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Sustainable Practices in Hospitality: A Case Study of a Slovenian Michelin Green Star Restaurant

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Abstract: As a major source of food and plastic waste and a large consumer of water and energy, the hospitality sector is key to combating climate change. Sustainable practices in the hospitality sector optimize food production and use, introduce innovative solutions and increase employee satisfaction in running environmentally friendly restaurants. This study examines the changes required for a restaurant to make a sustainable transition and the role of key stakeholders (i.e., chefs, head sommeliers, owners and main suppliers) in this process. It focuses on a prestigious Slovenian restaurant that has been awarded a Michelin Green Star and is 80% self-sufficient. The single case study uses semi-structured interviews, the critical incident method and participant observation to collect data. The results showed that in the case of the analyzed restaurant, the lifestyle of the owner/chef decisively shapes the culture of the restaurant, laying the foundation for its sustainable transformation. The success of the transformation itself, however, depends significantly on the employees' ability to learn and innovate and their active involvement in the change process itself, which impacts both day-to-day business processes and relationships between stakeholders. The latter is reflected in the role the restaurant plays in the local environment as a driver for sustainable community and sustainable entrepreneurship development.

Keywords: sustainability management; green restaurant; sustainable practices; local food; green certificate; leadership



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1. Introduction

The concept of sustainable development has been present since the early awareness of the limitations of natural resources, which prompted Hans Carl von Carlowitz in 1713 to propose the concept of "sustainable use" [1]. Our food system significantly contributes to climate change and environmental degradation—how food is produced and consumed is one of the dominant forces in climate change, biodiversity loss, soil destruction, and drinking water pollution [2]. To achieve positive long-term effects, all stakeholders in the food chain must participate in changes, including the producers, intermediaries, and consumers. However, we often neglect a key economic segment of chain restaurants and various catering providers [2]: sustainable restaurant operations can positively influence visitor behavior [3], shaping them into so-called "green consumers". Such a consumer is recognized as one who "considers the public consequences of private consumption or tries to use their purchasing power to achieve social changes" [4]. Increasing the number of green consumers could lead to radical changes in the hospitality industry [3] and further stimulate the development of sustainable restaurants, which would have an extremely positive impact on the sustainability efforts of society as a whole.

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In Slovenia, at the time of conducting the research, there were seven restaurants that had received both the Slovenia Green Cuisine label and the Michelin Green Star, which indicates sustainable restaurant operations. While the Michelin star rating is based on clearly defined five criteria: quality of the ingredients used, mastery of flavor and cooking techniques, the personality of the chef in the cuisine, harmony of flavors, and consistency between visits [5], the Michelin Green Star is more flexible and highlights the restaurant's commitment to sustainable practices, although the restaurant is still obliged to provide high-quality cuisine and service excellence. The Slovenian Green Cuisine Award is awarded to restaurants that ensure their dishes are made with fresh local ingredients from local fields and gardens, honey from local bees and wines from boutique vineyards while incorporating traditional elements into modern dishes [6]. This award was launched in 2021 when Slovenia was awarded the title of European Gastronomic Region and became part of an international project contributing to the sustainable development of gastronomy. Restaurants can obtain the Slovenia Green Cuisine label based on previously acquired L.E.A.F. or Green Key international sustainability certificates [6].

Although chefs are very important for the success of a restaurant and its sustainable orientation, research [7] suggests that the key to success lies in involving all restaurant staff members, who adopt sustainability values as their own. The successful management of every restaurant, even more those focused on sustainability, requires alignment, complementarity, and cooperation among employees—this means establishing a so-called learning organization based on the principles of sustainability. In this regard, Gill et al. [8] point out that employee burnout, which is very prevalent in the hospitality industry, is not only a characteristic of management but also affects all team members who are in direct contact with customers. In the case of sustainable restaurants, in addition to the already well-known sources of stress, these are further compounded by demands such as constant adaptation of the menu to the seasonal availability of fresh ingredients, training to keep up with new sustainability trends and requirements and finding innovative solutions to implement the concept of a sustainable restaurant [9]. The latter is linked to the fact that green consumers are increasingly sensitive to issues such as the quality, safety, and origin of ingredients used, sustainable agriculture, production processes, food waste, and respect for workers' rights throughout the supply chain [10]. Sustainable restaurants must take these aspects into account throughout their entire value chain. The challenges faced by sustainable restaurants are therefore not only related to primary ingredients and their use, along with the associated work processes, but also extend to relationships with employees and leadership methods. Warm and empathetic relationships based on a high level of emotional energy reduce employee stress and indirectly increase efficiency [11]. In the same way, Gill et al. [8] highlighted the need to shift leadership styles from predominantly hierarchical to transformational, emphasizing the development needs of employees.

Although the literature [12–14] mainly argues in favor of restaurants choosing a sustainable transformation, there are many dealing with different related topics as the role of top management [15], the role of employees [16], the role of customers [17], sources of environmental unsustainability [18,19], and outcomes of greening in restaurants [10] there are still no clear answers in the literature on the challenges mentioned above that can be summarized into next questions: Why do restaurants choose a sustainable path towards self-sufficiency? Is it just a trend or a strategic decision driven by awareness of long-term impacts on the surroundings and the planet? How do stakeholder responsibilities change when a decision on a sustainable path is taken? How does it affect relationships among them? How does it affect day-to-day business processes?

Accordingly, this study aims to answer the following six key research questions: (RQ1) How do the key stakeholders of the restaurant in question understand the concept of

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sustainable development? (RQ2) Why did the restaurant choose a sustainable orientation according to the key stakeholders? (RQ3) Which changes in business processes were deemed necessary by the key stakeholders in this process, and why? (RQ4) How did the relationship with key suppliers change when the restaurant decided to follow a sustainable path? (RQ5) How, according to the key stakeholders, did responsibilities and the nature of work change during the process of sustainability transformation? (RQ6) How, according to the key stakeholders, did the relationship dynamics (interdependence) between stakeholders develop and change during the process of sustainability transformation?

The article is structured as follows: a literature review (Section 2), a detailed overview of materials and methods (Section 3), a presentation of the study results and discussion (Section 4), and finally, concluding remarks with study limitations and future research directions (Section 5).

2. Theory–Literature Review

This section provides an overview of the theory and defines key concepts related to sustainable development and sustainable management. We also present comparative practices of green restaurants, explain the concept of the green consumer, and highlight key opportunities and challenges faced by sustainable restaurants.

As mentioned in the introduction, the debate on sustainable development has been ongoing since the early awareness of the limitations of natural resources in the 18th century. A turning point in the discussions on sustainable development was brought by the Club of Rome's report "The Limits to Growth" in the 1970s, which warned of the Earth's limited resources. Later, the Brundtland Commission in 1987 defined sustainable development as meeting the needs of the present without compromising the ability of future generations to meet their own needs [20]. The "Rio Process" in the 1990s then brought international support for the concept with the Rio Declaration and Agenda 21 [21,22].

The discussion on the pillars of sustainable development emphasizes the intertwining of economic, environmental, social, cultural, and governance aspects. Barbier [23], for example, defines sustainable development as the interaction between biological, economic, and social systems, aiming to simultaneously develop all systems. The cultural pillar is particularly emphasized, with some seeing it as an independent pillar [24], while others view it as a foundation that shapes the meaning of sustainability [25], with gastronomy playing an important role as an expression of community identity [26]. In practice, it has already been shown that focusing on only one pillar harms the others, as evidenced by examples from Kenya and China [27]. Currently, the greatest emphasis in the field of sustainable development is on ESG principles [28], which are used to assess the sustainable behavior of companies.

2.1. Sustainable Management in Restaurants

In hospitality, there is still no clear picture of a sustainable restaurant [29], although chefs often have a positive attitude towards it [3]. Sustainable restaurant operations involve responsible food preparation by considering economic, social, and environmental goals at the same time [7]. In this respect, it is important to distinguish between "green" and "sustainable" practices: green practices focus on the environment, while sustainable practices also include the economy and society [30]. A green restaurant may be defined as a way of setting up and operating a restaurant in an environmentally friendly and energy-efficient way. The Green Restaurant Association [31] defined three key areas of green practices: green operations [energy and water efficiency, recycling, green building, etc.], green food [organic and local], and support for green projects, as well as seven indicators of sustainable operations [7], including careful resource management, reduced

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chemical use, sustainably produced food and materials. Green restaurant management can have a positive impact on reducing food waste, plastic waste, emissions, water and energy consumption [12,32], as restaurants produce large amounts of waste [33] and pollute the air [34]. The predecessor of green restaurant management was green supply chain management [GrSCM] [31], which encompasses sustainable activities from procurement to the consumer [35].

Wang et al. [31] proposed a practical framework for green restaurant management, managing green materials, environment/equipment, and people [see Figure 1]. The proposed framework provides a good starting point for managing a green restaurant, but it does not support comprehensive management of a sustainable restaurant as it lacks one of its essential elements, namely the economic aspect. The latter could be ensured by adding one more category to the three already defined, e.g., Sustainable Economic Practices [36]. This category can include elements such as financial transparency to ensure ethical and transparent financial practices, circular economy initiatives to promote reuse and recycling within operations [e.g., upcycling materials] and long-term profitability to balance profitability with sustainable investments and to create economic value. Such a framework can allow a quick assessment of sustainable practices present in the restaurant.

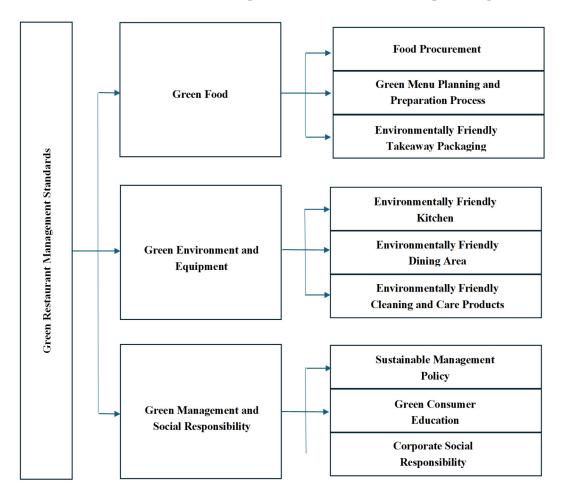


Figure 1. Framework for Green Restaurant Management. Source: [31].

2.2. Sustainable Restaurant

Despite the absence of a unified definition of a sustainable restaurant [37,38], the concept of a "sustainable restaurant" encompasses environmentally friendly operations, social justice, economic growth and health care, going beyond mere environmental protection [31]. A sustainable restaurant, besides implementing practices such as recycling,

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efficient resource use, waste management and offering local/organic food [12,39], also considers a broader set of environmental, social, and economic responsibilities that include, e.g., designing sustainable interiors by using recycled, upcycled or rapidly renewable materials for furnishings and decor, ensuring fair labor practices and employee well-being, including fair wages, safe working conditions, and opportunities for professional development, engaging in community initiatives and partnerships that support local food systems, education, and social causes, promoting transparency and traceability in sourcing and operations, including clear communication about sustainability efforts to consumers, and adopting circular economy principles by reusing materials, composting organic waste and minimizing single-use items.

In addition to technical specifications, it is important to emphasize the role of chefs in sustainable restaurants as innovators, creators of new and revival of old recipes, and representatives of sustainable movements in restaurants [40]. Research [29,41] highlights the importance of local products, reduced meat use, creative ingredient use, seasonal menus, and guest awareness. Zanella [9] defined ten principles of sustainable cuisine, including diverse offerings, minimal processing, local/organic food, waste reduction, and innovative use of traditional recipes. Madanaguli et al. [12] summarized some of the measures currently used by sustainable restaurants and divided them into different areas of "unsustainable" operations. They focused on the management of food and other waste, electricity, water and emissions. An overview of the proposed key measures is provided in Table 1.

Table 1. Key Measures to Prevent Unsustainable Restaurant Activities.

Area of Unsustainable Activities	Key Measures	
Before entering the kitchen	Preparation: Pre-orders, reduced menu offerings and procurement from local suppliers. Food sources: Alternative protein sources and local and seasonal products.	
In the kitchen	Waste in food preparation: More efficient recipes, employee training, menu changes, and reusing oil. Use of kitchen waste: Biofuel from cooking oil and composting food waste.	
Outside the kitchen	Food waste management: Offering takeaway options, food for pets, recipes with waste, food donations, portion control, recycling and composting. Other waste: Use of reusable cutlery, recycled products, non-toxic cleaning agents, increased use of paper, compostable cutlery and no plastic use.	
Electricity	Use of renewable energy sources, employee education and energy-efficient equipment and lighting.	
Water	Regular water inspection, employee awareness, menu redesign, regular maintenance of plumbing and appropriate water dispensers.	
Emissions	Emission labeling on the menu.	

Source: [12].

2.3. Green Consumer and Sustainable Restaurant

To achieve radical changes in the food industry, it is necessary to influence all stakeholders, including the end consumer, who chooses between offers. The aim is to attract the so-called green consumer, i.e., one "who considers the public consequences of private consumption or tries to use their purchasing power to achieve social change" [4] (p. 188). This could lead to a radical change in the food system in the hospitality industry [3].

The green consumer responds to sustainability issues and tries to influence social change through their consumption [4]. They are interested in the quality, origin of food, and sustainable processes [9], seek restaurants that contribute to environmental protection [39] and are willing to pay more for sustainable products [4]. EU opinion polls show that EU citizens associate sustainable food with health, local production and low environmental impact [38,42]. A typical

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visitor to a sustainable restaurant is often a younger woman from a higher social class [43], although according to other research, men are also willing to pay more [43].

However, green consumers are not born but created, which requires educating employees and raising consumer awareness [44]. In doing so, barriers need to be resolved, which include lack of information, mistrust and higher prices in sustainable restaurants. These barriers can be partially mitigated by communicating benefits, role models, social norms and incentives [44,45].

2.4. Sustainability Labels and Certifications

There are many sustainability labels and certifications, such as GRA, Michelin Green Star, LEAF, ISO 14001, B Corp, Green Key, Food Made Good, and Slovenia Green Cuisine, which confirm the restaurant's comprehensive commitment to sustainability, including employee training and involvement in environmental projects [39]. The decision to obtain certification is influenced by both external [legislation, competition and customer demands] and internal factors [environmental efficiency, market share increase and ethical operation] [46]. Social awareness of sustainability encourages the development of these certifications [47], and restaurants that follow certification requirements implement sustainable practices to a greater extent compared to other restaurants [48]. Individual certifications have specific criteria covering areas such as energy, water, waste, chemicals, sustainable food, materials, space, equipment, education, and transparency [49]; sustainable ingredient sourcing, seasonality, waste management, resource management and communication [5]; energy consumption, food procurement, menu composition, location, equipment, chemicals, waste management, employees, business operations and innovation [50]; environmental management system requirements [51]; social and environmental performance, accountability and transparency [52]; environmental management, staff involvement, resource conservation, use of organic products and social responsibility [53]; procurement, society and environment [54]; and authenticity, local ingredients, fresh water, waste reduction, safe environment, sustainable energy sources and employee care [6]. Maintaining certifications has proven to be a way to continuously improve sustainable practices, exceeding minimum legal requirements [55], influencing local production [56], improving financial performance and reputation [46], strengthening stakeholder relationships [55], and influencing consumer satisfaction [47,57]. However, there is also criticism of certifications, stating that they should not be an end in themselves.

2.5. Opportunities and Challenges of Sustainable Restaurants

Key challenges in developing sustainable restaurants are related to networking with local suppliers, as there are difficulties in ensuring a constant supply of local ingredients and adapting to demand fluctuations [9,29]. Waste management also plays an important role, where chefs are expected to be innovative in using lesser-known ingredients and traditional storage methods [9,40,58]. Employee education, which requires time and financial resources, is also crucial, as employees need to understand the importance of seasonality and be sufficiently trained to properly process raw materials [43,59,60]. We must not forget about employee care, where good relationships, burnout prevention, and the introduction of less hierarchical management models are important [8,11,61]. Despite the challenges, sustainable operations also bring numerous opportunities, such as reducing the ecological footprint using plant-based diets, local and seasonal ingredients, and innovative solutions [9,34,62]. Sustainable business can also bring better financial and non-financial results, as costs can be reduced and employee and guest satisfaction increased [7,10]. An important opportunity is also the offer of healthy and seasonal food, which encourages the use of local and lesser-known ingredients, contributing to agrobiodiversity [40]. Finally, sustainable

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restaurants can actively help to build the local community by connecting local suppliers and promoting sustainable practices in the wider area [9,43].

3. Material and Methods

This section presents the methods of data collection and analysis used in this research. The research was conducted using the case study method, which requires a comprehensive description of a single case, the characteristics of this case, specific events, and the process of discovering these characteristics [63].

3.1. Definition of the Sample

The literature suggests that a single case study allows for an in-depth understanding of a particular phenomenon within its real-life context [64], where detailed insights can help formulate hypotheses and guide future studies. The case study was conducted in one of the seven Slovenian restaurants that received the Michelin Green Star recognition in 2023. The selected restaurant [i.e., Restaurant X (To preserve the anonymity of the restaurant, we have named it Restaurant X)] is 80% self-sufficient and creates culinary experiences with its own duck farm [the only organic duck farm in Slovenia] and garden, seasonal menus, natural wines, non-alcoholic beverages, and similar forms of sustainable restaurant offerings. These characteristics make the selected case a proper example of a sustainable restaurant according to Renfors [65] and Renfors and Wendt [66]; the typical characteristics of a sustainable restaurant include energy-efficient equipment, minimizing food waste, sustainable packaging, local sourcing, meatless menu options, recycling and composting.

Additionally, a single case study can contribute to theory development by providing empirical evidence that supports or challenges existing theories, allowing researchers to refine theoretical frameworks based on real-world findings [67]. The study follows an approach proposed by Merriam [68], who stated that a focus on a single case enables the collection of rich, qualitative data through various methods such as interviews, observations, and document analysis that enhance the validity and reliability of the research findings.

3.2. Data Collection Methods

The research was conducted using three research methods: semi-structured interviews, the critical incident method, and structured observation with participation. The triangulation of research methods increases the methodological rigor and credibility of the research [69,70].

The method of semi-structured interviews allows researchers to address more complex socio-behavioral questions, through which they can better understand the interviewees' attitudes towards certain concepts and relationships defined in the research questions [71]. For the purposes of the research, a questionnaire with six open-ended questions and subquestions was prepared [see Appendix A]. Every interview was recorded, transcribed, and then analyzed. The interview was conducted with the following key stakeholders: sous chef, head sommelier, key meat supplier, key dairy product supplier and garden and herb caretaker. The selected stakeholders represent diverse yet interconnected roles within the restaurant's value chain, ensuring coverage of critical aspects of sustainability:

- Sous Chef: Represents operational practices and culinary decision-making, directly influencing sustainable food preparation.
- Head Sommelier: Provides insights into beverage sourcing and pairing strategies, reflecting sustainability in procurement.
- Key Meat Supplier and Dairy Product Supplier: These external stakeholders highlight supply chain sustainability challenges related to ethical sourcing and environmental impact.

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Garden and Herb Caretaker: Reflects local and on-site agricultural practices, emphasizing resource efficiency and biodiversity.

The Critical Incident Technique [CIT] is a form of qualitative research, most commonly conducted in the form of individual interviews, which allows us to define and understand events or individual experiences that led to a certain decision or position in life [72]. In addition to the same stakeholders involved in the interviews, the chef, who is also the owner of the restaurant, was involved in this part of the research. All were asked to describe a key event that occurred during the transformation of the restaurant into a sustainable one and that, according to them, represented a turning point for further decisions in this direction. Similar to the interviews, descriptions were recorded, transcribed, and then analyzed.

The method of structured observation allows researchers to record processes and interactions among employees in the selected case with the help of a predefined scope of observation [73]. During the restaurant's working hours, we observed what was happening onstage [serving, talking to guests] and behind the scenes [work processes in the kitchen, communication between employees, employee behavior] without active participation. The observation took place over 7 days and involved the chef [i.e., owner of the restaurant]. The observations were recorded daily using an observation sheet and later analyzed.

3.3. Data Analysis Methods

The data obtained were analyzed using the content analysis method. The content analysis involved data reduction, data display, and the drawing and verification of conclusions, as proposed by Miles and Huberman [74]. The analysis was performed manually and followed the guidelines of Srivastava and Hopwood [75] and Neal [76].

Upon meticulously listening to the audio interviews, the researchers transcribed and reviewed the content, preserving the integrity of the participants' statements and omitting repetitive elements. Initially, open coding was used, in which the codes were derived from the text as a significant phrase or sentence [77]. These initially coded segments were then compared and arranged into subcategories using axial coding, forming the basis for defining a broader category. The process of coding and categorizing served as a systematic means of organizing the data [76]. Reflexive iteration—a revisiting of previously analyzed data in light of new findings [75]—was an ongoing process throughout the research, ensuring that the evolving understanding of categories and subcategories remained robust. Both researchers independently coded the same set of interview transcripts using a common coding framework based on the research questions. After an initial round of independent coding, their coded transcripts were compared, and their degree of agreement was assessed using percentage agreement as a measure. In case of an identified discrepancy, the researchers clarified their definitions of the codes in order to resolve the differences and reach a consensus on the ambiguous segments.

The thematic saturation was addressed by maximizing the richness and depth of data collected, which we have assured in two ways, first with the use of open-ended questions to uncover detailed narratives and insights from each participant. This approach ensures that each interview contributes significantly to the emergent themes. And second with iterative analysis. We analyzed the data after each interview to identify emerging themes. This allows researchers to adjust subsequent interviews to probe underexplored areas, ensuring comprehensive coverage of the topic.

4. Results and Discussion

The obtained data were analyzed using the content analysis method. The data were coded and divided into corresponding categories according to the research questions presented in the Introduction [see Appendix B]. The analysis of the interviews identified 35

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codes and nine categories, while the analysis of the data received using the Critical Incident Technique identified 23 codes and seven categories.

4.1. The Concept of Sustainable Development

Each of the interviewees expressed their own understanding of the concept of sustainable development, but a common factor that can be found among the answers is the connection to nature. The key concepts that emerge in their answers are maintaining a balance between production and consumption, making full use of raw materials and quality products, and cooperation with the local community and with suppliers who work according to the same sustainable principles. Interviewees also put their understanding of sustainability into practice in their personal lives, and for them, living according to the principles of sustainability is a normal and everyday occurrence.

In addition to finding a balance between production and consumption and focusing on local, homegrown products, sustainable action should strive to optimize the remaining pillars of sustainable development [economic, social and cultural] at the same time. [36]. The interviewees did not specifically highlight the pillars of sustainability themselves in their answers. Still, based on the answers given, the current stage of development of Restaurant X in terms of the integration of the different pillars of sustainability can be summarized as follows: the economic pillar aims to increase income and preserve capital, the ecological pillar aims to preserve biodiversity, and the social pillar includes equity and participation.

One interviewee [D] pointed out that the chef cares a lot about his employees, while another [E] said that members of the team always help each other. During the observation, a pleasant atmosphere, friendly relationships, and a relaxed way of collaboration among employees were noted. Employees [including the chefs and managers] eat together, look after each other and talk about personal matters. Employees perceive the chef as a role model and a source of knowledge and trust. Interviewee D added that the restaurant has a working system based on continuous training and finding innovative solutions for storing leftovers. This system allows full-time workers to be hired regardless of fluctuation in demand for catering services during a particular period of the year. This is where Restaurant X differs from "traditional" restaurants, where a certain number of people are employed on a temporary or seasonal basis to increase efficiency and control labor costs.

In relation to the cultural pillar of sustainability, it is important to highlight the practice of foraging for plants [herbs, spices and mushrooms] and fruits that in the past was a tradition in rural areas of Slovenia. The family of the chef has been involved in foraging for many years, and this is now reflected in their practices and plates. Within the Sustainable Development Goals [78], foraging is defined as a way to help reduce hunger and the carbon footprint and promote local sourcing. The participants in the study see foraging primarily as a way to preserve the identity of the community and the local area [24] and to create a bridge between tradition and modernity [26]. Foraging, as one of the key elements of a restaurant's operations, confirms the fact that a sustainable restaurant means much more than just a different menu. It primarily involves understanding the restaurant's mission concerning all its stakeholders, including employees, the local community, cultural identity, and the natural environment, enabling it to recognize the value of nature and act responsibly in a way that leaves the smallest possible environmental footprint.

The sous chef gave his own definition of sustainability, metaphorically equating sustainability with the fermentation process, thus making it multifaceted but also suggesting that sustainability can be achievable and applicable to different projects. He distinguishes between technical [energy, material] sustainability and substantive sustainability. The latter is reflected in the quality of raw materials, the cultivation of arable land and traditional

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and new ways of storing food waste. The sous chef of Restaurant X emphasizes that while achieving technical aspects of sustainability [such as meeting certifications, reducing waste, or sourcing ingredients locally] is important [7,79], substantive sustainability plays a more critical role. Substantive sustainability likely refers to the deeper, long-term commitment to integrating sustainable practices in a way that aligns with the core values of the restaurant. This means transcending surface-level measures and embedding sustainability into every aspect of the restaurant's operations, ethos, and relationships—from menu planning and supplier partnerships to team dynamics and customer education. The chef sums up the same idea in slightly different words: "It is not that you can do everything sustainably, because you cannot. It means a lot that you are sincerely trying to do your best in that sense. The main thing is adopting sustainable practices into your system and trying to implement them every day as practically as possible".

4.2. Reasons for Sustainable Transformation

The interviewees had unambiguous answers to this question. The reasons given for the decision to develop the restaurant in a sustainable direction were the existing sustainable style of the family running the restaurant, the creativity and passion of the chef, the knowledge already acquired and the desire to trace ingredients from source to plate.

All of the surveyed internal stakeholders described the takeover by the current owner and chef as the key event that set Restaurant X on its path to sustainability. The chef took over the restaurant, which at that time was just a log cabin for local diners, from his mother when she decided to retire. Before then, he had spent many years working with some of Slovenia's most renowned chefs and briefly abroad. It was especially during this time that he developed a passion for the Nordic style of cooking. As he says: "This Nordic style is not just a style of cooking or a way of cooking, but more basically an outsourcing of raw materials, where you get your raw materials from. Basically, it is how you confine yourself to a certain area where you work, and in doing so, you build a particular identity that you cannot recreate somewhere else. The easiest way to do that is to use local raw materials, to produce things yourself". He likes to limit himself to a minimal amount of raw materials and create a working environment where he can express his identity.

The chef's passion for sustainability as the owner is a common factor in transferring sustainable practices to the entire restaurant, as shown by Cantele and Cassia [10] and Nurse [25]. When the owner's mother decided to retire, he had the option of continuing his career in one of Slovenia's renowned restaurants or taking over the family restaurant. He says he chose the latter because it was a unique opportunity to realize his vision for the restaurant. This vision is a fusion of Nordic cuisine philosophy with elements of local culinary heritage and modern innovative solutions. This is necessary because traditional cuisine, while it embraces elements of local self-sufficiency to the greatest extent, does not provide all of the aspects of sustainability nor, above all, the culinary experience the guests want and expect. His idea of sustainable restaurants integrates sustainability into every aspect of their culinary practice, from growing their own ingredients to foraging and preserving, reflecting a holistic approach to food and the environment. This confirms the research of some authors [9,29,37,40,58], which showed that chefs, as innovators and mediators between tradition and sustainability requirements, create new culinary systems that, in the best possible way, upgrade the traditional one.

By analyzing information available on their websites, comparing the chef's understanding of sustainable restaurants with the other six Michelin Green Star winners in Slovenia shows they are similar in many ways but also differ in some aspects. All restaurants focus on local, seasonal and organic ingredients, work with local farmers and producers and respect local traditions. The difference is that Restaurant X's approach to sustainability is

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deeply embedded in its culinary practices and is linked to self-sufficiency, which includes growing vegetables and fruit on its farm, foraging for plants and fruits in the nearby forest, and using traditional and modern processes of preserving, pickling, drying, curing, salting, smoking and fermenting. The latter was not found to the same extent in any of the other six restaurants. Similarly, cooperation with the local environment is emphasized everywhere, but again, it is not to the same extent as in the case of Restaurant X in terms of promoting local sustainable entrepreneurship. Achieving all of these aspects requires highly trained staff [29] and a high level of investment in formal and informal education—this was achieved by Restaurant X not as a stand-alone element but as a way to achieve the required level of sustainability.

The interviewees also highlighted the desire for traceability of raw materials as a reason for transitioning to a sustainable path [31]. Additionally, certifications for sustainable operations include the selection of local ingredients and short supply chains, which are among the basic criteria for obtaining certification.

4.3. Changes in Business Processes

According to Rakić and Rakić [44], when introducing sustainable principles, it is important to realize that they are systemic and radical changes reflected both in the way of working in the kitchen and in its relationship with the local community; the latter becomes a key factor as this is the only way the restaurant can provide quality local products. In the case of Restaurant X, the following changes in business processes were needed: field planning, menu planning, raw material procurement and collaboration with external partners, employee training, workday flow management and building relationships between internal stakeholders—basically, the planning of all the restaurant's main activities.

The sous chef said that the reason for the decision to cultivate their own land and grow their vegetables was the desire to increase the traceability of ingredients used and to be more connected to nature. Other interviewees pointed to the location of the restaurant as an advantage of developing such a system, as other locations closer to the city would have a harder time allowing them to own a duck farm, a field and herb gardens close to the restaurant and facilities for food storage and fermentation of leftovers in the basement. Allowing quick access to seasonal products, which is one of the key principles of sustainable cuisine [9], was also a step towards protecting biodiversity and enabling dietary diversity. This is supported by the research of Pereira et al. [40], in which the authors advocated for the preservation of local agricultural practices. At the same time, the restaurant worked in special facilities for aging and fermenting food. Similar practices are also implemented in sustainable restaurants such as Nolla, Silo, Ricard Camarena and Acorn House. The difference between them and the restaurant under study is that in the latter, they cultivated their own field, acting as the farmers themselves. A significant amount of time, money and training hours have been spent optimizing the procedures for selecting seedlings and planning activities in the field. Again, this confirms their long-term orientation, as these decisions do not bring business benefits in the short term or can even increase the operating costs of the restaurant for a while, which can be very critical for a small restaurant like this one. Choosing to cultivate one's own field, in addition to using seasonal products, allows for the shortest possible delivery routes for about 80 percent of the ingredients used in the restaurant, which is another important characteristic of a sustainable restaurant, as shown in Macdiarmid's [62] study.

This process was followed by other changes. One of the most important is menu coordination. As a symbol of a sustainable restaurant, the seasonal menu has been highlighted in the research of many authors [9,12,29]. Likewise, the seasonal menu meets the

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requirements of most of the green/sustainable certifications presented [Slovenia Green Cousine, Michelin Green Star, Green Restaurant Association and Food Made Good].

The interviewees pointed out that there is a need for an integration of kitchen and service staff, which helps to reduce food waste and opens up space for finding innovative solutions. During the interviews, it was found that employees have the freedom to organize their working hours and can dedicate themselves to different projects, such as creating new recipes or trying out different fermentation methods. In addition, the staff can be involved in the production of by-products from their own leftovers, which directly reduces operating costs. This confirms the research of several authors who stress that, in addition to training, running a sustainable restaurant successfully requires taking care of the collaboration between employees, fostering innovation and creating a free creative environment [58,61].

On the way to becoming a sustainable restaurant, employees became accustomed to a process of continuous development. Although implemented in a more informal way, training and innovation activities are part of their daily routine. While this practice is frequently mentioned in the literature on sustainable restaurants [9,19,29,40,44], the success of its implementation varies widely. Restaurant X is committed to a high level of employee involvement in the overall operation of the restaurant [in the field, duck farm, warehouses, kitchen, and dining room], which confirms the findings of Arnesen [61], who states that employee involvement is very important for achieving sustainability goals. This allows for a broader transfer of knowledge between employees and a more holistic understanding of the functioning of the restaurant and all its sub-systems, thus also opening new opportunities for innovation. Furthermore, it also supports more transparent restaurant operations, as the serving staff can provide guests with information about suppliers and the food preparation process, which positively influences the trust of green consumers [9,10]. As Kim and Hall [80] stated, it is important to implement sustainable practices in the restaurant as well as to encourage restaurant customers to participate in the restaurant's sustainable activities and learn more about sustainability.

4.4. Changes in Relationship with Suppliers

The relationship between Restaurant X and its key suppliers of milk, meat and other raw materials has changed significantly regarding the scale of the restaurant's operations, the proportion of its supply and its sustainability orientation. It took four years for Restaurant X to establish the current sustainable supply chain; for example, chef Ricard Camarena needed twelve years for the same [81]. This figure in itself shows how challenging the path to a sustainable supply chain is for both large and small restaurants. The restaurant had to terminate cooperation with certain suppliers because they did not understand or were not ready for the changes that the sustainable development path brought. This confirms the challenges presented by Carrillo Ocampo et al. [29], such as the inability of suppliers to adapt to the restaurant's needs in case of demand fluctuations and sustainable sources. The remaining suppliers understood the goals of the restaurant and were willing to adapt to them accordingly. At the same time, due to the fluctuations in demand and the seasonality of supply, suppliers recognized that they could not rely solely on Restaurant X. Therefore, they developed collaborations with other buyers. In this process, Restaurant X helped them either directly or indirectly by assisting them in establishing business contacts and providing positive recommendations on their behalf.

Above all, the supplier–buyer relationship has turned into a partnership relationship with the creation of a "supplier community". In the process of establishing its supply chain, the restaurant has teamed up with local breeders and growers, fish farmers, local hunters, Adriatic fishermen, sympathizers, supporters of sustainable approaches to agriculture and viticulture, and has created a community of well-intentioned suppliers of

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quality ingredients who care about nature. In the interviews, suppliers were mentioned as community members, and they themselves identify with this role and consider this, albeit informal, community to be one of the keystones in the restaurant's sustainability journey. In practice, this means, as the sous chef says: "...our community has the principle that if a local supplier comes to us and has a product that we find interesting and of good quality, we take that product out of our field and plant something else. [...] we are very happy if someone comes and gives us a product that we don't have to make".

With the local suppliers, Restaurant X developed a special program that can be described as a tourist product. Guests are invited not only to their estates and fields but also to their local suppliers, which helps the latter to develop their own sustainable practices. Such collaborations confirm that smaller restaurants tend to support the development of sustainable activities in the local community [9,38,43] and do not limit sustainable practices to their own activities. In addition, the restaurant trains local suppliers at its own expense so that they can successfully act as sustainable entrepreneurs.

4.5. Changes in Responsibilities and Nature of Work

All interviewees reported that the transformation into a sustainable restaurant has led to an increased workload, the need for additional training and innovation, as well as greater coordination of work processes among employees.

The workload of employees is said to have doubled, as has the quantity of fermented products, prompting the establishment of a new menu category [non-alcoholic pairings] and a small shop featuring products made in the restaurant. The garden and herb manager [C] and the head sommelier [A] noted the most significant changes in daily tasks. Both were responsible for developing and implementing new work methods to support sustainable practices, which required countless hours of education and training. However, both now take pride in the work accomplished and the goals achieved.

The chef responded to the transformation in a manner similar to what chef Ricard Camarena [82] described in his own interview, viewing the process as follows: "I understand that sustainable development is a broad, complex, and long-term process that demands tremendous effort, dedication, sacrifice, and creativity from employees, with tangible economic results only appearing over time". These words further confirm previous findings that sustainability transformation requires comprehensive changes that offer economic benefits, though only in the long term. For some restaurant owners, this may be a key reason why they do not choose such a transformation.

The restaurant has also developed a unique working approach that enables employees to not only fulfill their daily tasks but also grow and learn through their own innovative projects. This practice is commonly seen in engineering and IT companies, where employees can dedicate part of their working time—usually between 10% and 20%—to new projects not directly tied to their usual responsibilities. Observations reveal that employees take pride in the results of such projects and are generally satisfied and motivated to perform their duties with high quality, which aligns with the sustainability values they share with their colleagues.

According to Bhutto et al. [83], only inclusive leaders who show their accessibility to the employees, share creative and innovative ideas, provide the necessary resources, and promote the emergence and implementation of creative ideas in the area of sustainability can initiate and sustain sustainable behavior in the employees. Restaurant X is a good example of how sustainable restaurants promote changes in kitchen leadership models from the prevailing rigid, hierarchical, militaristic leadership model to a culture of caring and respect [84]. Based on the insights gained through interviews and observation, we can conclude that leadership in Restaurant X is focused on providing direction, being employee-

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oriented, and creating an innovative and collaborative environment because these areas are strongly linked to positive organizational outcomes and overall sustainability performance.

Leaders who provide clear direction help establish shared goals and clarify roles, which is crucial in the dynamic and complex environment of sustainable restaurants. Effective direction-setting is associated with higher organizational commitment, better work performance, and reduced turnover [85]. Clear leadership direction ensures that sustainability goals—such as waste reduction, responsible sourcing, and green operations—are understood and consistently pursued by all staff members. This aligns with research findings that role clarification and leader behavior toward employees directly impact both financial and innovation performance in restaurants [86,87].

Employee-oriented leadership—characterized by support, fairness, and attention to staff well-being—has been shown to increase job satisfaction and organizational commitment and reduce turnover [86], all of which are critical challenges in hospitality. Transformational and servant leadership styles, which emphasize employee development and empowerment, are particularly effective in fostering a positive work climate and encouraging staff engagement with sustainability initiatives [87]. The research highlighted that the leader—employee relationship is central to sustaining high performance in a sector known for high turnover and stressful conditions [85].

As shown above innovation is fundamental to business sustainability and resilience in restaurants. Leaders who foster collaboration and encourage new ideas drive menu and operational innovations necessary for sustainable practices—such as implementing green technologies and solutions, developing sustainable menus, and engaging in community partnerships. Studies confirm that responsible leadership practices like ethical decision-making, stakeholder involvement, power-sharing, and environmental orientation have a strong impact on innovation performance [87,88] which in the case of Restaurant X also translates into good financial performance. This aligns with the findings of Alcorn [89], who states that employees working in sustainable restaurants demonstrate greater commitment and desire to fulfill the mission of the restaurant compared to those in conventional ones. It is, however, also worth noting that management recognizes that working in such a restaurant is not for everyone, so special attention is paid to selecting new staff. In addition to professional skills, values hold significant— if not crucial—importance in the recruitment process.

5. Conclusions

In conclusion, we would like to summarize the multi-year development of Restaurant X towards sustainable operations, emphasizing the importance of "closing loops, not jumping through them", as noted by Jordy and May Navarra from Toyo Eatery, which boasts the title of the most sustainable restaurant in Asia [90].

In the process of transformation, changes occur at the individual, team, and organizational levels, as well as in business processes. At the individual level, understanding sustainability as a way of life is crucial [12], but creating this awareness is a process that takes time [44]. The developmental path of an individual includes internalizing sustainability, developing a high level of personal discipline and concern for cleanliness at work, a high level of self-initiative and creative thinking, a willingness to collaborate with colleagues, continuous learning and the ability to innovate. Sustainable management focuses on innovation, considering the opportunities offered by nature. Creative thinking is further encouraged by limiting ingredients to those that are locally and seasonally available and by drawing ideas from cultural heritage. The latter is reflected in the variety of ways of storing and processing food leftovers.

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At the team level, greater interdependence between departments is important and is reflected in the need for integrated processing of the raw materials produced. Individual team members need to be prepared to recognize the abilities of others and know where best to send the residues for further processing. In addition, teamwork at Restaurant X is based on the exchange of knowledge and experience, both culinary and technical, which is the foundation of a sustainable culinary system.

At the organizational level, the key is to implement business processes in a way that ensures long-term sustainability and follows the principles of circular business. All these changes are reflected in an increase in the responsibilities and multifaceted nature of the work of individual members, making the work of such a restaurant more demanding while offering more satisfaction for employees and opportunities to realize their ideas.

During the restaurant's transformation to sustainability, changes in business processes occurred. Table 2 presents an overview of the previous and current state and indicates necessary changes in certain processes, thus summarizing the research results.

Table 2. Needed Changes in Business Processes at Restaurant X.

Business Process	Before	Now	Needed Change
Field Planning	None.	Preparation of an annual plan; selection and purchase of seedlings; daily care for crops.	Time and money invested in preparing an optimal plan based on restaurant needs; education in agriculture.
Menu Planning	Purchasing from external suppliers; low use of own products.	Aligning menu with availability of own fresh and stored raw materials.	Aligning production and consumption; reduced meat content on the menu; increased reliance on own production; increased investment in employee education.
Ordering Raw Materials and Collaborating with External Partners	Purchasing necessary raw materials based on the menu.	Careful selection of external suppliers; demand for high-quality products; developing an inclusive relationship with suppliers.	Termination of cooperation with some suppliers; development of a program for supplier recognition and transparency; changed dynamics and quantities of ordering.
Daily Work Processes and Relationships Among Internal Stakeholders	Employees perform their tasks.	Collaboration among employees to improve recipes based on new technical and culinary knowledge; increased self-initiative among individuals.	Increased interdependence among internal stakeholders: chef, herb caretaker, head sommelier, service staff, cooks; presentation of suppliers during service.
Employee Education and Training	Employees know their duties and are trained for their tasks.	Employees internalize restaurant values; besides their tasks, they know how other areas operate and exchange ideas for innovation and optimization.	Increased employee involvement in comprehensive restaurant operations; introduction of various employee education methods; defining focus areas for each employee's development.
Activity Planning	Standard restaurant operation system except for waste separation.	Planning all restaurant activities towards 100% utilization of raw materials and zero-waste policy.	Increased time and financial investment in employee education; planning storage methods for food leftovers; planning menu based on flavors of stored products; changing composting system; planning circular operations: field→plate→compost/own products/duck farm→field/shop→plate.

Based on the study, several key guidelines for transforming restaurants into sustainable and self-sufficient establishments are provided. Firstly, it is essential to understand the complexity and dual direction of sustainability, which includes both technical and substantive aspects. Introducing principles of circular economy is crucial and involves the entire process, from field cultivation to harvest and processing [including kitchen, beverages, storage, and the creation of in-house by-products], to composting and the final dish on the plate. It is also important to align the seasonal availability of ingredients with consumption through creative menu planning. Restaurants must be prepared for various forms of collaboration with suppliers, such as jointly organizing events, arranging guest visits to suppliers, or supplier visits abroad. Developing an organizational culture aligned with sustainability guidelines and a more democratic leadership style is essential,

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as is the organization of work processes, enabling and encouraging formal and informal employee education. Encouraging employees to innovate and take initiative, for instance, dedicating 80% of their time to work in the restaurant and the remaining time to their own projects, is recommended. Adhering to the established goals of sustainable development and maintaining them even after obtaining certifications ensures that sustainability remains a core of restaurant operations.

To ensure the validity, reliability, and credibility of the study, various precautionary measures were taken in the research, as previously described. However, there are some clear limitations that must be considered:

- Small sample size: A sample of five stakeholders limits the generalizability of findings. While qualitative studies often rely on smaller samples to explore depth over breadth, this approach may fail to capture the full complexity of sustainability challenges faced by restaurants in different contexts. The absence of other relevant groups [e.g., customers and policymakers] restricts insights into external pressures or expectations that drive sustainable practices. Including these groups could provide a more comprehensive understanding of systemic challenges.
- Stakeholder Bias: The perspectives provided by these stakeholders who are closely involved in the sustainability transformation may reflect their specific roles and interests rather than offer a holistic view. Their views may reflect personal interests, roles, or organizational loyalty, potentially introducing bias or omitting dissenting or alternative viewpoints. The absence of customer voices, for example, means the study cannot fully assess how sustainable practices are perceived or valued by end-users, nor can it capture the influence of external pressures such as regulatory changes or shifting market trends.
- Context-Specific Findings: The study's conclusions may be highly context-dependent. The experiences, processes, and outcomes documented are closely tied to the unique context of one prestigious, award-winning restaurant in Slovenia. The restaurant's status as a Michelin Green Star recipient, its high degree of self-sufficiency, and its location in a region with strong traditions of foraging and local food production all contribute to a distinctive operational and cultural environment. The leadership style, organizational culture, and stakeholder relationships observed are deeply influenced by the owner-chef's personal philosophy, background, and vision. These factors may not be present in less prestigious or differently structured restaurants, nor in regions where local supply chains, culinary traditions, or consumer expectations diverge significantly from those in Slovenia. The socio-cultural setting—marked by a blend of Nordic culinary inspiration and Slovenian heritage—further differentiates this case from more conventional or commercially driven hospitality operations. As a result, the pathways to sustainability, the challenges encountered, and the solutions devised may not be replicable in other contexts, particularly where resources, market positioning, or community engagement differ.

Future research could address these limitations by expanding the sample to include additional stakeholder groups conducting comparative studies across multiple restaurants to enhance generalizability or employing longitudinal studies to capture temporal dynamics and address limitations related to single-point observations. A longitudinal research design would provide valuable insights into how sustainability transformations evolve over time, capturing not only the initial changes but also the processes of institutionalization, adaptation, and potential setbacks. This approach could reveal how external shocks (such as economic crises or supply chain disruptions) impact the durability of sustainable practices and stakeholder relationships. Given the contextual specificity of the present case, cross-cultural research could illuminate how different regulatory frameworks, cultural

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attitudes, and market conditions shape the adoption of sustainability in the hospitality sector. Policy analysis could further explore the effectiveness of certification schemes, incentives, and public–private partnerships in promoting sustainable restaurant operations. Additionally, combining qualitative case study data with quantitative approaches can provide a more comprehensive picture and strengthen validity through methodological triangulation. Another possible venue for future research is the role of innovation—both technical and organizational—in driving sustainability, which merits deeper investigation. Future studies could examine how knowledge, skills, and best practices are transferred between restaurants, regions, or even sectors and what mechanisms (e.g., networks, training programs and digital platforms) facilitate or hinder this process.

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Appendix A

Interview Questions:

- Could you briefly provide and explain your own definition of sustainable development?
 Sub-question:
 - 1.1. Is this something you also practice outside of work in your private life? How?
- 2. You have been working in Restaurant X in position A for Y amount of time. Why do you think that Restaurant X decided to commit to sustainable practices? What do you believe led to this decision?
- 3. What changes have you noticed in the business processes following the shift to sustainable operations? Business processes are to be understood as all the activities necessary "from the field to the plate and to the next day of work".

Sub-question:

- 3.1. Do you think the business processes are now more efficient than they were before? Why?
- 4. Restaurant X recently earned the Michelin Green Star once again–congratulations! Could you compare the dynamics within the team during the three periods: before earning the first Green Star, during the time between the first and second star, and now, after earning the second Green Star?

Sub-question:

4.1. Have you perhaps noticed greater pressure on the team in terms of achieving specific results? How do you handle this in your team?

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5. Have you noticed any changes in the relationships between key stakeholders, such as the head chef, the meat supplier, the herb supplier, the interior designer, or the sommelier? Sub-questions:

- 5.1. Have you perhaps observed increased or decreased interdependence between the key stakeholders during the time the restaurant was transitioning to sustainability?
- 5.2. You aim to operate as locally as possible. Have you had to change the way you work with suppliers because of your commitment to sustainable practices? If so, how did you manage this? Are you now more selective when choosing suppliers, and if so, in what way? How do you maintain relationships with them?
- 5.3. What criteria do you use when selecting suppliers outside the local community [e.g., wine, specialties]? How much importance do you give to sustainability certificates in this decision-making process?
- 6. During the process of transitioning to sustainable practices, have you noticed any changes to your work in any way [your obligations, the nature of your work, relationships with colleagues, other aspects]?

Sub-question:

6.1. How and why do you think these changes came about?

Appendix B

Table A1. Part of the Coding Matrix.

Theme	Code	Quotes from Interviews	
Unique practices	Closed operating loop	A: "sustainability comes into every possible part of the restaurant". C: "Basically, ensuring that everything revolves around the restaurant, creating a closed loop. [] It's a relatively large system. So you can operate zero-waste. So you can separate waste into so many different streams". D: "Most of their food, except for fish, comes from a very close proximity. Most of it comes from their own farm".	
	Storing and processing leftovers and/or surplus food	D: "they preserve things, using traditional methods like our ancestors, or they use globally known methods, especially fermentation". A: "Creating something out of potential waste that otherwise wouldn't be waste". B: "Certainly fermentation. We have at least 25 different types of miso and other products we've started making because we're trying to extract as much as possible from what we get from nature".	
	Creative culinary creations	E: "So many unique dishes, and every time I visit, there are different dishes. These are pure innovations; this is art. You don't experience this anywhere else, not like this". D: "For instance, they also gather a lot of things from nature. They're extremely innovative in what they find in nature".	
	In-house production of interior elements	D: "If you look at how their house is constructed, most things are made of wood, and most of those elements, which are from here, are made by themselves". B: "tables are essentially furniture that we have in the house".	
	Use of seasonal vegetables	D: "they use all types and essentially use vegetables that are seasonal". C: "You plan very seasonally; otherwise, everything goes to waste".	

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