sustainability

MDPI

Article

Restaurants without Bins: How Does a Circular Restaurant Operate?

Sanna-Mari Renfors [1,*] and Ted Wendt [2]

[1] Center for Tourism Business Development, Satakunta University of Applied Sciences, Satakunnankatu 23, 28130 Pori, Finland
[2] EcoFoodCentre, Håven 2, 19341 Sigtuna, Sweden; ted@ekomatcentrum.se
* Correspondence: sanna-mari.renfors@samk.fi

Abstract: The circular economy is seen as a potential solution to tackle the environmental concerns of the restaurant industry, offering a set of practices to support the industry in achieving more efficient use of resources and becoming more sustainable. However, studies that focus on the circular economy as a theoretical framework in the restaurant context are scarce. Thus, this study aims to increase understanding of how a circular restaurant operates in practice and provide insight into the circular transformation of restaurants. This article adopts a qualitative, multiple case study methodology, assessing six pioneer restaurants fully embracing a circular economy. The results show that a circular restaurant can be defined as a restaurant based on a systemic design that eliminates waste and keeps materials in circulation. A circular restaurant redesigns and reverses the supply chain, designs circular menus, is committed to closed-loop cooking, and reprocesses the remaining waste. In addition, a circular restaurant features a circular approach to interior design and embraces its social capital. The article includes various practical implications for chefs who can lead the transition to a more circular food system by adopting relevant practices.

Keywords: circular economy; circular practices; hospitality operations; restaurant management; sustainability

check for updates

Citation: Renfors, S.-M.; Wendt, T. Restaurants without Bins: How Does a Circular Restaurant Operate? *Sustainability* **2024**, *16*, 2312. https://doi.org/10.3390/su16062312

Academic Editor: Ada Margarida Correia Nunes Da Rocha

Received: 2 February 2024
Revised: 7 March 2024
Accepted: 8 March 2024
Published: 11 March 2024

Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

1. Introduction

The hospitality industry uses enormous quantities of natural resources and is based on a linear take–make–dispose production model [1]. For example, the restaurant industry produces an extensive and exponentially growing amount of waste, especially food and plastic [2–4]. About 25–30% of total greenhouse gas emissions derive from food production and consumption, and one-third of global food production is wasted along the food supply chain [5,6]. At the European Union level, it has been calculated that restaurants and food services generated 12 kilos of food waste per inhabitant in 2021 [7]. It is also argued that restaurants are among the largest consumers of water and energy [8,9]. In summary, it can be stated that the restaurant industry has a profound negative impact on the environment and climate change when not appropriately managed.

Still, restaurants do not have an overall understanding of the concept of sustainability [10]. Because of the necessity to secure a more sustainable future and respond to the changes needed in the economy, further studies are required to advance the evolving conceptualisation of sustainability [11]. Thus, the circular economy has been understood as a critical tool to address the environmental concerns of the restaurant industry and for restaurants to become healthier for the planet. It is seen as an integrative framework that could encourage restaurants to adopt more sustainable practices and create vast opportunities for the industry [1,12,13]. The circular economy offers a set of practices to support the restaurant industry in achieving sustainable development, attaining the Sustainable Development Goals (SDGs) adopted by the United Nations, and utilising resources more

efficiently [12,14]. For example, a significant amount of restaurant waste can be prevented and minimised through circular practices [4,15].

The circular economy is also a trendy topic due to the growing interest of policymakers who consider it possible to change the use of resources in the economy and provide guidelines for restaurants to accelerate their circular transition. For example, the European Commission is committed to halving per capita food waste at the retail and consumer level by 2030 to respond to the United Nations' Sustainable Development Goal 12: Responsible Consumption and Production. The European Union's Circular Economy Action Plan advises about how to design circular products and processes, how to prevent waste, and how to keep the used resources in production and use. The EU's Farm-to-Fork Strategy puts forward actions to ensure the food system's sustainable transition and presents many opportunities for restaurants. The European Union Directives on Waste Management (EU 416/2015) introduce basic waste management principles according to a waste hierarchy to support restaurants' journey towards circularity.

Despite this attention, studies relying on circular economy as a theoretical framework in restaurants are scarce. So-called green restaurants, which operate in an environmentally friendly way by adopting green practices, have been studied by some academics [16–19]. However, these studies and their definitions concentrate predominantly on environmental and eco-friendly approaches in restaurants, neglecting their connection to the economic and social aspects of sustainability [20]. Furthermore, in the restaurant context, the implementation of a circular economy is still focused on a limited range of solutions, with a key focus on waste management, food waste, and energy efficiency [21]. Consequently, previous research on the circular economy concept in restaurants has mainly concentrated on food waste management [2,22].

The turbulent times caused by the pandemic and rising inflation rates have provided an opportunity to rethink and reshape models such as the circular economy to make restaurant operations more sustainable [20]. In line with this, this article aims to increase understanding of how a circular restaurant operates. It fills the gap in the existing literature on holistically integrating a circular economy in restaurant operations by analysing relevant practices that allow restaurants to optimise their sustainability and use resources more efficiently. The research question is the following: what kind of circular practices can a restaurant adopt to best integrate the circular economy as a tool in its operations?

This knowledge is critical because each industry makes different circular transformations. These characteristics have not been explored holistically at the restaurant level while considering all restaurant operations. Restaurants and their chefs also need encouragement to start the circular journey and accelerate the circular transition of the restaurant industry. Their knowledge and skills should be increased since the circular economy is a new concept to them [23,24]. This could also inspire chefs' professional development [23]. Furthermore, an increasing understanding of the circular economy in the restaurant industry can impact how resources are used at the system level. It can connect different actors of the restaurant value chain, from farmers to consumers, and impact the entire chain of activities [5].

2. Theoretical Background

The circular economy is an economic system representing a paradigm change in how human society is interrelated with nature [25]. It is a system-level production and consumption model of an economy operating within the planetary boundaries to regenerate natural and social capital [26]. It is an economy based on resource efficiency with a mission to save resources by maximising efficiency and minimising wastage [27]. In other words, the circular economy aims at an in-depth transformation of how resources are used, focusing on reusing resources and keeping them in a loop of production and usage [28,29]. It also stimulates circular flows among suppliers and customers [13]. Thus, it is a systemic transformation involving production, services, and consumption. In addition, the transition towards a circular economy needs to occur at three levels of implementation: the micro (products, companies, consumers), meso (supply chains, industrial symbiosis,

company clusters), and macro (cities, regions, nations, governments) levels [25,30,31]. A thriving circular economy also contributes to all three sustainability objectives: economic, environmental, and social [5,23,32].

Many authors have attempted to define the circular economy concept in the past decade. For example, a widely used definition comes from [31] (p. 224): 'A circular economy describes an economic system, based on business models which replace the end-of-life concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption to accomplish sustainable development'. Furthermore, ref. [33] (p. 369) defines circular economy as 'an economic model wherein planning, resourcing, procurement, production and reprocessing are designed and managed to maximise ecosystem functioning and human well-being'. Another popular definition comes from [32] (p. 39), which defines circular economy as 'an economy constructed from societal production-consumption systems that maximises the service produced from the linear nature-society-nature material and energy throughput flow by using cyclical materials flows and renewable energy sources'.

A few authors have approached restaurants as part of the circular food system. From a systemic perspective, ref. [34] argued that the circular economy provides tools to increase and optimise sustainability within the food system. They proposed that a circular food system is about reducing generated waste, reusing food, utilising by-products and food waste, and recycling nutrients. This system recovers nutrients from processed food waste and returns them to the soil to produce new food [35]. Furthermore, ref. [36] proposed that the principles of circular economy and systemic design are the basis of a sustainable culinary system. This system includes the entire chain of activities from producing to cooking and eating food and disposing of waste [37]. It considers the whole value chain with its activities and actors to minimise waste and maximise the use of renewable resources [36]. Indeed, restaurants are the central actors of these systems, making them leaders in the circular transition and enabling them to influence the whole system [11].

Some authors have concentrated on circular economy practices from the micro perspective, i.e., at the restaurant level. The authors of [22] investigated how to raise awareness of the circular economy in restaurants and cafes by investigating sustainable food production, consumption, and waste management practices. They suggested that the most critical strategies are to develop sustainable menus, procure fresh ingredients from local suppliers in a timely manner, reduce portion sizes, use fewer food products in menus, recycle surplus food, and track, monitor, and recycle food waste. Similarly, ref. [2] aimed to fill the gaps related to circular economy, farm-to-fork, and sustainable resource and waste management practices in restaurants. They underlined the critical issues of menu design, local and short food supply chains, and food waste management. Furthermore, ref. [38] increased understanding of circular economy practices and suggested reducing, reusing, and recycling the resources of energy, water, and waste. However, previous research [39,40] has also shown that even if restaurants are aware of circular practices and acknowledge the waste problem, they do not adopt them due to the absence of social pressures and limited financial resources.

In addition, studies about the circular economy from the chef's perspective and concentrating on cooking food in restaurants are emerging. For example, ref. [5] (p. 7) defined the concept of circular gastronomy as 'the knowledge and skills of food and meal designs, focusing on recreation and redesign to stimulate gastronomic development for a sustainable future.' They saw that circular gastronomy focuses on the reuse and recycling of resources and the tastes and experiences of food and eating. The authors of [41] explored chefs' resourcefulness and conceptualised it as a means to avoid food waste in meal preparation and to cook using less wasteful practices. In addition, ref. [24] (p. 63) defined zero-waste cooking as cooking that reduces the amount of food by stocking only the required ingredients and serving them in quantities that are consumed, not wasted. Both [24,41] concluded that chefs still require training to be able to implement various circular practices in cooking. In addition, ref. [42] noted that even if chefs procure local

and organic food, they do not give much attention to sustainable food preparation and presentation practices.

As mentioned, the concepts of zero waste and food waste management have attracted attention recently. A zero-waste restaurant is defined as one that does not generate any waste and focuses on minimising its carbon footprint [3]. In the restaurant context, ref. [43] tested the implementation of circularity indicators in a zero-waste restaurant to increase understanding of the topic, and [15] mapped the amount of food waste generated in restaurants and identified means to increase its circularity. Consequently, the concept of zero waste is constantly developing as a basis of the circular economy. It centres on holistically managing waste to tackle waste problems in society by considering the whole life cycle of a product and developing and reshaping supply chains [4,44,45]. Still, it is noted that there is also a need for studies related to the waste generated by restaurants and indications for chefs to support them in their daily work [3,22,23].

3. Methodology

This article adopts a qualitative, multiple case study methodology (Table 1), assessing six restaurants that fully embrace a circular economy in their operations. According to [46,47], a multiple case study builds a contextual understanding of a topic by exploring it through in-depth data collection and involving multiple sources of information. In a multiple case study, multiple cases are studied to understand and compare the similarities to show if a finding is replicated [48,49]. This approach is particularly appropriate for answering 'how' questions, understanding how a phenomenon occurs, and illustrating an issue [48]. For these reasons, this methodology was judged to be the best suited for this study.

Table 1. The process of multiple case study analysis.

Step	Activity	Sub-Activity
1	Finding and choosing the case studies	- Definition of the criteria for choosing the case studies - Choosing case studies (n = 6) through an online search
2	Data collection	- Collecting the secondary data through non-academic, online data sources - Transcribing interviews and separating texts from different data sources into a separate file
3	Data analysis	- Inductive coding process - Within-case analysis to identify issues in each case - Cross-case analysis by studying similarities between cases and identifying the themes - Organising the themes into a framework of circular practices

In this article, a case study is considered an intensive study of a small group of pioneer restaurants that fully embrace the circular economy as the cornerstone of their operations. This study carefully and purposefully identified and selected six restaurants as the cases. They are forerunners in adopting the principles of the circular economy and developing their businesses innovatively with a circular mindset. This was used as the primary criterion for selecting the cases since these restaurants were considered particularly suitable for illuminating this phenomenon. These restaurants, Cases A–F, are small, each employing 10–20 people with an owner who is very committed to sustainable values. They are situated in bigger cities in Europe and the United States.

These restaurants were identified through an online search, and the data included a combination of multiple secondary data sources. Since the restaurants have gained significant media attention and their owners are inspired to communicate their mission to the public, a great amount of secondary, non-sensitive data are available online. The data were collected through non-academic sources, mainly online magazine articles and videos on YouTube containing interviews with the restaurant owners. In addition, the restaurants' and restauranteurs' own websites and the restaurants' online reviews were used as data. When analysing the data, the interviews were transcribed, and text related to the research question in all other data sources was separated from the main texts into a separate file.

Pattern-matching logic [47] was utilised in the analysis. Since there is very little prior knowledge of the phenomenon, the analysis started with the data and aimed at identifying patterns that emerged from them. Thus, the data collection was strongly guided by the research question. The codes emerged from the data, i.e., from the phrases and sentences related to circular practices. In other words, an inductive coding approach was used for the analysis to identify patterns, i.e., themes, and build theory from cases. This is a data-driven process of coding the data without fitting them into an existing coding frame [50]. Thus, the analysis was exploratory, starting with no specific theoretical position.

The analytic strategy was to identify issues within each case first and then look for similarities, i.e., common themes across cases. The cases were explored thoroughly by studying these similarities to increase understanding of the phenomenon, i.e., how a circular restaurant operates. The patterns were related to the 'hows' of the case study, and these 'hows' were pattern-matched [47]. In practice, the data were organised into themes that make the logic of the phenomenon visible. The cases were compared to explore what is common between and specific to the selected cases. The analysis resulted in themes providing an integrated framework of circular practices adopted by a circular restaurant.

4. Results

The main circular practices identified that were related to the main restaurant operations were (1) supply chain redesign, (2) circular menu design, (3) closed-loop cooking, and (4) reprocessing the remaining waste. In addition, (5) circular interior design and (6) social capital were recognised as other circular practices in the restaurant setting (Figure 1).

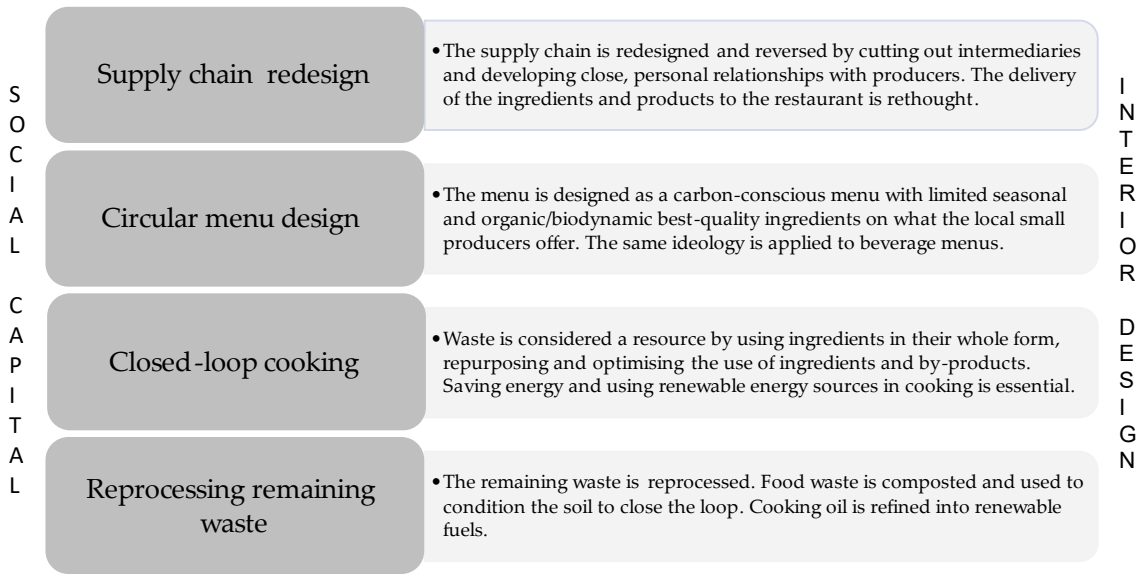

Figure 1. The circular practices adopted by a circular restaurant.

The results show that the main idea behind a circular restaurant is that there is no concept of waste, and the restaurant prevents waste from being created. The selected

restaurants maintain that they do not have a bin because they do not generate anything to throw away. They emphasise that this is not a novel way of operating but is how restaurants used to operate in the pre-industrial food system. The restauranteurs (Cases A and B) commented the following:

> "The massive amount of waste produced by the industry is a problem. We want to solve this problem. Waste has become so normal that we don't even realise what waste is. We are trying to pinpoint what and how we are wasting, how to work, and where the waste was created."

> "The bin is a relatively modern phenomenon; humans created it about 60–70 years ago. We are trying to design it out from the food system."

The restaurants highlight that adopting circular principles requires systemic change. This means the typical supply chain is redesigned and reversed: the menu is often based on what the producers offer, and the restaurant is not demanding to produce what they need. The intermediaries are cut off, and restaurants purchase their ingredients from small local producers (e.g., farmers, fishermen, mills, and breweries) who share their values and are committed to the same environmental objectives. Local in this context means about 100–250 km radius from the restaurant. In other words, the food comes from farm to table from farmers who produce it with respect for biodiversity and regenerative agriculture. This requires personal, close relationships with the producers. The ingredients are ordered daily to keep the food fresh. Indeed, restaurants admit that more effort is needed to collect the ingredients used. Restaurants can also produce their ingredients, e.g., flour, butter, and vegetables, and brew beer in a microbrewery. The restaurateurs (Cases B, C, and D) described this as follows:

> "Every week the producers inform us, what they have available, and then every couple of weeks we change some items on the menu."

> "We work more local suppliers, which match our small footprint ideology."

> "Our food and ingredients are traceable; we purchase them directly from farms and producers since we trust them."

Due to their personal relationships with producers, restaurants can avoid packaging waste. They make the producers rethink how to deliver their products to the restaurant as they do not accept single-use packaged products, especially if they are packaged in plastic. This means that products are delivered in reusable and returnable containers. However, in some cases, if the product is unavailable with no packaging, the package must be compostable. In addition, restaurants have developed innovations, e.g., compostable to-go packaging for customers, zero-waste catering services with returnable bowls, and box systems for producers. This was also maintained by the restauranteurs (Cases A and E):

> "The bakery transports bread by bike in a reusable tin that is returned to them."

> "We do not produce excessive packaging waste, and the ingredients transported here come in reusable containers and cardboard boxes. Moreover, the farmers are getting those right back."

These restaurants believe that the key to a circular transition is circular menu design. A circular menu has limited items and is carbon-conscious. It is seasonal and flexible, meaning that the producers' best ingredients can be introduced. The menu comprises local farmers' best quality, organic, and biodynamic products. In many circular restaurants, the menu is vegetarian, but in some, it also includes a limited number of meat and fish dishes. Fish under threat or at risk are not eaten. It should be noted that the beverage menu is also equally strict and mainly includes organic, small-production wines. Restaurants also collaborate with local breweries to make signature beers and microdistilleries to make liqueurs and infusions for cocktails with local grains and herbs as a base. In these restaurants, the menu is not printed on paper but is displayed via a projector on a wall or written on a chalkboard. This was confirmed by the restauranteurs (Cases C and F):

> "The quality ingredients are locally sourced and 100% seasonal. The menus are evolving to reflect what is at its best and of the moment."

> "Real waste reduction begins with the menu. Every step of the production—from seed to table—begins with ingredients grown to nurture soil health and biodiversity."

The menu is also an expression of closed-loop cooking. This means that everything is made from scratch in the restaurant. Meals are created from ingredients in their whole form without wasting resources, and the use of ingredients is optimised. Food is crafted as restaurants rethink how to use all parts of the ingredients and consider waste as a resource. Parts of the vegetables are repurposed; they are fermented and pickled to turn them into new dishes with the root-to-leaf ideology. When it comes to animals, their entire potential is maximised respectfully with nose-to-tail cooking. In closed-loop cooking, by-products, e.g., malt, are used to create new dishes. For these reasons, restaurants express that their food is 'charismatic' and that cooking requires more creativity. Food is also prepared in an energy-efficient way. The restaurants use renewable energy sources; food can be cooked on live-fire grills. In addition, restaurants feel it is essential to inform customers about the process of creating the dish and the origin of the ingredients. The restauranteurs (Case A, B, and D) proposed the following:

> "Vegetable trim and excess dairy hold leading roles in showcasing what can be created when we reconsider waste as a resource. Things are often totally unrecognisable from their original form, but all utterly delicious."

> "We use the malt to create caramel for milk and ice cream. With creativity and imagination, one can maximise the use of resources."

> "Our recipes are built-in rescue recipes that turn surplus or by-products into delicious dishes."

Finally, the remaining waste is reprocessed. A significant issue in these restaurants is food waste, which is weighed every day. Ingredients and other products are chosen in a way that enables them to be composted. Thus, a small amount of produced waste is composted, and composters are deemed vital to close the loop. Composted soil is returned to the producers to fertilise their fields and begin the cycle all over again. In addition, the used cooking oil can be recycled and converted into biodiesel, for example. The restauranteurs (Cases A and B) maintained the following:

> "The minimal waste between products coming in and dishes going out is natural, and therefore compostable. . .closing the loop. The composter means that we can be zero-waste."

> "One of the key elements, and a crucial one, is our composting system. Turning food scraps and trimmings into material resembling soil can be used as a fertiliser. It is a perfect cycle."

In addition to the aspects related to food, the décor of the restaurants features a circular interior design. Restaurants rethink product design and transform materials that would have been wasted into new products by upcycling and giving them a new life. Indeed, they state that their main goal is to furnish the interiors without using new materials. For example, crushed wine bottles are turned into crockery or wall lights. Chairs and tables are purchased second-hand or built from used materials, and work clothes are made from recycled textiles. In practice, restaurants collaborate with designers and artisans to turn waste and regenerative materials into life-long utensils, furnishings, work clothes, and furniture. One restauranteur (Case A) stated the following:

> "The décor is a showcase for sustainable design. Materials that would have otherwise been wasted have been crafted innovatively to create functional, beautiful designs. Almost every material is a bespoke design made from waste or regenerative materials."

The results show that a thriving circular economy also contributes to social objectives and many social practices related to social capital, e.g., employment, well-being, training, diversity, equal opportunity, and fairness. The restaurants have created new models for employee compensation and staffing. For example, employees can receive a certain percentage of the profits. In some cases, they also receive free childcare. These restaurants do not have the typical restaurant hierarchy. New employees are not hired for a specific role in the team. They are cross-trained to work in each role to nurture a culture of respect. Restaurants also hire young people without work experience and employ immigrants. They also expressed that having a balanced life is essential to ensure the well-being of employees. For example, the restauranteurs (Case B and C) said the following:

> "Social aspect is essential to understand. To take care of the well-being of our team. That they have time to rest."

> "Team members are cross-trained to excel at each position. We aim to cultivate a culture of respect and empathy for each position and role. The restaurant does not have a chef—instead, each staff member greets guests, pours wine, and assembles food equally."

In addition, restaurants highly value serving their community. They donate money to local nonprofit organisations and charities. They work for social organisations to revive the cooking heritage and minimise food waste. Furthermore, restaurants aim to educate and inspire their community about circular practices and values and give a new perspective on eating: why it is vital to reduce environmental impact and how everybody can contribute by recycling, composting, and having a healthier diet. They also want to work against using products that harm people and the world. The restauranteurs (Cases C and F) explained this as follows:

> "This is much more than about a restaurant. It is a community to encourage others to go waste-free too."

> "I want to run a business that stands for more. As an entrepreneur, I aim to provide income for many employees and give back to the local community in need."

5. Discussion

The identified circular practices align with the definition given in [33] of the circular economy as an economic model wherein planning, procurement, production, and reprocessing are designed and managed to maximise ecosystem functioning and human well-being. The results show that a circular restaurant designs circular menus, redesigns and reverses the supply chain, is committed to closed-loop cooking, and reprocesses the remaining waste. In addition, a circular restaurant features a circular interior design and embraces its social capital. As noted by [36], these practices minimise waste and maximise the use of materials by considering the whole chain of actors and operations.

Thus, the results suggest that a circular restaurant is characterised as part of a system of like-minded actors contributing to a better future and making change jointly. A circular restaurant is a crucial actor in this system and can make other value chain members rethink their operations and engage them in the circular transition. It can also activate its community to accelerate this transition. By adopting circular practices, restaurants contribute to a healthier planet and position themselves as forward-thinking and responsible entities in the eyes of their customers and the wider community.

Indeed, the results shed light on the importance of the social objectives of a circular economy, not only from the perspective of employees but also from the perspective of the customers and community in a restaurant setting, which is generally lacking in previous studies. Restaurants can educate consumers about sustainable eating practices, influence consumer preferences, and promote a more sustainable food culture. Furthermore, the principles of a circular economy in the restaurant industry have the potential to reshape the dining experience itself. This could manifest in the design and ambiance of the restaurant, where circularity becomes part of the aesthetic and storytelling, offering customers a dining

experience that is not only gastronomically fulfilling but also environmentally and socially conscious.

In previous studies [2,22], developing sustainable menus, procuring local ingredients, and managing food waste are seen as the main circular practices that contribute to the circular economy in the restaurant setting. The results of this study go beyond previous studies, showing that, additionally, the production and preparation phase in the restaurant, i.e., closed-loop cooking, is a critical circular practice that needs more attention. A circular economy in restaurants involves innovative approaches to ingredient selection and waste reduction, but it is also about enhancing the value of ingredients and promoting biodiversity and ecological balance.

The increasing need for closed-loop cooking arises due to the impacts of climate change on food safety. Restaurants may no longer be able to plan their menus months in advance but instead must adapt to day-by-day planning. This is not just about what restaurants want to serve customers but also what they can offer based on available resources. Food resources may become scarce, and ordering from a set list may no longer be feasible. Instead, restaurants must work with what they have and create dishes from limited ingredients. This scenario can lead to increased purchasing costs, putting pressure on chefs. Chefs must be adaptable, skilled in different cooking techniques, and treat ingredients carefully and respectfully, making the most of what is available. However, the challenges for restaurant owners are even more significant as they must find and attract chefs with these competencies in a highly competitive job market. This competition could result in higher wages and benefits for chefs.

Furthermore, it should be noted that technology integration plays a crucial role in the circular transition, and digital transformation influences restaurant products and processes [51]. From inventory management systems that reduce food waste to energy-efficient appliances that minimise the restaurant's carbon footprint, technology can help streamline operations and make them more sustainable and circular. Technology could be essential in new business models aligning with circular economy principles, e.g., facilitating collaboration with food producers, suppliers, and waste management companies to create closed-loop systems. However, the role of digitalisation was not emphasised in previous studies nor in the results of this study. This means that the role of digital technology in supporting restaurants' circular journeys should be explored more deeply.

6. Conclusions, Implications, and Limitations

This paper adds to the body of research on the circular economy concept in the restaurant industry. The results advance existing knowledge by showing that a circular restaurant can be defined as a restaurant based on a systemic design that eliminates waste, keeps materials in circulation, and protects the environment. The results demonstrate that the movement towards a circular economy in the restaurant sector is holistic, encompassing environmental considerations and social and economic aspects. It requires a shift in mindset, where circularity becomes an integral part of the culinary experience.

The practical implications of these results for chefs and restaurants are profound. Chefs can lead the transition to a more circular food system by adopting circular practices. To accomplish this, chefs should be educated about closed-loop cooking: using ingredients to their fullest potential and including by-products to derive flavour and value. Chefs should also be trained to champion indigenous foods and commit to cooking with traditional methods, contributing to nutritional diversity and more efficient food systems, and minimising energy usage. By using traditional cooking methods that require less processed energy, for example, using locally sourced wood, the carbon footprint associated with cooking can be reduced. The emphasis in training should also be on using local, seasonal ingredients for local economies to thrive, reducing the carbon footprint of transporting food, and rethinking the delivery of food to avoid packaging waste. By maintaining traditional culinary practices and using local ingredients, chefs also contribute to preserving

cultural heritage. This training should also extend to restaurant staff, fostering a culture of sustainability and circularity within the industry.

It should be highlighted that this study deals with pioneer restaurants in the circular economy. The restaurant owners have a circular mindset, and the circular economy is integrated across the restaurant operations. However, all restaurants can incorporate single circular economy practices to start their circular journey. For 'normal' restaurants looking to integrate circularity, the first simple steps can include tracking and monitoring their sources of waste to choose a specific area for improvement and identify their main challenge. This can relate to excessive preparation, packaging, or plate waste, for example. Depending on the challenge, a restaurant could innovate its menu to creatively use all parts of ingredients, partner with local suppliers to source food and reduce single-use plastics, or compost organic waste. During the journey, the waste can be weighed regularly to see the improvement.

The insights from this case study can be used as propositions in further research. It will be important for future research to continue to investigate circular practices in a restaurant setting from multiple perspectives. As food waste management is already a well-researched topic, it is essential to explore other vital themes more deeply, e.g., circular menu design and closed-loop cooking, as they are identified as crucial practices in circular transition in restaurants. Future studies should also estimate the environmental impacts of circular practices in different types of restaurants as their challenges in circular transformation vary. Thus, tools for this purpose are needed, and developing circular economy indicators for the industry to monitor and evaluate how restaurants are transitioning toward a circular economy could be an important research topic, cf. [52]. In addition, it is critical to analyse the skills gaps related to these themes to develop relevant training for chefs to increase their skills in circular economy and its implementation in the restaurant industry.

In summary, the results show how the transition to a circular economy in the restaurant sector has already begun, and restaurants must adapt to these changes to succeed. It is more than just a shift in practices; it represents a fundamental change in how restaurants conceive their role in the broader environmental and social ecosystem. As this movement gains momentum, restaurants embracing circular economy principles set new benchmarks for sustainability and resource efficiency in the food industry. For chefs and restaurant owners, this shift involves embracing a new culinary ethos that values sustainability as much as it does taste and presentation. It is about seeing the kitchen as a place of innovation, where circular practices become the norm rather than the exception.

Author Contributions: All authors made substantial contributions to the manuscript. S.-M.R.: conceptualisation, methodology, writing, and critical review. T.W.: conceptualisation, writing, and critical review. All authors have read and agreed to the published version of the manuscript.

Funding: This study was conducted within the framework of the project "Ce4Re—Development of joint circular solutions in the CB restaurant sector", number CB0100058, financed by the European Union Interreg Central Baltic programme.

Institutional Review Board Statement: Not applicable. The study was conducted using open, online materials accessible by all. No persons were interviewed in the study.

Informed Consent Statement: Not applicable.

Data Availability Statement: Data are contained within this article.

Conflicts of Interest: The authors declare no conflicts of interest.

References

1. Manniche, J.; Larsen, K.T.; Broegaard, R.B. The circular economy in tourism: Transition perspectives for business and research. *Scand. J. Hosp. Tour.* **2021**, *21*, 247–264. [CrossRef]
2. Bux, C.; Amicarelli, V. Circular economy and sustainable strategies in the hospitality industry: Current trends and empirical implications. *Tour. Hosp. Res.* **2023**, *23*, 624–636. [CrossRef]

3. Principato, L.; Di Leo, A.; Mattia, G.; Pratesi, C.A. The next step in sustainable dining: The restaurant food waste map for the management of food waste. *Ital. J. Mark.* **2021**, *2021*, 189–207. [CrossRef]
4. Zaman, A.U. A comprehensive review of the development of zero waste management: Lessons learned and guidelines. *J. Clean. Prod.* **2015**, *91*, 12–25. [CrossRef]
5. Nyberg, M.; Börjesson, S.-M.E.; Höijer, K.; Olsson, V.; Rothenberg, E.; Wendin, K. Circular gastronomy—Exploring a new compound concept at the interface between food, meals and sustainability. *Int. J. Gastron. Food Sci.* **2022**, *30*, 100610. [CrossRef]
6. Principato, L.; Pratesi, C.A.; Secondi, L. Towards zero waste: An exploratory study on restaurant managers. *Int. J. Hosp. Manag.* **2018**, *74*, 130–137. [CrossRef]
7. Eurostat. Food Waste and Food Waste Prevention by NACE Rev. 2 Activity—Tonnes of Fresh Mass. 2023. Available online: https://ec.europa.eu/eurostat/databrowser/view/ENV_WASFW/bookmark/table?lang=en&bookmarkId=6231196e-cf3c-4e0b-88ce-a7eb958f6e3e&page=time:2021 (accessed on 29 December 2023).
8. Madanaguli, A.; Dhir, A.; Kaur, P.; Srivastava, S.; Singh, G. Environmental sustainability in restaurants. A systematic review and future research agenda on restaurant adoption of green practices. *Scand. J. Hosp. Tour.* **2022**, *22*, 303–330. [CrossRef]
9. Tehrani, M.; Fulton, L.; Schmutz, B. Green Cities and Waste Management: The Restaurant Industry. *Sustainability* **2020**, *12*, 5964. [CrossRef]
10. Robinson, E.; Gordon, R.; McAdams, B. Assessing the current sustainability initiatives of Canadian SME restaurants. *J. Hosp. Tour. Insights* **2023**. *ahead of printing*. [CrossRef]
11. Higgins-Desbiolles, F.; Moskwa, E.; Wijesinghe, G. How sustainable is sustainable hospitality research? A review of sustainable restaurant literature from 1991 to 2015. *Curr. Issues Tour.* **2017**, *22*, 1551–1580. [CrossRef]
12. Einarsson, S.; Sorin, F. *Circular Economy in Travel and Tourism: A Conceptual Framework for a Sustainable, Resilient and Future Proof Industry Transition*; CE360 Alliance: Horsham, UK, 2020.
13. Vargas-Sánchez, A. The new face of the tourism industry under a circular economy. *J. Tour. Futur.* **2021**, *7*, 203–208. [CrossRef]
14. Davies, S.J.; Egas, J.L. Do social corporate responsibility initiatives help to promote circular economic activity and quality of work life for employees? *Worldw. Hosp. Tour. Themes* **2022**, *14*, 221–235. [CrossRef]
15. Sehnem, S.; Pereira, L.H.; Santos, S., Jr.; Bernardy, R.J.; Lara, A.C. Management of food waste in restaurants by way of circular practices. *J. Mater. Cycles Waste Manag.* **2022**, *24*, 1020–1036. [CrossRef]
16. Arun, T.; Kaur, P.; Ferraris, A.; Dhir, A. What motivates the adoption of green restaurant products and services? A systematic review and future research agenda. *Bus. Strat. Environ.* **2021**, *30*, 2224–2240. [CrossRef]
17. Jeong, E.; Jang, S. Effects of restaurant green practices: Which practices are important and effective? Emerging issues and trends in hospitality and tourism research. In Proceedings of the Caesars Hospitality Research Summit, Las Vegas, NV, USA, 8–10 June 2010.
18. Moon, S.J. Investigating beliefs, attitudes, and intentions regarding green restaurant patronage: An application of the extended theory of planned behavior with moderating effects of gender and age. *Int. J. Hosp. Manag.* **2021**, *92*, 102727. [CrossRef]
19. Perramon, J.; del Mar Alonso-Almeida, M.; Llach, J.; Bagur-Femenías, L. Green practices in restaurants: Impact on firm performance. *Oper. Manag. Res.* **2014**, *7*, 2–12. [CrossRef]
20. Nocca, F.; Bosone, M.; De Toro, P.; Girard, L.F. Towards the Human Circular Tourism: Recommendations, Actions, and Multidimensional Indicators for the Tourist Category. *Sustainability* **2023**, *15*, 1845. [CrossRef]
21. Kaszás, N.; Keller, K.; Birkner, Z. Understanding circularity in tourism. *Soc. Econ.* **2022**, *44*, 65–82. [CrossRef]
22. Camilleri, M.A. Sustainable Production and Consumption of Food. Mise-en-Place Circular Economy Policies and Waste Management Practices in Tourism Cities. *Sustainability* **2021**, *13*, 9986. [CrossRef]
23. Filimonau, V.; De Coteau, D.A. Food waste management in hospitality operations: A critical review. *Tour. Manag.* **2019**, *71*, 234–245. [CrossRef]
24. Reardon, J. *Chefs' Perceptions of Zero Waste Cooking in Restaurants*; University of Arkansas: Fayetteville, AR, USA, 2020.
25. Prieto-Sandoval, V.; Jaca, C.; Ormazabal, M. Towards a consensus on the circular economy. *J. Clean. Prod.* **2018**, *179*, 605–615. [CrossRef]
26. Sorin, F.; Sivarajah, U. Exploring Circular economy in the hospitality industry: Empirical evidence from Scandinavian hotel operators. *Scand. J. Hosp. Tour.* **2021**, *21*, 265–285. [CrossRef]
27. Sheldon, P.J. The coming-of-age of tourism: Embracing new economic models. *J. Tour. Futur.* **2021**, *8*, 200–207. [CrossRef]
28. Preston, F. *A Global Redesign? Shaping the Circular Economy*; Energy, Environment and Resource Governance; Briefing Paper; Chatham House: London, UK, 2012.
29. Urbinati, A.; Chiaroni, D.; Chiesa, V. Towards a new taxonomy of circular economy business models. *J. Clean. Prod.* **2017**, *168*, 487–498. [CrossRef]
30. Ghisellini, P.; Cialani, C.; Ulgiati, S. A Review on Circular Economy: The Expected Transition to a Balanced Interplay of Environmental and Economic Systems. *J. Clean. Prod.* **2016**, *114*, 11–32. [CrossRef]
31. Kirchherr, J.; Reike, D.; Hekkert, M. Conceptualizing the circular economy: An analysis of 114 definitions. *Resour. Conserv. Recycl.* **2017**, *127*, 221–232. [CrossRef]
32. Korhonen, J.; Honkasalo, A.; Seppälä, J. Circular Economy: The Concept and its Limitations. *Ecol. Econ.* **2018**, *143*, 37–46. [CrossRef]

33. Murray, A.; Skene, K.; Haynes, K. The Circular Economy: An Interdisciplinary Exploration of the Concept and Application in a Global Context. *J. Bus. Ethics* **2017**, *140*, 369–380. [CrossRef]
34. Jurgilevich, A.; Birge, T.; Kentala-Lehtonen, J.; Korhonen-Kurki, K.; Pietikäinen, J.; Saikku, L.; Schösler, H. Transition towards Circular Economy in the Food System. *Sustainability* **2016**, *8*, 69. [CrossRef]
35. Erälinna, L.; Szymoniuk, B. Managing a Circular Food System in Sustainable Urban Farming. Experimental Research at the Turku University Campus (Finland). *Sustainability* **2021**, *13*, 6231. [CrossRef]
36. Grèzes-Bürcher, S.; Grèzes, V. Designing a Sustainable, Circular Culinary System. *Circ. Econ. Sustain.* **2023**, 1–23. [CrossRef]
37. Gössling, S.; Hall, C. Sustainable culinary systems: An introduction. In *Sustainable Culinary Systems: Local Foods, Innovation, Tourism and Hospitality*; Hall, C., Gössling, S., Eds.; Routledge: Abingdon, UK, 2013; pp. 3–44.
38. Rodríguez-Antón, J.M.; Alonso-Almeida, M.d.M. The Circular Economy Strategy in Hospitality: A Multicase Approach. *Sustainability* **2019**, *11*, 5665. [CrossRef]
39. Auwalin, I.; Rumayya; Sari, F.R.; Maulida, S.R. Applying the Pro-Circular change model to restaurant and retail businesses' preferences for circular economy: Evidence from Indonesia. *Sustain. Sci. Pract. Policy* **2022**, *18*, 97–113. [CrossRef]
40. Bowen, R.; Dowell, D.; Morris, W. Hospitality SMEs and the circular economy: Strategies and practice post-COVID. *Br. Food J.* **2023**, *126*, 80–97. [CrossRef]
41. Filimonau, V.; Chiang, C.-C.; Wang, L.-E.; Muhialdin, B.J.; Ermolaev, V.A. Resourcefulness of chefs and food waste prevention in fine dining restaurants. *Int. J. Hosp. Manag.* **2023**, *108*, 103368. [CrossRef]
42. Huang, Y.; Hall, C.M.; Chen, N. The sustainability characteristics of Michelin Green Star Restaurants. *J. Foodserv. Bus. Res.* **2023**, 1–26. [CrossRef]
43. Dantas, T.E.T.; Amaral, L.F.S.; Soares, S.R. Combining Organizational Life Cycle Assessment with Company-Level Circularity Indicators: Case Study of a Vegan Zero-Waste Restaurant. *Environ. Eng. Sci.* **2022**, *39*, 834–846. [CrossRef]
44. Awasthi, A.K.; Cheela, V.S.; D'adamo, I.; Iacovidou, E.; Islam, M.R.; Johnson, M.; Miller, T.R.; Parajuly, K.; Parchomenko, A.; Radhakrishan, L.; et al. Zero waste approach towards a sustainable waste management. *Resour. Environ. Sustain.* **2021**, *3*, 100014. [CrossRef]
45. Pietzsch, N.; Ribeiro, J.L.D.; de Medeiros, J.F. Benefits, challenges and critical factors of success for Zero Waste: A systematic literature review. *Waste Manag.* **2017**, *67*, 324–353. [CrossRef]
46. Creswell, J.W.; Hanson, W.E.; Plano, V.L.C.; Morales, A. Qualitative Research Designs. *Couns. Psychol.* **2007**, *35*, 236–264. [CrossRef]
47. Yin, R. *Case Study Research and Applications. Design and Methods*, 6th ed.; Sage: Thousand Oaks, CA, USA, 2018.
48. De Massis, A.; Kotlar, J. The case study method in family business research: Guidelines for qualitative scholarship. *J. Fam. Bus. Strat.* **2014**, *5*, 15–29. [CrossRef]
49. Gustafsson, J. Single Case Studies vs. Multiple Case Studies: A Comparative Study. Bachelor's Thesis, Academy of Business, Engineering and Science, Halmstad University, Halmstad, Sweden, 2017.
50. Braun, V.; Clarke, V. Using thematic analysis in psychology. *Qual. Res. Psychol.* **2006**, *3*, 77–101. [CrossRef]
51. Alt, R. Digital Transformation in the Restaurant Industry: Current Developments and Implications. *J. Smart Tour.* **2021**, *1*, 69–74. [CrossRef]
52. Fassio, F.; Chirilli, C. The Circular Economy and the Food System: A Review of Principal Measuring Tools. *Sustainability* **2023**, *15*, 10179. [CrossRef]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.