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A Holistic Model for Sustainable Restaurant Operations using the Business Model Canvas Approach

Abuelkassem A.A. Mohammad and Moamen Kamel AbouElezz Hotel Management Department, Faculty of Tourism and Hotels, Minia University

ARTICLE INFO	Abstract
ARTICLE INFO Keywords: sustainable restaurants, eco-friendly, green practices, Business Model Canvas. (JAAUTH) Vol. 19, No. 3, (2020), PP. 207-227.	Providing sustainable food services has become a common practice of many hospitality enterprises around the world. Nevertheless, previous studies focused on a specific aspect of sustainable restaurants and lacked a comprehensive investigation of their overall operations. Therefore, this study aims to apply the Business Model Canvas approach to develop an integrated business model that enable successful operations of sustainable restaurants. A qualitative approach was adopted in this study using the Delphi technique as an instrument for collecting primary data. The process of primary data collection involved three rounds. The first round included administering an open-ended questionnaire that captured the nine aspects of the business model canvas for eco-friendly restaurants. The second round aimed to revise the model that was developed based on the results of the first round, while the third round aimed to establish a consensus on the revised model. A panel of experts including 19 academic and industry experts were recruited in the empirical investigation. The results of the study

1.Introduction

Sustainability refers to the enhancement of human life without harming the environment or undermining the capabilities of the natural system (Jang et al., 2017). Unfortunately, the foodservice industry is considered to be the least sustainable sector in the service industry, given its major contribution to greenhouse gas emissions, increased solid waste, and high consumption of water and energy (Chou et al., 2016; Jang et al., 2017; Kim & Hall, 2020). In fact, it was estimated that food production is responsible for up to 30% of the environmental impacts (Salmivaara & Lankoski, 2019). On the other side, the number of green customers or environmentally conscious people is growing worldwide due to increased health and ecological awareness that drove many people to consume organic, healthy, and climate-friendly foods (Jang et al., 2011, 2017; Sarmiento & El Hanandeh, 2018; Shin et al., 2018;

Cantele & Cassia, 2020). Therefore, transformation to sustainability in the food industry has become a necessity (Salmivaara & Lankoski, 2019). Actually, since the advent of the sustainability concept, hospitality enterprises have incorporated many eco-friendly practices in their regular business activities (Koch et al., 2020). However, the process of transforming activities and operations to a sustainable logic requires significant changes in its business model (Bashir et al., 2020).

Business Model Canvas (BMC) is a holistic approach that depicts how an enterprise does business to create, deliver, and capture value (Osterwalder & Pigneur, 2010a, 2010b). Despite the advantages of BMC and numerous studies on the sustainability of the hospitality industry, very limited studies have adopted the BMC approach to comprehensively investigate sustainability in restaurants or food service operations. Specifically, previous studies have focused on specific aspects of sustainable restaurants such as exploring customers perception and intentions toward sustainable food/restaurants (Kim et al., 2015; So-young Kim et al., 2016; Shin et al., 2018; Barone et al., 2019; Kim & Hall, 2020), management and stakeholder perception (Jang et al., 2017), and green supply management (Wang et al., 2013). Although some studies attempted to investigated sustainable restaurant operations (such as Jacobs & Klosse, 2016; Cantele & Cassia, 2020), these studies have not adopted a holistic approach that addresses various business aspects. In a similar vein, Jacobs and Klosse (2016) reported that despite a large number of studies on tourism and hospitality sustainability, there is a paucity of research on sustainable food services. Likewise, Jang et al. (2017) disputed that most studies on sustainable restaurants lacked proper theoretical grounding and failed to provide adequate frameworks that support foodservice sustainability. Curtis and Mont (2020) also noticed the scarcity of methods and tools for business modeling that involve sustainability with only a few cases that have successfully implemented sustainable business models. Gao and Li (2020) added that further research is needed to explore approaches that enable incorporating sustainability in the business model given our insufficient current knowledge and understanding of such approaches.

Based on the literature gap discussed in the above paragraphs, the specific aims of this study is to develop an integrated sustainable model for restaurants through adopting the Business Model Canvas approach. By achieving its aim, this study contributes to the growing hospitality literature by addressing a gap in knowledge and responding to the call of many scholars for a comprehensive investigation of the sustainability of food service. It also contributes to the hospitality industry by developing an integral empirical model that enables practitioners to holistically implement eco-friendly practices in restaurant operations.

2. Theoretical background

2.1. Sustainable restaurants

The relevant literature indicated that sustainable restaurant, also known as ecological, green, or eco-friendly, is characterized by both green menu offerings and eco-friendly practices (Barone et al., 2019; Elhoushy, 2020). For instance, Jang et al. (2011) and Shin et al. (2018) referred to a sustainable restaurant as a diner that provides a wide range of green food items, either organic or locally grown items, in addition to

adopting environmental-friendly practices such as recycling program, water, and energy conservation systems, and solid waste reduction. According to Wang et al. (2013) and Kim et al. (2016), sustainable food operation involves three main aspects environmental compatibility, social responsibility, and economic viability. Wang et al. (2013) and Kim and Hall (2020) further explained that these three aspects encompass several green practices such as: providing organic or seasonal food, minimizing waste, conserving water and energy, recycling garbage and food leftovers, utilizing eco-friendly furniture and products, using climate-friendly menus, paying fair wages, contributing to community development and nature conservation, engaging with the local community, and assuming social responsibility.

Initiatives of sustainable food services emerged in the USA and UK where guidelines and measures for sustainable food operations were developed (Kim et al., 2016). Recently sustainable foodservice has gained the attention of both academics and practitioners due to its role in the modern diet and its positive impact on the environment (Kim et al., 2016). In Egypt, sustainable food is provided by both branded restaurants and food entrepreneurs in addition to implementing some green practices including upcycled furniture, recycling food leftovers, and minimized packaging (Elhoushy, 2020). Also, the Ministry of Tourism and Antiquities encourage eco-friendly practices in tourism and hospitality enterprises and grant a green star award for enterprises that comply with certain sustainable procedures.

2.2. Business model

Previous studies suggested several definitions of the business model (see for example Girotra & Netessine, 2013; Peters et al., 2013; Langvinienė & Daunoravičiūtė, 2015; Geissdoerfer et al., 2016). For instance, Peters et al. (2013) defined the business model as a structured presentation of the major components used for creating value. Similarly, Girotra and Netessine (2013) referred to the business model as the rational way that allows an organization to create, deliver and capture different types of value including economic, social value, or hedonic value. In a similar vein, Langvinienė and Daunoravičiūtė (2015) reviewed several studies on the business model concept and concluded that it is the logic that enables a business enterprise to create and provide value to its customers to generate income. In other words, a business model is concerned with what the enterprise does and how it does it to compete and earn money. Joyce and Paquin (2016) concluded that a business model addresses three main aspects: (1) how the main components, parts, and activities are integrated to create and deliver value for customers. (2) how these components are interconnected within an enterprise and throughout its supply chain; (3) how the enterprise utilizes this interconnection to generate revenues. Overall, creating, delivering, and capturing value represents the key foundation of the business model concept (Langvinienė & Daunoravičiūtė, 2015; Čosenz & Bivona, 2020; Gao & Li, 2020).

Business models represent a vital managerial tool as their design and implementation can determine the success or failure of a business organization (Rusu, 2016). Specifically, developing and adopting the adequate business model brings about many advantages for the organization such as transforming business process, enhancing service/product quality, reducing operating costs, penetrating new markets, and gaining or improving competitiveness (Langvinienė & Daunoravičiūtė, 2015; Joyce & Paquin, 2016). However, for a business model to be successful and advantageous, it should be innovative and dynamic (Rusu, 2016; Cosenz & Bivona, 2020; Randhawa et al., 2020) and novel or hard to replicate (Langvinienė & Daunoravičiūtė, 2015).

2.3. Business Model Canvas

Business Model Canvas (BMC) was developed by Osterwalder and Pigneur (2010b) as an integrated approach that describes major aspects of a business. It is a template that graphically shows nine interconnected building blocks each of which represents an essential part of an enterprise's business including value proposition, customer segments, customer relationship, customer channels, key partners, key activities, key resources, revenue streams, and cost structure (see Figure 1). Unlike other business models, BMC is distinguished by several strengths including a visual representation of the business components, focus on value creation and delivery, coverage of various dimensions of the business, and easiness to understand by both academics and practitioners (Cabrita et al., 2016; Urban et al., 2018; Kajanus et al., 2019).

Key partners	Key activities	Value proposition		Customer relationships	Customer	
	Key resources			Customer channels	segments	
Costs structure			Revenue stream			

The *value proposition* aspect sets at the center of the model and describes products and/or services that an organization provides to its customers. A value proposition should distinguish an enterprise and set it apart from its competitors through innovative and novel product/service offerings (Cabrita et al., 2016; Ferranti & Jaluzot, 2020). The customer segments dimension includes the target market segments to whom the product/service is provided. Given the importance of business customers as being the main source of revenue steam, business enterprises need to clearly identify their customers and understand their needs and preferences (Cabrita et al., 2016; Ferranti & Jaluzot, 2020). Likewise, the customer relationships aspect identifies the appropriate strategies for managing customer relationships based on targeted customer segments and different value propositions. The customer channels dimension is concerned with determining adequate distribution channels for reaching customers and delivering products/services. The revenue streams aspect denotes various sources of revenues derived from different customer segments. Typically, business revenues stem from customer payments for acquiring the value provided by an enterprise, thereby the success and survival of an organization is determined by its ability to generate reasonable revenues from its customers through proper value proposition (Cabrita et al., 2016; Ferranti & Jaluzot, 2020).

The key activities dimension is concerned with main operations, procedures, and practices that are necessary for creating and delivering value to customers, while the

key resources aspect captures the various types of resources needed for value creation including physical resources such as raw materials or commodities, intellectual resources in terms of knowledge and experience, financial resources, and human resources (Cabrita et al., 2016; Ferranti & Jaluzot, 2020). Similarly, *the key partners*' dimension covers the network of business suppliers, stakeholders, and concerned entities that are involved in or facilitate business operations. Lastly, the *cost structure* aspect defines various types of costs or expenses associated with running the enterprise (Cabrita et al., 2016; Ferranti & Jaluzot, 2020).

A sustainable business model describes how an enterprise should function to minimize its negative social and environmental effects while maintaining economic feasibility (Curtis & Mont, 2020). In other words, the sustainable business model represents a holistic approach that considers the interests of business stakeholders alongside the environmental, social, and economic aspects in the process of creating, delivering, and capturing value (Curtis & Mont, 2020). Joyce and Paquin (2016) explained that for a sustainable transformation of a business to be effective, it should changes entire organization instead assume fundamental across the of compartmentalized alterations. They also argued that the Business Model Canvas (BMC) approach is an adequate tool for incorporating environmentally and socially friendly practices in the original economic-oriented model. Likewise, Kajanus et al. (2019) and Ferranti and Jaluzot (2020) reported that BMC has become a common and proper tool for implementing business sustainability through aligning environmental effects, social responsibility, and financial benefits. Accordingly, the current study seeks to develop a holistic business model for sustainable restaurants using the BMC approach.

3. Methodology

3.1. Data collection method

A qualitative approach was adopted in this study using the Delphi technique with an open-ended questionnaire as an instrument for collecting primary data. Delphi technique is a series of consecutive inquiries, known as rounds, interspersed by controlled feedback aiming to reach a consensus of a group of experts on a specific subject (Powell, 2003; Linstone & Turoff, 2018). Accordingly, an open-ended questionnaire with three main sections was developed for this study. The first section was an introduction and presented the research subject and assured the anonymity of the participants and the confidentiality of their personal data. Section two captured the demographic and professional characteristics of the participant experts including gender, age, profession, specialty, place of works, and years of experience. The third section included the main questions of the survey which mainly explored how to incorporate sustainable practices in the various aspects of the restaurant operations. The questions were based on the nine components or building blocks of the BMC and their questions suggested by relevant literature (Osterwalder & Pigneur, 2010b; Urban et al., 2018). Examples of the questions included: for whom sustainable restaurants create value? What value do sustainable restaurants deliver to their customers? Through which channels can sustainable restaurants reach their customers? What type of relationship should sustainable restaurants maintain with different customer segments? What value customers of sustainable restaurants are paying for? What are the sources and activities needed to create the desired value in sustainable restaurants? Who are the key partners for sustainable restaurants? What costs and expenses sustainable restaurants need to pay?

3.2. Participants and procedures

The adoption of the Delphi method in this study dictates involving a panel of experts in the empirical investigation. Experts should have direct knowledge and experience of the investigated subject (Powell, 2003). Accordingly, experts in the field of sustainability in the hospitality industry were recruited during the data collection stage. First, a list of potential 35 experts was developed considering their academic or practical experience in the field of sustainable hospitality operations. Next, potential experts were approached and asked to participate in this study after explaining the research topic and the three-round data collection process. A total of 19 experts have agreed to participate in the study with an approximate response rate of approximately 54.2%.

Typically, the Delphi method involves three rounds of inquiry administered among a preselected panel of experts (Powell, 2003). Accordingly, a three-round data collection process was performed in this study. The first round included administering an open-ended questionnaire among the participant exerts in the field of foodservice sustainability. Based on the experts' responses in the first round, an initial empirical model was developed utilizing the BMC approach. The second round of data collection process included judging the initial model by asking participant experts to review and comment on it. The initial model was amended based on the experts' comments that were gathered in the second round and a revised model was developed. The third round aimed to reach a consensus of the participants on the revised model as they were asked whether or not they agree on the final model. A few minor comments were made and a consensus on the revised model was reached.

3.3. Data analysis technique

Powell (2003) explained that content analysis is an adequate technique for analyzing data of studies that utilize the Delphi method due to the qualitative nature of gathered data. Thus, the content analysis technique was adopted to analyze data collected by the open-ended questionnaire. First, collected data was translated, transcribed, and set for analysis. Next, basic themes were concluded from the data, and responses of the experts were coded accordingly. Quotes from responses of the experts were used in the results section and participants were anonymously mentioned using numbers.

4. Results

4.1. Profile of the participants

The results showed that the panel of experts involved both academics (6 participants at 31.6%) and practitioners (13 experts at 68.4%), including owners, managers, and chefs from eco-friendly hospitality enterprises in addition to official inspectors from the Ministry of Tourism and Antiquities. The majority of the participants were males (15 participants, i.e. 79%) and only 21% (4 participants) were females. The age of the participants ranged between 33 and 55 years old, meanwhile, their years of experience

in the sustainability of hospitality operations ranged between 6 to more than 15 years. The profile of the participants is presented in Table 1.

Profile	Profile of the participant experts						
Expert No.	Gender & age	Place of work	job	Years of experience			
1	M - 45	Public university, USA	Professor, hospitality sustainability	15+			
2	M - 36	The Ministry of Tourism, Egypt	Inspector, sustainability practices	7			
3	M - 37	Public university, UK	Ass. Professor, hotel sustainability	12			
4	F - 35	The Ministry of Tourism, Egypt	Inspector, sustainability practices	9			
5	M - 49	Green restaurant, Egypt	Manager	10			
6	M- 50	Green Hotel, Egypt	F& B manager	15+			
7	M - 37	Private University, USA	Professor, sustainable tourism	10			
8	M - 50	Sustainable restaurant, Egypt	Executive chef	15+			
9	M- 45	The Ministry of Tourism, Egypt	Inspector, sustainability practices	10			
10	M - 52	Public University, UK	Professor, hospitality sustainability	15+			
11	M - 41	Green café, Egypt	Owner/manager	6			
12	M - 45	Green hotel, Egypt	Sous chef	10			
13	F - 33	Public university, Egypt	Professor, hotel sustainability	8			
14	M- 47	The Ministry of Tourism, Egypt	Executive inspector	10			
15	M- 48	Public university, Egypt	Professor, tourism sustainability	12			
16	F- 37	Healthy juice bar, Egypt	Founder & owner	6			
17	M - 50	Eco hotel, Egypt	Manager	12			
18	F - 45	The Ministry of Tourism, Egypt	Sustainability consultant	8			
19	M - 55	Green resort, Egypt	Restaurant manager	15+			

Table 1

Profile of the participant experts

4.2. Aspects of the proposed business model

This section presents the results of the open-ended questionnaire survey that was administered among the experts in the first round of the data collection process. As mentioned in the methodology section, the survey questions were based on the nine building blocks of the Business Model Canvas BMC. Thus, the results of analyzing the responses of the participants are presented accordingly in the following subsections.

4.2.1. Value proposition

Experts were asked about the value that sustainable restaurants can provide to their customers. In other words, they were asked about the bundle of service offerings that sustainable restaurants can create and provide or deliver to their customers. Analyzing the answers of the participants revealed three main types of the value proposition as discussed below.

Providing healthy and organic food products was considered to be the first and most valuable aspect of sustainable restaurants' service offerings. A total of 14 experts (73.7%) reported that serving organic and healthy food is the main component of the

value proposition in sustainable restaurants that satisfy both the hedonic and utilitarian needs of health-conscious customers. This includes providing several types of food items such as plant-based food products, organic food ingredients, locally grown vegetables, and fruits, vegan food menus, and fresh juices. This result concurs with precedent studies of Wang et al. (2013) and Kim and Hall (2020). Experts' comments included:

The main component of green restaurants' value proposition is to serve organic or healthy to their customers, namely vegetarians and health-conscious consumers (Expert No. 11).

Healthy foods, such as organic or fresh vegetables, is the primary product that can be valuable for sustainable restaurant customers (Expert No. 6).

Novel or unique dining experience represented another important feature of the value offerings in green restaurants. A significant portion of the experts (13 participants, i.e. 68.4%) revealed that dining at green restaurants can be promoted as an original dining experience that involves unique elements including restaurant design, atmosphere, eco-friendly décor, upcycled furniture, natural lighting, and nontraditional dining utensils such as earthenware plates and jars. This unique dining experience represents value for many restaurant patrons such as variety or originality seekers as well as environmental activists. For example, one of the respondents said:

I think the unique atmosphere of a sustainable restaurant represents a valuable aspect of its service offering. This includes elements such as spacious dining area, aesthetic design, and original décor which distinguish green restaurants from other diners (Expert No. 10).

Satisfying the urges of environmental activists and supporting the local community was also considered as a particular value of eco-friendly restaurants. Approximately 53% of the respondents (i.e. 10) explained that dining at green restaurants enables environmental activists and people concerned with conserving the ecosystem to fulfill their desires to protect the environment while still enjoy dining out. Besides, sustainable restaurants support the local community through procuring fruits, vegetables, and other food ingredients that were grown or produced in local or nearby farms. Moreover, green restaurants assume social and environmental responsibility and promote sustainability culture and eco-friendly practices. Among the experts' comments:

The overall idea of eco-friendly restaurants is valuable for certain people, namely activists and people concerned with preserving mother nature. For these people, the value of dining at green restaurants is twofold: enjoy eating out and conserving the environment (Expert No. 11).

Additionally, some participants (6, i.e. 31.6%) suggested that sustainable restaurants can regularly develop and improve their value proposition by providing various demo eco-friendly products and services. Then, restaurants can monitor customers' consumption patterns and feedback to figure out highly demanded products/services to be mainly presented in service offerings.

To sum up, the value proposition of sustainable restaurants includes three main aspects: serving healthy and organic food, providing a unique or novel dining experience, and fulfilling the desires of environmental activists. Furthermore, it was suggested to update service offerings on regular basis to meet customer changing needs.

4.2.2. Customer relationships

This section presents the analysis of experts' responses regarding the aspect of customer relationships in sustainable restaurants.

A long-term relationship with all customer segments was the highly recommended type of customer relationship. A total of 12 experts (63.2%) argued that green restaurants ought to develop and maintain an everlasting relationship with different segments through regular two-way communications with customers to exchange information/feedback and keep customers tuned for their upcoming dining experience. This also includes engaging customers with restaurants through exploiting online communities and social media pages to promote business, share knowledge, or participate in the co-creation of the dining experience. For example, a 37-year-old female founder and owner of a healthy juice bar said:

It is important to establish a good relationship with customers for the long run, not a transactional one, particularly if you run an eco-friendly business where only certain consumers can be attracted and retained (Expert No. 17).

Personal assistance relationship was another type of customer relationship endorsed for green restaurants. Only 7 experts out of the 19 (36.8%) advocated creating a personal assistance relationship with customers, particularly vegetarians and customers seeking organic or healthy foods. This can be done through adopting a personalized service style such as using the guest's name, knowing their favorite food items, suggesting alternative or new items that suit their needs or desires. Doing so enables restaurants to retain customers, build a strong relationship with them, and even turn them into promoters for the restaurant through positive word of mouth and online reviews. Among the experts' comments,

the personalized service style is very important in eco-friendly restaurants especially for customers who may need some assistance in choosing items or knowing the ingredients of some items (Expert No. 17).

4.2.3. Customer channels

Experts were asked about the channels that sustainable restaurants can use to reach their customers, inform them about restaurant services and products, and provide/deliver value. Through analyzing the comments of the experts, two sets of channels were concluded. The first set included traditional customer channels. A total of 13 experts (68.54%) explained that eco-friendly restaurants can reach their potential customers through traditional distribution channels such as in-store face-to-face interactions in the physical location of the restaurant, telephone communication, and delivery service. The second set involved the non-traditional channels. A significant portion of the experts (47.4%, i.e. 9) also explained that green restaurants

can utilize new technology-enabled channels to reach out to customers and promote their products such as restaurant websites, social media platforms, mobile apps, emails, and online mega outlet websites. These modern channels are cost-effective, reach a larger number of people, and convenient for different customer segments. Over and above, these channels are considered to be eco-friendly as they result in zero solid waste. Among the comments:

There are several channels through which green restaurants can reach customers to inform them about their services offering and provide products such as restaurant website, social media pages, and convenient location of the restaurant (Expert No. 18).

4.2.4. Customer segments

Participants were asked about the customer segments that can be attracted to sustainable restaurants. The findings revealed three customer segments as explained below.

The first customer segment included organic and healthy food seekers. A total of 14 experts (nearly 74%) discussed that health-conscious people are a major segment for eco-friendly restaurants. This includes customers who prefer organic food or trying to reduce red meat consumption and turn to plant-based foods. It also involves customers who seek fresh, high-quality, and local-ingredient food items. This concurs with relevant studies (e.g. Cantele & Cassia, 2020; Jang et al., 2011, 2017; Sarmiento & El Hanandeh, 2018; Shin et al., 2018) that health-aware customers are more likely to dine at sustainable restaurants. For example, a 50-year-old manager of an ecohotel argued that:

Many customers nowadays are looking for organic or at least healthy food, other customers seek vegetarian food or meat-free food... these customer segments tend to dine at green restaurants (Expert No. 19).

Environmental activists and environment-concerned people are another significant customer segment for sustainable restaurants. Roughly 58% of the experts (i.e. 11) reported that eco-friendly restaurants can target and attract customers that are concerned with the protection and conservation of the environment such as nature-lover, conservationists, minimalists, and environmentalists. Such customers are aware of and well-informed about the negative consequences of food production on the environment and trying to mitigate them through encouraging eco-friendly practices of enterprises. Experts added that these customers are fewer in developing countries compared to developed countries, yet they still represent an important customer segment. Among respondents' comments, Expert No. 2 stated that: "Green restaurants can also target environmentally active people as they care much about the ecosystem and they tend to dine in eco-friendly restaurants".

Variety-seeking and adventure-seeking customers are also important segments for green restaurants. A total of 7 experts (i.e. 37%) explained that eco-friendly restaurants can target variety-seeking customers who got bored or satiated with traditional restaurants and seek novel or new dining experiences. Food adventure lovers are also an important category that involves customers who like to experience

the excitement and thrill of trying new food products. In this context, sustainable restaurants can be promoted as providers of an original and refreshing dining experience. For example, Expert No. 14–an executive inspector at the Ministry of Tourism and Antiquities–reported that: "another important customer segment for green restaurants includes customers who are bored of regular food and looking for trying new food".

In sum, there are three main customer segments that sustainable restaurants can target and attract including customers seeking organic and healthy food, environmentally active and concerned people, and variety-seeking customers.

4.2.5. Revenue streams

When it comes to revenue streams for eco-friendly restaurants, 15 experts (roughly 79%) revealed two major sources of revenue. The first and essential or traditional source of revenue includes income generated through the sales of food and beverage items. The second source involved the revenues generated from recycling food waste and leftovers where many eco-friendly restaurants sell recyclable wastes such as used frying oil or food leftovers to certain firms that recycle these wastes. Among the comment, a professor of hotel sustainability argued that: "*sustainable restaurants can draw income from selling their food and beverage products as well as getting additional income from selling recyclable wastes*" (Expert No. 3)

4.2.6. Key partners

This section presents the response of the experts regarding the key partners of sustainable restaurants. Analyzing the responses of the interviewees showed two key partners as discussed below.

Owners of organic farms and local food suppliers are major partners for eco-friendly restaurants. A large number of the experts (13, i.e. around 68.5%) revealed that organic farms are essential partners that provide eco-friendly restaurants with organic food supplies, such as vegetables, fruits, and fresh dairy products, which represent a primary component of many food items. Since using locally grown or produces food ingredients is also the main feature of green restaurants, thereby local food suppliers represent another important partner for these restaurants. Among experts' comments, an executive chef at a sustainable restaurant said: "green restaurants need to establish a successful partnership with owners or organic farms to get their supplies of organic vegetables and fruits regularly and at a fair price" (Expert No. 8).

Official and civic bodies concerned with business sustainability and conservation of the environment are another key partner for eco-friendly restaurants. Roughly 53% of the experts (i.e.10) reported that green restaurants need to develop a strong business relationship with official bodies concerned with tourism and hospitality sustainability, such as the Ministry of Tourism and Antiquities, as these bodies monitor, support, and grant green certificates for restaurants that comply with their requirements. Also, civil associations or organizations interested in conserving the environment are primary associates that can support sustainable restaurants through promoting their business and encouraging people to dine at these restaurants more frequently. For instance, one of the experts argued that:

Sustainable restaurants need to have good connections with official bodies that monitor their operations and grant them licenses or certificates to operate as eco-friendly enterprises... I am mainly talking about the Inspection and Licensing Sector at the Ministry of Tourism (Expert No. 4)

4.2.7. Key activities

Participants were asked about major activities or practices that eco-friendly restaurants should undertake. Through analyzing experts' responses, six key activities were extracted as discussed in the subsequent paragraphs.

Waste reduction activities were the first and most recommended set of practices. A total of 15 experts (nearly 79%) endorsed some practices that enable sustainable restaurants to minimize both food and solid wastes. Reduction of food waste involved practices such as decreasing food items in the meal, reducing the portion size of food items, adjusting standard recipes and operating procedures based on the new number and size of items, and training kitchen staff to minimize waste of ingredients when preparing and cooking food. Also, food leftover can be regularly provided to charity organizations. In the meantime, the reduction of solid waste requires certain practices such as minimizing the use of disposable dining utensils. If necessary, restaurants can use paper dining covers such as paper cups or plates instead of plastic ones. Besides, restaurants can use refillable vessels or containers to procure food supplies or to serve food products to guests as well as maintain food packaging as simpler and minimal as possible. These activities concur with prior studies of Wang et al. (2013) and Kim and Hall (2020). The comments of experts included:

Many procedures can be done to minimize food waste. For example, restaurants can serve smaller meals through downsizing item portions and decreasing the items in meals... that way customers will eat the whole quantity of served food (Expert No. 15)

Practices related to food production were also among the highly recommended activities. A significant portion of the experts (63.2%, i.e. 12 participants) explained that the food production process can involve many eco-friendly practices such as procuring food supplies from local farms and suppliers, using organic fruits and vegetables, and purchasing seasonal, fresh, and high-quality ingredients. It also includes utilizing eco-friendly cookware that is manufactured from recyclable material and designed to heat or cook food faster. Also, restaurants can employ healthy methods for cooking food, such as steaming, grilling, or simmering, to maintain the nutritional value of cooked items. For instance, a male sous chef at a green hotel explained that:

I think that numerous green practices can be integrated into the food preparing or cooking operations including the use of organic and fresh fruits and vegetables in addition to using eco-friendly cookeries such as non-stick or ceramic (Expert No. 12).

Conservation of utilities is another significant area to adopt eco-friendly practices in restaurants. Roughly, 58% of the interviewees (11 experts) explained that reducing consumption of energy and water is a cornerstone of restaurants' sustainability. In this context, a number of practices were concluded including using the right appliances for cooking such as pressure cookers which are very efficient in saving energy by

reducing the time of cooking. Also, energy-saving stoves and ovens, such as natural gas burners, are highly recommended as fuel is efficiently used for cooking without waiting for the burner to heat up unlike using electric burners. In addition, the transition to using renewable energy, such as installing and using solar panels, has become a common theme of eco-friendly enterprises. Regarding water conservation, it is highly advised not to use running faucet water to clean vegetables and fruits, wash utensils/dishes, or defrost frozen ingredients. Participants also suggested installing low-flow faucets and water-efficient toilets and serving water upon customer request in order to conserve water. Experts' comments included:

When it comes to saving energy in restaurants, a number of procedures can be done. These procedures are mainly focused on utilizing energy-effective equipment and appliances such as gas cooks and pressure cookers (Expert No. 5).

Water usage should be kept at a minimum and to do so, kitchen staff should never use faucet running water to wash kitchen tools or utensils. Instead, is better to soak and rinse them in the sink. Imagine if stewards do this one procedure on a daily basis, a huge amount of wasted water will be saved (Expert No. 2).

Transition to eco-friendly design was also another significant activity for a green restaurant. Approximately 53% of the experts (i.e. 10) argued that restaurants ought to transform their designs to become more environmentally-sound. This involves commencing various changes in the restaurant design and infrastructure such as installing external wall isolation to maintain the desired temperature and reduce using energy for cooling/heating the restaurant. Restaurants can also re-configure their architectural design to depend more on natural lighting and ventilation in addition to using LED lighting spots. The interior design and layout should involve plants and indoor green areas and provide sufficient spaces. Experts also further explained that these transformations can cost a significant amount of money, yet they represent an investment in restaurant assets that will pay off in the long term as well as they can be done gradually to avoid any financial stress. For instance, a 45-year-old university professor of hospitality sustainability said:

The architectural design of the green restaurant should be eco-design through isolating walls and roofs in order to keep atmosphere temperature and save electricity consumed in cooling the restaurant... Also, exploiting natural lighting and air breath for ventilation are common themes of green restaurants (Expert No. 1).

Social responsibility and marketing also represent key activities for eco-friendly restaurants. Seven experts out of the 19 (about 37%) discussed that sustainable restaurants are concerned with social aspects and actively contribute to the development and enhancement of local society. This involves a number of practices such as hiring local employees, paying reasonable wages, and contribute to preserving the ecosystem through green food operations and waste management. In addition, roughly 26.5% of the experts (i.e. 5) argued that marketing and image management is

another major operation for green restaurants. This can be accomplished by highlighting the unique services and features of green restaurants to distinguish themselves from regular restaurants. Likewise, restaurants can focus on their contribution to the environment and local society and use it as a competitive edge to enhance their competitiveness. Experts' comments included:

Sustainable restaurants play an important role in developing the local community through hiring a local workforce and preserving the environment by handling their garbage in an eco-friendly way (Expert No. 15)

Generally, the aspect of key activities in sustainable restaurants includes several practices including waste reduction and management, eco-friendly food production, conservation of water and energy, the transformation of the design into environmentally friendly, and contribution to developing local society.

4.2.8. Key resources

This section describes the analysis of experts' comments regarding the key resources that sustainable restaurants possess. Through analyzing the comments, three major sets of resources were concluded as presented in the subsequent paragraphs.

Physical facilities were the first and foremost set of key resources for green restaurants. A significant number of the experts (11, i.e. 58%) discussed that the physical environment is an essential aspect of eco-friendly restaurants including facilities such as environmentally-sound design, energy-efficient equipment, upcycled furniture, and technological devices for conserving water and energy consumption. These facilities fulfill the basic features and requirements of sustainable restaurants in addition to counting for a significant portion of their investment. Among the responses of the participants, Expert No. 1 explained that: "restaurant building, design, fixture, furniture, and equipment represent the major physical resources and facilities for green restaurants"

Human capital also represents one of the key resources for eco-friendly restaurants. Eight experts (around 42%) discussed that restaurant staff including trained, qualified, and committed personnel is crucial resources for any hospitality enterprise, particularly sustainable restaurants where many green practices are mainly done by employees such as conserving water/energy and reducing food waste. In addition, restaurant sustainability is an ongoing process that requires adequate mindset and commitment of all employees. For instance, a manager of an ecolodge said:

Employees are very important element in hospitality operations in general and sustainable operations in particular..... you need well-trained and fully committed staff to successfully implement many eco-friendly practices (Expert No. 17).

Intellectual capabilities were also considered among the key resources of eco-friendly restaurants. About 31.6% of the experts (i.e. 6) argued that it is very important for green restaurants to possess some intellectual resources such as standard operating procedures, long-term strategies for expansion, service style, and resilient relationships with customers and suppliers. These intangible assets are essential for

efficient sustainable operations and market competitiveness. Among the experts' comments, an executive chef at a sustainable restaurant said:

I think that operating procedures such as food preparation and cooking procedures, standard recipes, and service style are very important assets that ensure a successful and competitive operation of a green restaurant (Expert No. 8).

4.2.9. Cost structure

Experts were asked about the various types of costs that eco-friendly restaurants need to cover. Analyzing the responses revealed three sets of costs for green restaurants, as discussed by 11 experts (approximately 58%). The first set included regular operating costs. Common operating costs of running a restaurant including costs of food ingredients, staff salaries, utility costs, marketing, taxes, and insurance, etc. The second set includes the costs of installing eco-friendly equipment and appliances, transforming restaurant practices and procedures into more sustainable operations, and training staff to implement green practices in their daily routine. The third set includes extra costs of procuring organic, fresh, and high-quality food ingredients. For example, a restaurant manager at a green resort stated that:

Besides traditional operating costs, sustainable restaurants are expected to cover additional expenses such as setting up eco-friendly equipment, energy-saving burner, and pans for instance (Expert No. 19).

4.3. Developing the initial BMC

Based on the experts' responses to the first-round survey and in the light of the nine building blocks of the business model canvas, the researcher developed an initial empirical model for sustainable restaurant operations, as presented in Figure 2. The suggested green practices were coded into major themes and incorporated in the corresponding block/aspect.

Key partners	Key activities	Value pr	oposition	Customer relationships	Customer segments
- Organic farms	- Reducing food and solid waste	- Healthy food		-Long-term relationship	-Environmental activists
- Local suppliers	- Producing organic /healthy food	- Original atmosphere		-Personal-assistance	and concerned people
-Environmental	- Conserving water and energy	- Activisi	n urges	relationship	-Health conscious and
associations	- Ecofriendly design & layout	-Mixture of temporary			seeker of organic food
	- Social responsibility	products			-Variety /originality
	Key resources			Customer channels	seeking customers
	- Physical resources			- Traditional channels	
	- Human resources			-Technologically-enabled	
	- Intellectual resources			channels	
Costs structure			Revenue stre	ams	
- Regular operating costs, such as food ingredient and salaries			- Organic food and beverage products		
- Expenses of installing eco-friendly equipment and facilities			- Recyclable wastes and food leftover		
- Costs of procuring organic and high-quality ingredients					

Fig.2. Initial business model canvas for eco-friendly restaurants

4.4. Revising the proposed model and consensus

The second round of the data collection stage included revising the initial model by reviewing it by the participant experts, gather their comments on the initial model, and then addressing these comments. All 19 experts were invited to judge the initial model and provide any insights or suggestions for modifications or improvements. Only 15 experts participated in this stage as 4 experts were either unavailable or did not respond. The comments of the experts were categorized into four major suggestions, as discussed below.

The first suggestion was made by 8 experts (42%) who proposed targeting additional customer segments, including vegetarians and Christian people during their days of fasting, as sustainable restaurants can provide suitable food products for these segments. The second suggestion was introduced by 5 experts and included developing a distinguished image for the restaurant and focusing on promoting its unique features. The third suggestion was proposed by 3 experts who recommended developing a business relationship with recycling firms in order to sell them restaurant recyclable wastes. Lastly, 2 experts suggested using an illustrative icon for each building block of the business model canvas.

Based on these suggestions, the initial model was revised (Figure 3). Then, round three took place where the revised model was sent to the experts one last time in order to reach a consensus on the revised model. All 15 experts agreed on the revised model and no amendments were required and thereby it was considered as the final proposed model.

Key partners	Key activities	Value proj	position	Customer relationships	Customer segments
 Organic farms Local suppliers Environmental associations Recycling firms 	 Reducing food and solid waste Producing organic /healthy food Conserving water and energy Ecofriendly design & layout Social responsibility -creating image and promoting unique features 	 Healthy food Original atmosphere Activism urges Mixture of temporary products 		-Long-term relationship -Personal-assistance relationship	-Environmental activists and concerned people -Health conscious and seeker of organic food -Variety /originality seeking customers -Vegetarians and fasting Christians
	Key resources			Customer channels	
	- Physical resources - Human resources - Intellectual resources			- Traditional channels -Technologically-enabled channels	
Costs structure		Revenue str	eams		
 Regular operating costs, such as food ingredient and salaries Expenses of installing eco-friendly equipment and facilities Costs of procuring organic and high-quality ingredients 			od and beverage products wastes and food leftover		

Fig.3. Revised business model canvas for eco-friendly restaurants

5. Discussion

5.1. Theoretical contribution

Despite the academic and practical significance of sustainable restaurants operations, limited studies have holistically investigated this issue where prior research focused on investigating specific aspects such as customer perception (Barone et al., 2019; Kim & Hall, 2020) or management perspective (Jang et al., 2017) creating a gap in

the literature and leaving an interesting issue for further investigation as endorsed by recent studies (Curtis & Mont, 2020; Kim & Hall, 2020) Therefore, the primary contribution of this study to the hospitality body of knowledge is to address this gap through applying the integrated approach of Business Model Canvas to develop and revise a comprehensive empirical model for sustainable restaurant operations. The suggested model highlights the major operations of eco-friendly restaurant operations based on the nine components or building blocks of the BMC. In other words, the study customized and adapted generic green practices related to foodservice operations and incorporated them into an integrated model that addresses various aspects of sustainable restaurants to enable creating, delivering, and capturing value.

The current study provides some interesting findings. On one hand, it provides some empirical evidence that concurs with previous studies. Specifically, the findings related to the value proposition and key activities are supported by early research. For example, in accordance with the precedent research of Wang et al. (2013) and Kim and Hall (2020), this study suggested a proper value proposition for sustainable restaurants such as providing organic/healthy food and delivering a unique dining experience through the atmosphere. Likewise, practices and procedures included in the aspect of key activities, such as reducing food waste and conserving energy consumption, are consistent with the literature on foodservice sustainability (Wang et al., 2013; Kim et al. 2016; Kim & Hall, 2020). On the other hand, some findings of this study present original contributions to the hospitality literature. Precisely, the aspects of key partners, key resources, customer relationship, customer channels, customer segments, costs, and revenues have not been investigated in the sustainable restaurant settings, to the best of the author's knowledge. Thus, by identifying ecofriendly practices that should be done in these key aspects, this study contributes significantly to hospitality theory.

5.2. Managerial implications

In light of its empirical investigation, this study provides some suggestions for practitioners and stakeholders in the field of sustainable restaurants. Since the demand for organic and climate-friendly foods is gradually increasing, restaurants are encouraged to transform into more eco-friendly operations through the systematic incorporation of green practices in different restaurant aspects. Green restaurants also need to develop an adequate service offering that satisfies their potential customers such as providing organic and healthy food. In addition, they ought to identify and target specific customer segments in order to create and deliver value to them. In this context, the findings of this study suggested some targeted segments, including environmental activists, vegetarians, and variety or originality seeking customers. Managers of eco-friendly restaurants are also advised to utilize technology-enabled channels, such as social media platforms, alongside traditional channels to reach and engage with customers, deliver value, or even enable them to cocreate dining experience. Furthermore, it is highly recommended to develop a long-term relationship with them in addition to a personal assistance relationship in order to maintain customers in the long run.

The findings asserted the importance of creating a robust business relationship with essential stakeholders such as organic farms, local suppliers, and environmental associations to assure the successful operation of the restaurant. Moreover, training restaurant employees on implementing eco-friendly practices and adopting standard operating procedures alongside physical facilities are very essential procedures for the sustainability of foodservice operations. It is also advised to undertake the basic eco-friendly practices such as minimizing food waste, reducing water and energy consumption, and recycling. Lastly, marketing activities are extremely important for sustainable restaurants to create an attractive image and promote unique features that distinguish them from regular restaurants.

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نموذج عمل شامل لعمليات المطاعم المستدامة باستخدام منهج إطار العمل المتكامل

أبوالقاسم عبدالوهاب عبدالله محمد ومؤمن كامل أبوالعز

قسم إدارة الفنادق، كلية السياحة والفنادق، جامعة المنيا.

المخص	معلومات المقالة
لقد أصبح تقديم خدمات غذائية مستدامة أو صديقه للييئة من الممارسات الشائعة في	الكلمات المفتاحية
العديد من منشآت الضيافة حول العالم. وعلى الرغم من ذلك فقد ركزت الدراسات	عمليات المطاعم؛
السابقة في هذا الصدد على جانب معين من أعمال المطاعم المستدامة وافتقرت إلى	الاستدامة؛ الممارسات
وجود دراسات شاملة لعمليات هذه المطاعم. وبناء عليه تهدف هذه الدراسة إلى	الخضراء؛ صديق البيئة،
تطوير نموذج أعمال متكامل يضمن التطبيق الناجح للممارسات الخضراء في كافة	نموذج عمل شامل.
العمليات داخل المطاعم. اعتمدت الدراسة على المنهج الكيفي (الوصفي) وذلك	
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عينة الدراسة لجنة من الخبراء بإجمالي 19 أكاديميا وخبيرا في الصناعة. قدمت نتائج	
الدراسة بعض الممارسات الصديقة للبيئة التي تم دمجها في نموذج شامل يجسد	
العمليات الرئيسية للمطاعم المستدامة. تساهم الدراسة في أدبيات الضيافة من خلال	
معالجة فجوة بحثية وكذلك تساهم في الصناعة من خلال النموذج التجريبي المقترح.	