparation, automated cooking equipment such as machines like robotic chef and AI powered ovens ensure consistency of the food and reduce dependency on human labor.

Cloud Computing & Software-as-a-service (SaaS)

Cloud computing in another technology that can be applied within the small and medium enterprise in achieving sustainability competitive advantage. It involves the delivery of computing resources over the internet, allowing the users to access these resources on-demand, without need to have physical infrastructure (Muawanah et al., 2023). Cloud computing need users to pay the services they use, based on sharing resources, which can be located on remote servers owned by the service providers (Golightly et al., 2022). Example of cloud computing in food and services are like GrabFood, Foodpanda, and Deliveroo.

Small and medium enterprise can take advantage of this technology by integrate their marketing effort by cloud computing on the menus and delivery method. This cloud computing in F&B industry is known as cloud kitchen, enable the food business to operate without need physical dine-in spaces. The AI-driven cloud platforms to detect consumers pattern, predict demand, optimize delivery routes and helps business to reduce food wastage as the food is cook based on demand.

The presence of software-as-a-service (Saas) make it easier and convenience for the users to install the application without need locally on their devices. In cloud computing like cloud kitchen, the SaaS is equipped with managing aspects such as updates, security and maintenance on their servers, thus user can easily scale up or down based on their needs (Kumar Yadav Yanamala & Pointe Blvd, 2024).

Digital Platforms & Marketplaces

Digital platforms refer to broader online space or ecommerce hub where business can diversely array of goods without physical store. This platform facilitates electronic trade between buyers and sellers, make the store easier to be reached by the target market. Through modern marketplace, business can choose to serve different types of target audience, catering to the unique needs of their respective participants. Example of digital platforms for food and beverages industry are like Uber eats, Doordash, iChef and others.

The lower entry barriers for the new players helps small and medium enterprise can expand their reach without needing to spend much on their own delivery system. This platform also normally be completed with loyalty programs, online orders and inventory management for better operations of the business. In a study, proof the usage of digital technology as business platform's ability in generating more sales through effective promotions online (ra Nur Hidayaha*, Nur Fadhilatur Rohmahb, Muchammad Saifuddinc a, b, c, 2021).

Big Data & Analytics

Big data analytics involve the process of analyzing large amount of data to find patterns and insights (Himeur et al., 2023). In business, big data analytics commonly used in studying consumer preferences and buying habit. This data uses tools like machine learning and statistical analysis to help business to make better decision especially in production department (Bose et al., 2023). The benefits of big data analytics are it helps business to produce specific product tailoring the customer needs instead of based on intuition or general prediction. Big data analytics also enable business to identify new risks and develop effective risk management strategies.

Conceptual Framework and Hypothesis Development

H1: Automation and artificial intelligence (AI) positively influence the sustainability of competitive advantage of SME F&B sector.

H2: Cloud Computing and Software-as-a-service (SaaS) positively influences the sustainability of competitive advantage of SME F&B sector.

H3: Digital platforms and marketplace positively influence the sustainability of competitive advantage of SME F&B sector.

H4: Big data and analytics positively influence the sustainability of competitive advantage of SME F&B sector.

Conclusion

In conclusion, this conceptual framework paper summarizes the key findings for business innovation involving the technology usage within the organization to foster sustainability of competitive advantage in food and beverages industry. The main focus of industry player is small and medium enterprise, need to evolve their business in nature of technology and gain competitive advantage. Future research can explain more the role of artificial intelligence, blockchain, and others innovated technology in food and beverages industry in order for the business to reflect and sustain in dynamic market environment.

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