

Saimaa University of Applied Sciences  
Tourism and Hospitality Management Faculty, Imatra  
Degree Program in Tourism and Hospitality Management

Nguyen Vien Mai

## **Sustainability of a Zero-Waste Restaurant. Case: Nolla Restaurant, Helsinki.**

Thesis 2019

## **Abstract**

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Instructor: Mr Jukka Moilanen, Senior Lecturer, Saimaa University of Applied Sciences

The research aims at identifying currently applied practices of Nolla – the first zero-waste restaurant in Finland as well as in the Nordic countries - in order to draw conclusion on the degree to which this concept will be viable not only environmentally but also economically. Conducting the research provides information for sustainability interest, potential entrepreneurs who are concerned about industrial morality plus responsible citizens who are willing to pay their contribution to rectify human damage on the planet.

Data were collected from books, the Internet and an interview with Luka Balac – one of Nolla's founders - to project a well-rounded picture of how the catering industry functions concerning waste, carbon footprint and how Nolla's principles are tackling industrial issues. One additional part of the research is to compare Nolla's principles with Silo's, a restaurant that runs the same concept in Brighton UK.

The result indicates that Nolla operates successfully in terms of their initial purpose which is serving organic, healthy, seasonal food profitably without releasing pressure on the planet's wellbeing. Communicating the concept and its ideology to broad publicity might refine people's perception on sustainability.

Keywords: zero-waste, food waste, carbon footprint, sustainable, organic, composting, upcycle, packaging, disposables, perception.

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### Appendix 1 Interview Transcribe Luka Balc 2018

# **1 Introduction**

## **1.1 Justification for researching the topic**

The average restaurant produces around 70,000 kg of waste each year (Restaurant Nolla). Waste handling is a mutual issue facing the human race, in which the catering industry is contributing its own portion of threat as well as solution. Attempting to solve this problem places a restaurant not only in an economically favorable position but also in equal momentum of global tendency.

Larger amount of waste increases cost which in turn lessens profitability and represents deficit in management. A zero-waste restaurant revolutionizes their management process in order to maximize profit as well as pioneer the industry towards a sustainable future. This business model incorporates state of the art technologies into their operation, optimizes their resources and works closely with local providers to offer the best quality both of health and flavor experience.

The mechanism of this business model propagates into all partners cooperating, from farmers, providers, competitors to even customers. It bears a positive and meaningful message that sustainability is possible economically as well as environmentally. All the other industries are moving towards this direction as nature reservation currently attracts mass attention and stands the number one priority globally.

Nolla is the first zero-waste restaurant in the Nordic countries (Restaurant Nolla). Another restaurant that opened earlier and has the same concept is Silo in the UK. This zero-waste practice is still in its developing stage in order to be utterly complete and to have the convincing power for the whole industry to adopt. Further observation and research will provide systematic insights, also act as a media channel to promote the concept and to raise interest among current as well as potential entrepreneurs.

Conducting the research reflects restaurant's theoretical practices into real operation amid the immediate business context, and simultaneously resolves the researcher's concern of natural degradability while working in her profession.



## **1.2 Aims and delimitations of research**

The research aims at investigating currently applied practices of Nolla, how the restaurant functions within its business environment and how its communication affects different parties involved in their operation. These practices are then analyzed on how they solve the industry problems and their practical extent on future mass application. Projecting challenges entailed is another important purpose of the research enabling a well-rounded picture, facilitating interested party fair judgements and preparing them for future obstacles.

The research focuses waste problem on cost and management proficiency, in which environmental sustainability closes the loop, acting as the reason as well as the desired result.

## **1.3 Research method**

The main target of the research is Nolla restaurant. As the target is the one and only case, therefore qualitative method is particularly suitable. The main source of information is an interview with Nolla's start-up executives. Further observation and information analysis will help drawing conclusions. Comparison between Nolla and Silo practices will reinforce the formation of the research as well as provide diverse applications of the same concept.

## **1.4 Thesis report structure**

The report commences by introducing waste issue in the catering industry on two facets, environment and economics. The next chapter represents traditional recommendations concerning reducing waste in conventional catering entities. After depicting a landscape of the temporary industry, the report proposes Nolla's solution regarding eliminating 100% waste from food serving operation. To reinforce the zero-waste viability, another example is drawn for comparison, namely Silo – a restaurant with the same concept based in Brighton UK. The last notion - conclusion chapter follows on the foundation of previous chapters.

## 2 Waste issue in restaurant industry

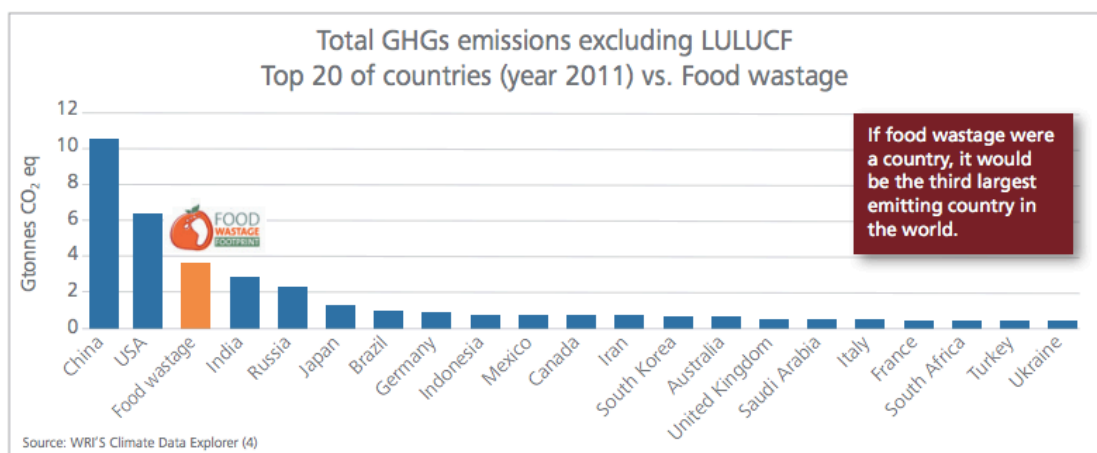
### 2.1 Environmental impact

*The UN estimates global food waste causes about \$940bn (£770bn) a year in economic losses. It says a third of the world's food is wasted while one in nine people remain malnourished. (Smithers 2019.)*

*According to the European Commission, 88 million tonnes of food are wasted annually in the European Union. That is about 143 billion euros and 3.3 gigatonnes of CO<sub>2</sub> emissions. (Negulescu 2017.)*

*Restaurants and supermarkets in Finland alone throw away 150-200 million kilos of food every year (Haaramo 2016).*

According to Food and Agriculture Organization (FAO 2011) of the United Nations, carbon footprint generated from food waste was approximately 3.6 Gt CO<sub>2</sub>, omitting land use change. If this figure is added by 0.8 Gt CO<sub>2</sub> from deforestation and managed organic soils, the total impact equals 4.4 Gt CO<sub>2</sub> annually, about 8% of total anthropogenic GHGs emissions. Such amount almost equates international road transport emissions in accelerating global warming. Illustrating serious environmental destruction of food misuse, the following chart presents top 20 countries associating GHGs emissions compared to food wastage.



Graph 1. Top GHGs emissions

These numbers are awakening to all consumers, business sectors and government officers worldwide as food waste is not only an ethical dilemma but also pricey economically as well as environmentally. All resources contributing to production and delivery until food is served on the tables go with it to the bin at the same minute, not to mention the waste handling cost afterwards. Energy consumption, water consumption, land use, human labors as well as the resources to maintain these labors are misspent. That describes only the starting point of the food waste sequence. Full garbage bins are transported to landfill sites, where many people assume that this bio-waste will degrade eventually. In fact, food waste decomposition rate in landfill is relatively low, around 25-50% over the period of 10 to 15 years. Residue of this waste has been found roughly unimpaired under these landfills in spite of many passed by years (Hoffmaster 2018.). The problem accelerates as landfill is a zero-oxygen environment where degrading organic matters release not only carbon dioxide - CO<sub>2</sub> but even more threatening, methane – CH<sub>4</sub>, a heat trapping gas about 30 times stronger than CO<sub>2</sub> in the course of a century (Pearson 2018).

Another kind of waste no less hazardous is the packaging that accompanies this gigantic amount of food. Their natural resource consumption together with indecomposable feature furtherly harass the ecosystem well-being and expose our guilty verdict on selfish negligent habit: massive, fast and convenient mechanism.

## **2.2 Business impact**

A study by University of Arizona announces that 9.55% of food purchased in fast-food restaurants is binned and this rate amounts to 11.3% in full service restaurants (Behmen–Milicevic). If this 9.55-11.3% rate belongs to 25-35% operating cost spent on food is wasted, restaurateurs now have a reason to vigorously eliminate this extravagance. Food purchase is the second largest expense in any catering business, following personnel payment. (Behmen–Milicevic.)

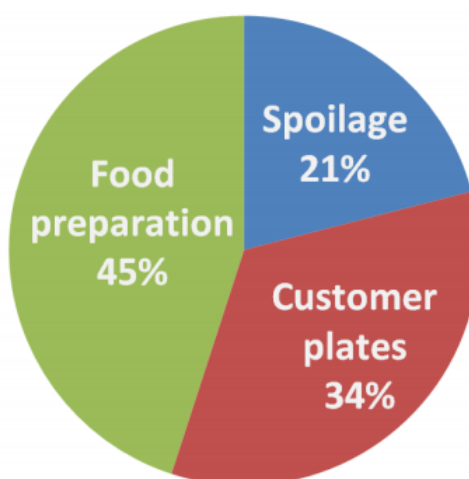
Champions 12.3 (a waste tackling coalition of executives from government, businesses, international organizations, research institutes, farmer groups and

civil society) conducted a study on 114 small-to-multi-million-dollar restaurants from 12 different countries on food waste analysis and reduction impact. The result indicates that with every \$1 invested in reducing waste, an average restaurant saves \$7 in return. Twenty-six percent of food waste is eliminated after the first year of action, where 75% of these restaurants were able to redeem their total investment. Within the second year, this number rises to 89% of entities recouping their funding. All restaurants participating in this study managed to keep their investment under \$20,000. (Champions 12.3.)

These figures confirm that reducing waste not only provides a better perspective of the planet but also offers optimal business operation. In the effort of enabling waste correction, business holders are forced to review their establishments where deficiencies are recognized, misuse is rectified, and awareness is enforced to all relating entities.

### **3 Generally recommended waste-reduced practice**

According to WRAP – Waste and Resources Action Programme (2018), there are three main sources of food waste in a restaurant, each has its own contribution share.



Graph 2. Food waste origin

Knowing the origins of food waste will suggest restaurateurs potential practices that optimizing their management system where usage and storage of ingredients, as well as menu design eliminate food misuse to the greatest extent. Restaurant owners can investigate their cost structure at the same time which facilitates a systematic redesign that maximizes profit proportion and rectifies management deficit.

Aside from food misuse, the catering industry also accounts for indissoluble packaging which layered the cost for both input as well as output handling, not to mention its environmental morality issue.

### **3.1 Waste audit**

Waste audit can be defined as systematically recording the origin, types and amount of waste in accordance with the purchasing amount, the number of customers as well as seasonal business position.

To conduct a waste audit, restaurateurs can provide employees a food log system where they can record what, why and how much is binned, at which time of the day. This can also be classified as food that is wasted in the preparing phase compared to left-over from customers' plates. Aside from food logging, traffic logging provides the framework where these waste scenarios occur. By documenting the quantity of customers at specific time, date and even weather status, restaurants will be able to precisely speculate future situation which leads to better decision-making in terms of purchasing, trends, menu, or marketing. Tracking these factors on a long-termed basis contributes to a clear view of how the business operates over its lifetime, both ups and downs depicted. (WebstaurantStore 2018.)

Nowadays, solution providers offer waste tracking system (WINNOWN for example) on electrical devices supporting not only waste tracking but also inventory management. These apps will free your employees from the troubles of pen and paper, as well as automatically produce reports to aid your action.

### **3.2 Menu design**

The menu, besides from waiting staff, is the communicator of a restaurant business that presents its product, not only on a material level but also on conceptual perspective. The fashion that a menu fabricated conveys its restaurant atmosphere, theme, and naturally its quality standard. The first requirement of a menu is a precise food description where customers obtain an accurate image of their order; therefore, minimizes sending-back scenario, which prevents customer dissatisfaction as well as waste accumulation.

Menu is the beginning and the end of raw material use. Menu design determines the diversity of dishes, number of items, price ratio, as well as portion size. Menu investigation on a regular basis provides the potential of each item on the menu, which one is regularly ordered, which one just sits on the menu without actual selling. This process informs elimination or improvement on the dishes with low order rate. Another issue is the profit proportion of each item. Some items are less profit-making but sell in high quantity, while others might have a high profit percentage where the occasion of purchase is humble. A balance between these types of dish provides a diverse enough menu to attract customers and simultaneously optimize financial return. A reasonable range of dish on the menu dictates an easy-to-manage inventory list with particular purchased amount. Another way to limit inventory items is using versatile ingredients, which leads to larger purchase, decreased potential spoilage, not to mention single unit packaging reduction. (Baskette 2001, pp. 201-203.) Detailed practice on inventory concern will be discussed in the next chapter.

Aside from waste originating from food preparation and spoilage, excessive portion size is another outlet of extravagance. Offering different choices of portion size or calculating a reasonable one based on the waste audit result will provide customers more appealing price so as to minimize left-over. Standardize the menu by scaling each portion to ensure that every dish is delivered consistently with time and to avoid complaints concerning food amount (WebstaurantStore 2018). Due to a consumer survey by WRAP (2018), 38% of participants suggest various portion size options to reduce on-plate food waste.

### **3.3 Inventory management**

The restaurant menu produces a detailed list of ingredients to be purchased, while the waste audit report equips the person in charge useful data to calculate exactly the amount of each item to be ordered. Meticulous calculation decreases extra cost, unnecessary purchase that causes spoilage. Lasting time of different types of ingredient varies, which also controls the amount of order and time interval between each order. Inventory tracking app presents items in shortage that need to be refilled or items approaching their expiration date to be used immediately.

When making purchasing decision, utility should be considered instead of buying extra for an enticing deal. The spoilage resulting from this is dollar wasted instead of saved. Sourcing reliable providers also prevents businesses from inadequate product that decays quickly or requires excessive trimming before being on the stove. Examine the delivery carefully to ensure that quality and exact ordered items are fulfilled.

Beside managing inventory electrically, physical display plays an important role in rotating food in appropriate order. Label the food in terms of weight, date of purchase, date of potential expiration gives employees a direction of usage order. Placing new delivery on one side and older one on the other enables FIFO - first in first out practice. Following this order, the storage stays fresh and away from spoilage.

Different types of ingredient require specific storing conditions, which if properly followed will prolong the freshness and flavor of the food. Stable temperature, appropriate container as well as preparation all contribute to longer product lasting time. Educating staff members well on storing procedure and practice reduces avoidable extra cost.

### **3.4 Food preparation**

Food preparation is another outlet of waste where excessive food trimming or unaware ingredient use produces extra thrown-away. Raw materials arriving need to be preprocessed, cut into portions or trimmed away the uneaten part.

Instead of buying whole-bodied raw materials, pre-trimmed or pre-portioned selection is recommended to reduce the preparation time, extra labor as well as waste produced from cut away part. In cases where trimming is unavoidable, raising chef's awareness together with encouraging creative utilization of normally unused part enhance the chef's engagement in their job and waste reduction simultaneously. (Baskette 2001, pp. 201-203.) Food display or decoration can be excessive if no standardization is applied. Simple yet elegant garnish uniform optimizes time, labor and material cost, not to mention visual appetite. Flexible use of the above mentioned unused part in display, decoration or soup broth resolves both issues in combination.

In addition, investing in high quality kitchen equipment reduces the preparation time, enhances precise movement in cutting, trimming technique. These seemingly small impacts accumulate long-term benefits.

### **3.5 Leftover management**

The ideal of 100% food preparation being consumed and sold due to estimation seems impractical. Therefore, planning for leftover beforehand prevents perfectly qualified ingredients from being thrown-away by utilizing them in next day specials or repurposing them into new dishes. Suggestion for meat is being reused in sandwiches, soup broth, or special sauce to go with bread or pasta. Salad items can enhance flavor for casserole, soup or decoration. Inventively repurposed leftovers promote menu versatility, which fascinates customer in their selection, that consequentially results in increasing sales and profits. (Baskette 2001, pp. 204,205.) Despite proper planning, some items cannot be converted into new dishes where other solutions will apply.

Food waste increasingly appears to be a mutual issue in society, especially when the amount of food being binned does not comply with global malnutrition. As a result, app developers are offering public platforms for catering entities to donate their food or sell them at a discounting price. These platforms combine both restaurateur's and consumer's benefits while simultaneously ease the environmental burden that food waste puts on the planet. **ResQ Club** is a food rescue service launched in Helsinki in January 2016 where restaurants and



hotels can promote their surplus meals that are still in great condition on **ResQ** mobile app or web service by 40-60% discount. Customers are then able to see available meals, make an order, pay and pick up the food. These meal listings can be classified by restaurant names, food types, therefore, offer customers opportunity to customize due to their preferences. (Haaramo 2016.)

Providing staff meal is another simple solution on surplus food that expands employee benefits while cutting waste at the same time.

The remaining in the bio-bin can be dropped off at composting sites or donated for animal feeding. Composting is the process of turning organic waste into nutrients for the soil (Compost 2019). This eliminates waste that otherwise will proceed to landfills, instead returning bio-ingredients to the nature to grow better harvest as a closed cycle.

### **3.6 Anti-disposables**

Besides organic waste, the catering industry is responsible for a tremendous amount of disposable trash, which results from fast, convenient, mass produced and low-cost preference. Favorable as it appears to be, these instant benefits are depleting natural resources, occupying other creature habitat and landfills, not to mention its irreversible impacts on the eco-system.

Catering entities should work with providers that use returnable, reusable transit packaging, start serving drinks on tap, eliminate one-time utensils and adopt recycled containers. In case single-use disposables are unavoidable, biodegradable or recyclable option works as environmental friendly alternatives. Further solution is to develop a rewarding system that encourages customers to bring their own containers, to-go cups or promote merchandise for this purpose.

### **3.7 Staff communication**

Well-educated staff who are aware of their action on environmental impact as well as organizational profitability will put all of these practices into reality. The organization responsibility is to provide a straightforward guidance on how and why. Staff training with standardized work task procedure will direct employee daily action. Employees should understand the organization goals and

perspective on environmental so as to economical prospect. By prospering in their job, they reinforce their organization success, which accordingly secures their long-term well-being.

#### **4 Case study: Nolla Restaurant**

The target of the research is extremely narrow as it is a case study that focuses on Nolla – the first and only zero-waste restaurant in the Nordic countries.



Photo 1. Nolla Executives

Nolla – zero in Finnish expresses the restaurant concept, no waste produced. The restaurant's start-up team, including Carlos Henriques, Luka Balac and Albert Franch Sunyer opened the restaurant with a vision of redirecting the catering industry towards an environmentally sustainable future while magnifying its economic benefits (Restaurant Nolla).



Photo 2. Nolla Restaurant Setting

Photo 3. Nolla serving meal

They build close partnership with local farmers and providers to offer seasonal organic food without excessive packaging. Designers, architects and engineers also involve in their development where recycled materials are used to generate life-long utensils and furniture. Aiding apps that facilitate inventory tracking together with waste tracking are utilized as a mutual-benefit tool, since Nolla will improve its management when simultaneously giving feedback to the app developer. (Restaurant Nolla.)

Nolla is pioneering the industry while raising its voice of an eco-responsible business by setting an example and experiencing itself. What Nolla is doing aligns with the global inescapable tendency, namely trying to rectify the destruction of the eco-system caused by humans.

## 5 Nolla zero-waste practice

### 5.1 In-house composting machine

The heart of Nolla zero-waste practice is its in-house composting machine. They incorporate the machine inside their kitchen space where bio-waste is converted into compost. The machine can be easily ordered from Oklin, a company specializing in commercial as well as home kitchen solution in reducing waste. The machine inside Nolla's kitchen is the smallest model in Oklin's commercial composter product range, namely GG10s. (Balac 2018.)



Photo 4. Nolla's composter

Oklin composter utilizes microbial technology, microbes and heat, to turn food waste into dry compost in a 24-hour cycle, which allows any kitchen to operate smoothly within its daily routines (Oklin International). The end product, nutrient-rich compost originated from food waste, is then given back to Nolla's suppliers, where it is used to fertilize Nolla's next purchase. This practice closes the loop of bio-produce by exploiting its unused part to grow the next harvest. What originated from nature is returned to nature in a sustainable manner. Concerning

the machine's interference with food producing in the kitchen is unnecessary as the resultant compost is dry, odorless and pest deterrent (Oklin International).

Eliminating food waste by transforming it into sustainable useful product not only functions on environmental rationale but also reduces tremendous waste management cost. Zero waste means no monthly fee is paid to local waste handling company as well as no taxation. Investment on an in-house composter saves money and presents the business as a future-orienting entity.

Customers of Nolla are welcomed to bring home its in-house compost for free for their own gardening purpose. Doing so Nolla introduces customers its practice and includes them in its sustainable business action. Customers' benefit has extended beyond meal service to a greater cause on mutual environment. (Restaurant Nolla.)

## **5.2 Rethinking packaging**

Nolla builds personal relationship with its suppliers, for which they can negotiate packaging protocols. They have a box system, where emptied containers go back to suppliers to be reused in the next delivery. This practice keeps these containers in circulation for almost a life-time. (Restaurant Nolla Youtube 2017.) No single plastic wrap is produced, every purchase indicates a significantly unburdening on the eco-system both production and handle wise, not to mention extra packaging cost accumulation. It is reasonable to say that eco-sustainability complies with long-termed economical result.





Photo 5. Nolla's box system

### 5.3 Furniture and disposables

Nolla executives build their restaurant setting from reuse and recycle materials. They appreciate the term “upcycle” rather than normal recycling or “downcycle”. ***Upcycling**, also known as **creative reuse**, is the process of transforming by-products, waste materials, useless, or unwanted products into new materials or products of better quality and environmental value (Upcycling 2019).*

Nolla furniture's wood comes from old exposition pavilions. By cooperating with designers and architects, Nolla constructs their restaurant atmosphere with repurposed materials, which removes energy consumption and labor cost to produce the same item. It generates double reward, old yet in perfect condition substance is employed while natural resource is not wasted in a completely new production process.



Photo 6. Nolla's executives work with designer of their furniture

Recycled bottles are used as the restaurant's glassware, while their napkins are made from recycled plastic.



Photo 7. Nolla's table setting

Nolla pays attention to the smallest detail, they never stop seeking solution for greener outcome. Their uniform is fabricated from old bed linen from hospital.



Photo 8. Nolla uniform made from old bed linen

#### **5.4 Suppliers sourcing**

Nolla's three executives started their career far prior to the premiere of the restaurant. Before teaming up, they have acquired experience as well as acquaintances at plenty of renown restaurants around Helsinki, namely Chez Dominique, Olo, or Grön (Restaurant Nolla). For having worked in the catering industry for a specific amount of time, they source local, organic produce based on their earlier encounter. The difference presently is to introduce their novel philosophy and to negotiate package protocols. Numerous phone calls together with trial and error attempts are inevitable to convince suppliers towards Nolla's conviction. The three founders of Nolla are pioneering the industry as they incorporate other parties in the supply chain into their practice, raise their awareness and persuade them that industrial sustainability is achievable. To change the belief system plus the conventional mechanism is a much more challenging venture.



Nolla places significant importance on the origin of their ingredients. Organic certified suppliers are navigated locally to provide the best quality products in their natural harvesting season and to enable negotiation about packaging. Characterized as local, seasonal, not to mention organic certified, the restaurant definitely is forced to invest more effort in collecting their ingredients compared to buying from mass industrial retailers. For Finland essentially has two seasons where one is a fairly short summer, ingredient versatility fluctuates between these two. For the summer, Nolla cooperates with up to 25 different farmers, while the autumn/winter time offers less selection. However, each of Nolla's suppliers has their own specialty to optimize their year-round harvest. Higher quality indicates larger expense, but Nolla commits to provide customers healthy, taste-satisfying meals along with eco-responsibility.

No predetermined menu is published on the restaurant's website, as it alternates based on Nolla's obtainment from local providers at the moment.

### **5.5 Hävikkimestari – Waste management app**

Nolla employs an application built on electrical device called **Hävikkimestari** to control their waste (Lassila & Tikanoja Youtube 2018). Daily waste will be scaled, then the data is put into the system according to categories, therefore the app is able to produce reports reading the restaurant's current operation. Hidden pattern or subliminal conclusions drawn from the app projects development targets, where problems reside, and suggestions on fixing them. The information input process takes only few extra seconds, especially when the app interface is user-friendly, while its consequence improves financial result as food waste subtracts directly from profitability.

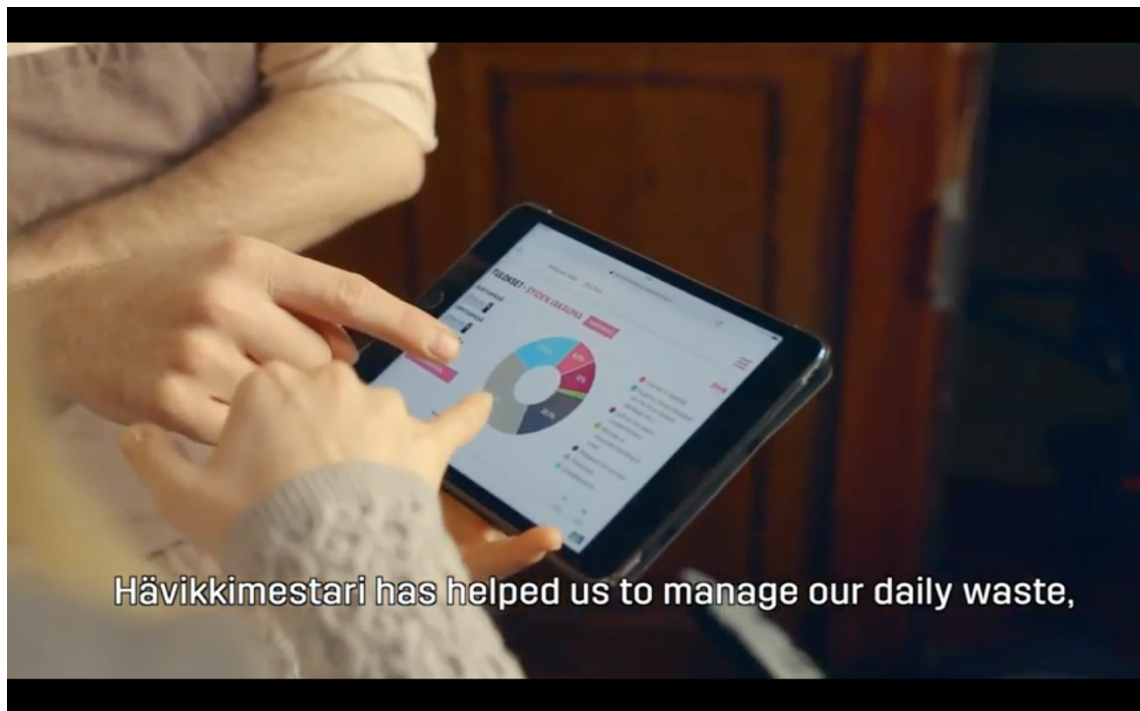


Photo 9. Nolla using **Hävikkimestari** for waste management

## 5.6 Beverage solution

Nolla maintains their own microbrewery where craft beers are freshly produced in small batches and contained in 15-20 liters plastic bottles that are refilled for the next brew.

Due to Nolla principles, all ingredients are sourced locally, except for wines. The restaurant wine list introduces products following sustainable agriculture protocols from small businesses.

One beautiful success worth recognizing is Nolla's attempt to serve coffee. At the beginning of their operation, the restaurant team decided not to offer coffee on the drink list as all coffee comes in single-use plastic package. However, Nolla managed to negotiate with a local roastery – Kaffa Roastery to supply coffee in large-size reusable plastic containers. This practice even expands beyond Nolla itself when Kaffa determined to implement it over all regional restaurants and coffee places in the coming years. (Global Shapers Helsinki Youtube 2018.)

## 5.7 Staff education

The restaurant developed their own kitchen protocols as well as front-of-the-house protocols. Employees are not allowed to bring anything that is not reusable or recyclable to the kitchen.

A pattern of two-week training is necessary to acquaint employees to Nolla's innovative practices. Passing the training weeks equips employees the foundation of sustainable business together with affecting their mindset on achievable zero-waste goals. Nolla also welcomes contributed proposal on greener solution whether from their employees or customers or interested partners.

## 6 Zero-waste practice challenges

### 6.1 Temporarily unsolvable waste

Even though Nolla has committed thoroughly to be 100% zero-waste, there are problems that they have not been able to tackle, namely plastic containers from washing liquid and toilet paper plastic wrap. Their aching issue lies in the thermal paper that is forced to be used by law at the cash register along with the thin line of plastic inside the paper roll, which is not recyclable. Nolla's accumulated waste amounts to 12 kg in total every month. Other than this paper, Nolla does not print anything, their menu is written on a chalk board due to the daily-designed meals.

### 6.2 Customer perception

The concept title – **zero-waste** occasionally confuses customers, where they think that the restaurant serves food waste when actually by eliminating waste, Nolla is offering innovative, high-quality meals that are not only healthy but also sustainable.

In addition, people's awareness as well as education direct their attention and lifestyle. Raising awareness about the food supply industry's impact on the environment, especially its carbon footprint, which is obscure for a majority of population, will alarm people of their action and encourage them to act upon it.

Due to a study conducted by **Unilever**, 72% of US diners state that they are concerned about food waste handling and 47% of them willing to pay more for a meal at an establishment actively striving to reduce food waste amount. (WebstaurantStore 2018)

### **6.3 Fear of change**

Nolla is the first restaurant operating this concept in the Nordic countries, even around the world zero-waste is still a novel perception. Disrupting a well-established supply chain that has functioned the same way for its lifetime challenges the whole industry. Changes need to happen on a ripple effect in order to be effective and fundamental. This requires educated as well as informed mindset to realize sustainability equals long-termed wellbeing.

When more and more businessmen, customers, suppliers, farmers together with the government demand for change, cooperation on gradually larger scale will allow the industry to shift its conventional mechanism and manifest on mutual benefits.

## **7 Similar establishment – Silo restaurant in the UK**

Silo, situated in Brighton UK, is founded by Douglas McMaster, the most innovative chef award winner 2012 YBF. Silo also operates on the same principles as Nolla – zero-waste. One of Nolla’s executives visited Silo when they were planning for the opening of Nolla to exchange ideas and learn from each other. Constant communication still materializes cooperation between the two restaurants and allow them to solve problems together.

### **7.1 Ingredient utilization**

Similar to Nolla, Silo sources their ingredients locally, seasonally and organically. They work with suppliers to deliver produce in recyclable containers instead of single-used packages. For ingredients that they cannot acquire without disposable wrapping, they produce by themselves, namely crème fraiche or flour which is freshly grated by their own mill. Silo also has an in-house composter

where dry compost is returned to their partnered farmers as well. (DW News Youtube 2017.)

## **7.2 Furniture creation**

Furniture as well as utensils in Silo are created from old materials. Their cushions were once ripped denim and tights. One amazing invention is their plates which have been compressed from plastic bags. A process of 5 minutes produces one beautiful marble-like plate from 60 disposable plastic bags. (ECO BOOST Youtube 2015.)



Photo 10. Silo plates made from plastic bags

## **7.3 Science-based Jesus water**

Silo invested in an extravagant filtration system releasing electrolyzed alkaline and acidic water that cleans any surface, no matter human or material solidity (Pellerin 2014). This cleaning water is created without chemicals, carbon footprint and eliminates the need for washing liquid together with its tagged-along containers.



Photo 11. Silo's electrolyzed water for cleaning purpose

Similarities can be recognized in Silo and Nolla practices. Each restaurant develops their own twist due to distinctive location, business setting and technology extent. They are laying foundation, challenging themselves, finding solutions for the shift of other entities in the same supply chain. Proving the concept to be viable promises potential industrial follow in the future.

## 8 Conclusion

Coming to Nolla, customers are welcomed to reserve a four-course menu for €48 or a six-course menu for €68. According to Luka Balac, one of Nolla's founders, their price range is equivalent to other medium-high restaurants in the centre of Helsinki. Spending the same money, customers are offered superb quality ingredients, not to mention contributing their part to a revolutionized initiation.

Higher expense on food quality is compromised by economical benefits resulting from waste elimination, energy and water consumption saving, technology support, and obviously health as well as flavor value from exquisite cuisines. Proving its validation, Nolla yields matching profit margin compared to normal catering entities, leveling 20-30%. (Luka Balac 2018.)

Placing amid its immediate business milieu, the Nordic region, where people are highly responsible for their action, Nolla has better influential impact. The Nordic countries are extremely self-conscious when making decision concerning future wellbeing, people feel their obligation to sustain a healthy habitat for all creatures. Nolla rates five stars on TripAdvisor. Customers truly enjoyed their experience on meal service, both atmosphere and flavor wise. Above that, they are

impressed by the restaurant concept and rave on its sustainability claim, which is in fact one initial motivation for trying Nolla experience. (TripAdvisor 2019.)

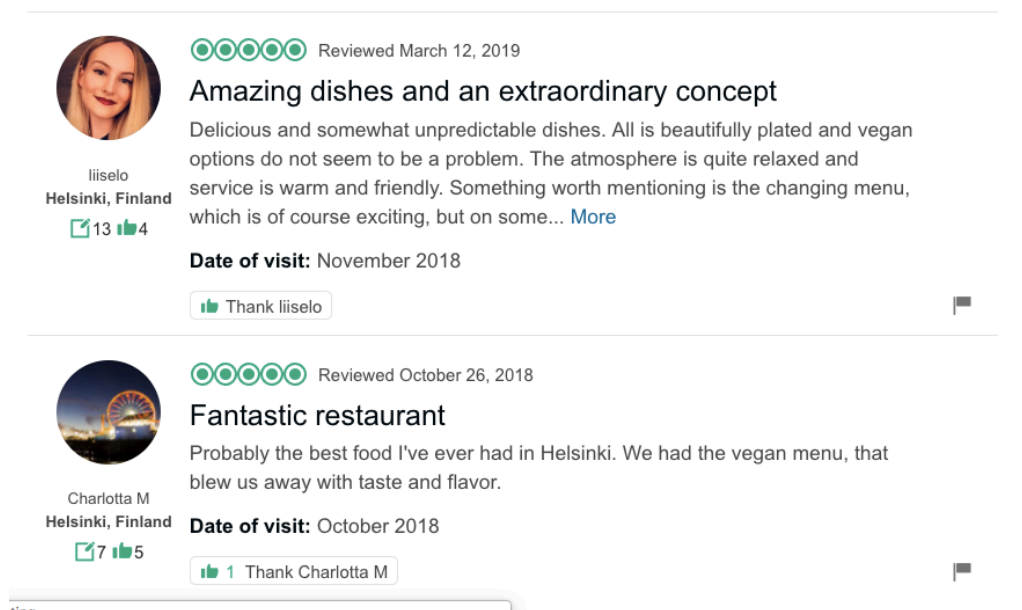


Photo 12. Nolla customers' comments on TripAdvisor

Standing strongly behind their philosophy “*Refuse, reduce, reuse, and only as a last resource, recycle*”, Nolla commits to the greatest extent on their journey to revolutionize catering business. Even their gift card is handmade from compostable paper containing poppy seeds that can be planted afterwards.

Despite issues that are still in tackling state, Nolla proves that sustainability is profitable with science and technology support, creative thinking, and mutual awareness as key factor.

Nolla is recently ranked 13<sup>th</sup> on top 50 restaurants in Finland and received their prize for **ethical thinking** (Restaurant Nolla Facebook 2019). For the purpose of their operation, Nolla deserves recognition as well as industrial collaboration for reshaping future prospect.



Photo 13. Nolla's founders with their prize

## 9 Evaluation

The research reaches its target of investigating Nolla's practices and the restaurant viability among the conditions of its business setting. Nolla leads an example for future entrepreneurs to build business upon moral responsibility. This encourages all citizens, scientists, designers, engineers, or creative thinkers to contribute to a sustainable future in not only hospitality but propagating it further to all aspects of modern life.

The research would be more objective if it collected general customers' judgement on how they view this zero-waste probability and their willingness to contribute to an eco-friendly business mechanism, which can be a suggestion for further research.



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## **Appendixes**

### **Appendix 1. Interview Transcribe Luka Balac 2018**

#### **Interview Transcribe - Luka Balac**

- 1. I know that Nolla has an in-house composting machine. Do you have to work with the designer to order it or can you buy a ready-made one?**

You can buy a ready-made one. There are a few different firms that produce this kind of machine. We work with a firm called Oklin and they offer different size-lined composters and ours is basically the smallest one that they produce.

- 2. When you give the compost back to the producers, do you get any discount on purchasing?**

No, basically it is a service. We look at it as a service because this composting tool can fulfill zero-waste practices but the other one is to save money. By not taking any bio-waste to the city handler, we don't pay any bio waste monthly fee. By investing in the machine, we reduce our cost a lot. The composted is really hard to sell in a way. You can buy quality compost for a very low price, so we couldn't price it, we give it away.

- 3. Do you still have any plastic packaging, or are you able get rid of it totally?**

Fortunately, we did quite a good job but there are still the plastic containers from the washing liquid and the toilet paper that comes in wrapping plastic. The biggest problem is the thermal paper that has to be used by law at the cash register and the thin line of plastic inside that basically cannot be recycled. So, there is not much, in the search for months, we have maybe 12 kg in total.

- 4. How do you source your suppliers? How do you contact and talk to them about your requirements?**

We do have all different kinds of protocol for the restaurant, from running the restaurant to working with people. So basically, for us, it's quite easy to start because I worked with all those producers before. I visit them many times, I

talked to them about our philosophy, so they understand. For the new ones, it takes few phone calls and some mistakes sometimes.

**5. Is it more expensive to work personally with local providers compared to buying from a mass supplier?**

Of course. But for us, knowing where all of our ingredients are coming from is a must, it's a very essential part of the restaurant. I mean it's not much more expensive than others but of course it's more expensive, especially if we place organic certified.

**6. Do you have to change suppliers due to season as your ingredients are sourced seasonally?**

More or less yes. But in Finland it's like two seasons. There's a short season of summer and everything else is root and herb, so everyone has to do everything to be able to fulfill their yearly harvest. But yeah, we do have less during the autumn/winter season, since there's mainly root, so we have plenty types of different farms. And during the summer time, we work with up to 20-25 farmers. And everyone has like their special things, of course.

**7. I see that you use your furniture, equipment and utensils as well from recycled materials. How long will they last, and can they be recycled again when they get old?**

Yes, of course. It's actually a must that they can be reused or upcycled. We don't recycle much that it's the last cycle at our restaurant due to our practices. We recycle something that we don't have at root, like glass bottle, they are recycled. But for us, we believe that we prefer to upcycle something, so basically to give it a new life without using more energy in producing the same thing. All the utensils we use are kind of upcycled materials. Of course, they can be recycled or upcycled. But the idea is that we buy things once and they are fit for life.

**8. How do you reduce energy and water consumption in your restaurant?**

Well, we have really strict rules in the kitchen, like how we do things, so it's still that part that we have in the plan from day one. Basically, the idea is to operate in the building with grey water system, which will recycle the water inside the restaurant, so the water we use for washing will go to the toilet

afterwards. The electricity consumption is still quite hard, but we are working on that as well.

**9. Is it a challenge to train and educate employees as your restaurant practices are quite innovative?**

It should be different, I mean very different than the rest of the world. I think what I've seen is a two-week system for the young participants to change and the routines change. After those periods of two weeks, they feel even more different, more work and perceive that's the way we do as a whole system. Of course, we have kitchen protocols, front of the house protocols where we form what is acceptable. If they bring waste to the kitchen, they are responsible for it. They're not allowed to bring anything that is not reusable or not recyclable to the kitchen. We do have a protocol for everything.

**10. Where do you see your price position? Is it medium or high?**

I think we're cheap, considering what we offer. Whatever the cost adds up, our price ranges in a very same price level with medium-high restaurant in Helsinki. Of quality wise, the ingredients in our produce that we offer are much higher than any of theirs. If it's a lot of money for a meal, then it's very good money for a meal.

**11. Do you have a better or less profit margin percentage compared to a normal restaurant?**

No, we aim for the same. Basically, a restaurant earns 20-30%.

**12. So, you are the first zero-waste restaurant in Finland, do you see any challenges?**

Of course, every day. The zero-waste concept has a great moment in Scandinavia, because people are very self-cautious of what they do. They want to improve behaviors that in a way improve future. It's a very good moment and time for this kind of concept for people feel that in supporting this, they are supporting the future. In Finland, people make much more decisions in that way than in other parts of the world, where they spend money if it is for a good cause. The other part of the zero-waste concept is probably waste, which is not really delicious for a restaurant. It will take time

to kind of present the whole image of our zero-waste ideology. A lot of our customers believe that we are gonna feed them food waste. We don't work with the food waste, we try to invent models to prevent waste in the whole picture. We're not accepting waste, that's why we are not using waste product. We are using some herb by-products.

**13. I see that you are using waste management app, a control system based on electrical device. Do you have to work personally with a developer?**

The app has been developed before us, but we step in to test it and to make it better. We work together and give feedbacks. Our work and words from the restaurant part would be the system for the app. But the core app has been made 2 years before we create audit.

**14. This zero-waste concept is fairly new in the Nordic countries, are you aware of or learn from any similar concept from other countries?**

It's very new, not only in Nordic countries but everywhere. One restaurant that we know of that works in a different way with a similar idea which is called Silo. One of us went to visit them while we were planning the restaurant to exchange ideas. We constantly communicate with them and share ideas and everything we have. It has worked out quite well until now, if we need any idea of packaging or developing packaging or how they have some problems or how they deal the problems. They share, and we do share as well.

**15. What is the future vision you project for this kind of business model? Will other restaurants follow and adopt its practices?**

Yes, and I definitely believe, especially after a year or two, when the concept proves to be a viable concept, the people will be more open. At the moment, I think the reason there are not that many zero-waste restaurants is that it is a very risky business. When this kind of concept proves that they can be viable, that it doesn't feel really hard and expensive to run a business like this, then other people will follow.

**16. As your restaurant concept resides on sustainability, do you think customers' awareness and education play an important role in the success of your business?**

Yes, of course. I think that every restaurant doesn't need 5 years to change their business model to a more sustainable way. I think it's changing. I believe that soon taxation system for waste will be quite high. Transferring a business model to a more sustainable one will be a must.

**17. What is the biggest problem that you want to tackle in your business for the moment?**

Well, there are so many of the small ones. We still need some time to make it fully zero-waste.