



FINAL REPORT

THE 24HR FOOD & SUSTAINABILITY HACKATHON 2022

VOL. IV: TASTEFUL TRANSFORMATION

January 20-21 2022

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iu INTERNATIONAL
UNIVERSITY OF
APPLIED SCIENCES

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“Eating is an agricultural act”

Wendell Berry (1990)

Connect. Inspire. Collaborate.

The **24hr Food & Sustainability Hackathon Vol. IV: Tasteful Transformation** is organized and presented by the IU International University of Applied Sciences (DE) and the Hotel Management School Maastricht (NL) with additional participation from students at the Julius Maximilian University of Würzburg (DE) and the University of Hohenheim (DE).

The idea behind a hackathon is the gathering, in this case virtually, of students and experts who care about the same issues (i.e. eating better, more responsibly in a post-COVID-19 world) and who can quickly collaborate, form bonds, share knowledge and solve problems.

Leading Question:

With a lens on the gastronomy and hospitality sectors, how can we activate and support a sustainable food system, that ensures the access and security of food and in which nutrition is organized in a manner that does not compromise the ability to generate the same (or better) standards for future generations?

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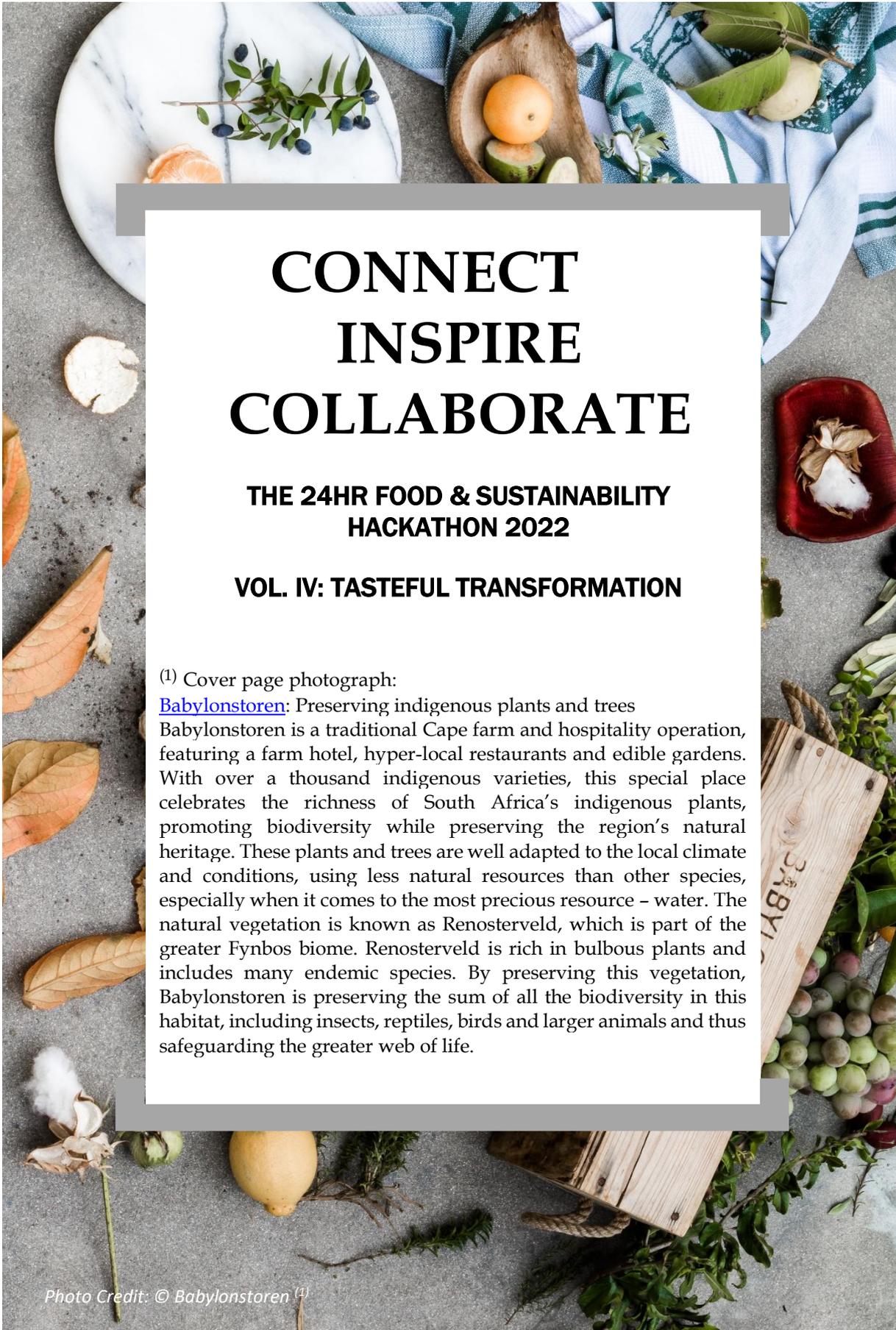
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STAGE

The current impact and future of our food system is a topic much debated in the last decade (Herrero et al., 2021). “**Food systems (FS)** encompass the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption and disposal of food products that originate from agriculture, forestry or fisheries, and parts of the broader economic, societal and natural environments in which they are embedded” (FAO, 2018:1). As such, it is apparent that actors within the system naturally affect one another, meaning, that changes in one part will yield changes in other parts of the food system.

The ‘Sustainable Development Goals (SDGs)’ set for 2030 highlight its importance and need for direction, as a large number of the seventeen goals can be attributed to food, from consumer health through nutritious food consumption to the food production process and waste across the food system (FAO, 2018). Within these goals, major transformations are sought to for instance end hunger, achieve food security and improve nutrition (SDG 2). Over the past years, our food system has undergone many beneficial changes to make food accessible in remote areas and offer an increasing diversity of choices in others. However, the world is changing, and so are the limited resources that we face as just one of the consequences. Many parts of our world are still greatly affected by the implications of the COVID-19 pandemic, and we increasingly realize that the need for change and transformation of our food consumption and supplying sectors is more urgent than ever before. The global pandemic has caused devastating conditions across the food system, but has also offered opportunities sparking new innovations and sustainable approaches across the supply chain to the end consumer globally.

A sustainable food system prescribes that access and security of food and nutrition is organized in a manner that does not compromise the ability to generate the same (or better) standards for future generations. As such, it posits a holistic perspective on the development of the food system by generating value in the economic, social and environmental dimensions.



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**THE 24HR FOOD & SUSTAINABILITY
HACKATHON 2022**

VOL. IV: TASTEFUL TRANSFORMATION

(1) Cover page photograph:

[Babylonstoren](#): Preserving indigenous plants and trees
Babylonstoren is a traditional Cape farm and hospitality operation, featuring a farm hotel, hyper-local restaurants and edible gardens. With over a thousand indigenous varieties, this special place celebrates the richness of South Africa's indigenous plants, promoting biodiversity while preserving the region's natural heritage. These plants and trees are well adapted to the local climate and conditions, using less natural resources than other species, especially when it comes to the most precious resource - water. The natural vegetation is known as Renosterveld, which is part of the greater Fynbos biome. Renosterveld is rich in bulbous plants and includes many endemic species. By preserving this vegetation, Babylonstoren is preserving the sum of all the biodiversity in this habitat, including insects, reptiles, birds and larger animals and thus safeguarding the greater web of life.

Photo Credit: © Babylonstoren ⁽⁴⁾

“Food is our most basic need,
the very stuff of life”

Vandana Shiva, 2000

FOOD SYSTEM FRAMEWORK

In order to assess the sustainability of restaurants and the hospitality industry at large, we need to look not only at each business by itself, but also at its place within and linkages to the social, environmental and economic systems it is embedded in. Decisions a restaurateur might take about what type of food to serve have a host of repercussions in various parts of these systems: which producer will benefit from the restaurant’s business, which type of food production system will be supported, how many green-house gasses will be emitted for transportation and storage, how nourishing will the restaurant menu be to the guests, how much food waste is created and so forth.

The British Institute of Food Science and Technology (IFST, n.d.) has produced a comprehensive Food System Framework that helps everyone dealing with implications of food production, consumption and disposal to understand the various linkages of the food supply chain – which F&B outlets are a part of – to economy, environment and society. This is used as a guiding framework for this food-focused hackathon.

Download full [report here](#).

TASKS

Students from IU International University of Applied Sciences, Germany, the Hotel Management School Maastricht (HMSM), The Netherlands, the Julius Maximilian University of Würzburg (JMU) and the University of Hohenheim (UoH) were divided in cross-institution teams. Each team identified key issues and justified through research-based evidence how these can be tackled with a particular focus on the role of restaurants / F&B outlets within the food system framework.

Each group is facilitated with a guiding question that should lead them through the entire hackathon process and highlights the economic, social and/or environmental focus of their topic.

TOPICS

The specific areas of focus and leading questions are shown here below:

1. Food sourcing and biodiversity: How to make the right decisions?
2. Food sourcing and impacts across the supply chain (e.g. emissions, water, land use, food miles): making the right choices?
3. Equitable trade in supply chain: How to support adequate working conditions and livelihood upstream along the supply chain?
4. Healthy and sustainable diets and menu design: Who should lead key guiding principles and actions (consumer or business) to ensure both human and environmental health?
5. Circular thinking/Circular approach in Hotel/Restaurant Food Management: Beyond take-make-waste, what does circularity look like in food and beverage management and practices?
6. Decent work in Hotels/Restaurants: How do we make the F&B trade a great place for work for current and future generations (in all positions)?
7. Innovation and tech in managing food: What are the innovations that are a must today and what should a restaurant keep an eye on?
8. Transparency & guest communication: How do we show that we have transparent processes in everything we do in a restaurant all the way to our communication?
9. Food waste management: From technology to employee and consumer behaviour, what are the 'must do' practices and is zero-waste a possibility?
10. Nudging them the right way: How can 'nudges' be used in restaurants to make guests behave in a more sustainable fashion?

EXPERTS

Experts, from food waste hackers to renowned biologists, engaged chefs and design thinkers, were called to join and provide input on the current and needed transformation of our food system. In a snapshot:

1 Francesca Zampollo, Author of the Food Design Thinking methodology | Founder of Online School of Food Design©

Under the title “**Innovation for the future of food**” Zampollo introduced a series of trends observed which provide a space for opportunities and where sustainability is much needed. Zampollo explains that “*designing for sustainability creates a shift from 'me' to 'us'. A shift from 'what is best for the individual' to 'what is best for society'.*” Throughout the presentation, she argues that “*you as designers, therefore, get to choose the impact your proposition will have*” and asked “*what are you going to put out in the world?*”. Zampollo concludes with a simple but effective approach, also in the world of food: “*Design Less. Design Better. Design Local*”

2 Sabine Zikeli, Executive Director, University of Hohenheim Center for Organic Farming

With the title “**Organic = Sustainable?**”, Zikeli provided a critical and in-depth review of empirical findings trying to answer a series of sub-questions such as

- Is organic farming better for biodiversity?
- Do organic farming practices lead to lower greenhouse gas emissions?
- Can organic agriculture feed the world?
- Does organic farming provide more animal welfare?
- Does organic farming lead to less contaminated soil, air and water?
- And does organic farming contribute to improved livelihoods of farmers?

Based on a broad range of scientific research over the past two decades, Zikeli assessed the situation and concludes that “*organic agriculture is sustainable for most societal services but there are trade-offs between societal goals. The discussion behind a true cost-accounting system, internalizing the externalities of our food systems has been around for decades but is more relevant than ever before*”.

3 Caroline Morrow, Tourism Development Specialist at Bannikin Travel & Tourism

Morrow provided the audience with hands-on examples of how food can be positively linked to tourism development based on empirical findings from research and project work with communities located in northern Ontario, Canada. In her presentation with the title “**Shades of Green: Sustainability considerations in food tourism development**”, Morrow concludes that “*food tourism development is about destination development, product development, and experience development, but importantly, it is also about community development, a celebration of local heritage, and a tool for rural livelihood support*”.

4 Anna de Visser-Amundson, Research Fellow in Marketing at Hotelschool The Hague, The Netherlands

This was Anna de Visser-Amundson's second visit to the 24hr Hackathon and once again the depth of knowledge, experience and industry insights kept the audience on their toes with her presentation called "**Marketing to the Rescue: Restoring consumers' value perceptions of rescue-based products**". Despite the data and advances in technologies over the past years, food waste remains a prominent issue in the hotel and restaurant industry. This is partly due to the fact that, according to de Visser-Amundson, current food waste management practices are not tackling the root-cause. Presenting the latest in the topic of nudging, de Visser-Amundson concludes that "*awareness is not enough to move from 'knowing' to 'doing' something; nudges help behavioural change and we see this in the case of food waste*".

5 Nikki Rose, Founder-Director Crete's Culinary Sanctuaries Educational Network, Crete, Greece.

Rich in visuals, both in photographs and film trailer, Rose explained how the educational project she spearheaded has led to action programmes to help preserve Crete's heritage. In her presentation "**Connecting Community-Based Sustainable Tourism with Organic Farmers: Lessons from Crete's Culinary Sanctuaries, Greece**", Rose explains the value of a cross-sectorial approach involving food producers, organic farmers, rural lodge owners, conservationists, historians and local residents. Rose concludes: "*Why should tourism be involved in organic food? It is about the protection of our land and sea, supporting the providers of our goods, safe food for generations to come*".

6 Benjamin Lephilbert, Founder of LightBlue Environmental Consulting

Founder and food waste hacker, Lephilbert presented many of the case studies including best (and worst) practices he has come across over the past decade on the topic of food waste management in hospitality. In his talk "**Advancing the food waste prevention agenda: combining solutions at the destination level**" Lephilbert pointed out that "*we often find a gap between the communication made around food waste and actions taken on the topic. Targets are great, but without a baseline to start from, even the best targets are useless*". Lephilbert also stated that "*resources need to be invested on the topic including training, tools, reporting and verification of what is happening when mitigating food waste*".

7 Frauke Fischer, Founder, Agentur Auf!

Closing the 24hr hackathon, Fischer presented the value of biodiversity and the multiple ecosystem services available to humanity and business processes. Fischer explains, however, that "*extinction is about 1000 faster than in a normal, regular natural scenario and that's due to human activities; we can observe 1 to 6 species going extinct every hour*". In her presentation '**A taste of Chimp in Chocolate**', Fischer emphasized "*Roughly 60% of the global GDP is dependent on an ecosystem service. Data shows a 100% gain in financial capital between 1992 and 2014, a 13% increase in human capital but a 40% drop in natural capital...any business owner would or should know what the consequences are of running down capital!*"

HIGHLIGHTS

Topics	Problem Description	Proposed Solutions / Actions (Summary)	Students
1. <i>Food sourcing and biodiversity: How to make the right decisions?</i>	Large-scale monoculture farming is associated with numerous challenges and impacts	Creation and implementation of a Biodiversity Communication App (facilitating transparent communication between agricultural producers, suppliers, and end consumers)	<i>Lotte van der Aart (HMSM)</i> <i>Henry Thomson (HMSM)</i> <i>Chaiyarat Vudhikamraksa (IU)</i> <i>Romy Snaauw (IU)</i>
2. <i>Food sourcing and impacts across the supply chain (e.g. emissions, water, land use, food miles): making the right choices?</i>	Misinformation and green washing on food labels is rampant.	Solution based on a platform “storybird.io”, where food is being tracked via blockchain technology to achieve transparency and show actual footprint and origin of food.	<i>Isabel Bouwman (HMSM)</i> <i>Chris Hol (HMSM)</i> <i>Isabel Stadler (IU)</i> <i>Lukáš Diblíček (IU)</i> <i>Timo Then (JMU)</i>
3. <i>Equitable trade in supply chain: How to support adequate working conditions and livelihood upstream along the supply chain?</i>	Agriculture sector is often linked to poor working conditions, child and forced labour, low wages and other violations of labour rights	Identify all suppliers in the F&B supply chain (of a hospitality operation), assess the risk level and sustainability impacts and formulate binding agreements with suppliers	<i>Aneliya Antova (IU)</i> <i>Jiska Maas (HMSM)</i> <i>Ali Seyed Shabbier (IU)</i>
4. <i>Healthy and sustainable diets and menu design: Who should lead key guiding principles and actions (consumer or business) to ensure both human and environmental health?</i>	Unhealthy and unsustainable food preferences	Implement food into primary schools’ educational programs, providing knowledge tools and best practices to children; Studies also show that children transfer obtained knowledge to parents.	<i>Sophie Schalk (HMSM)</i> <i>Maria Artyukh (IU)</i> <i>Monti van der Sprong (HMSM)</i> <i>Saichon Bunnag (IU)</i>
5. <i>Circular thinking/Circular approach in Hotel/Restaurant Food Management: Beyond take-make-waste, how does circularity looks like in food and beverage management and practices?</i>	Food waste remains a global problem at all levels of consumption and is particularly relevant to hotel and restaurant sectors	Implementing a circular approach following the food and drink material hierarchy which focuses on the accurate management and prevention of food waste. In this particular case, implement creative ideas for re- and upcycled food out of food waste.	<i>Sam Sterrenberg (HMSM)</i> <i>Pia Krüger (IU)</i> <i>Berta Colom Bildstein (IU)</i>
6. <i>Decent work in Hotels/Restaurants: How do we make the F&B trade a great place for work for current and future generations (in all positions)?</i>	Issues surrounding working conditions, salary, work-life balance in the restaurant sector.	In-depth review of all aspects related to well-being in the sector (salary, working hours, task rotations, training) and propose, develop and implement mutually agreeable ‘new social contracts’.	<i>Orkhan Huseynov (IU)</i> <i>Ta Sol Han (IU)</i>

Topics	Problem Description	Proposed Solutions / Actions (Summary)	Students
7. <i>Innovation and tech in managing food: What are the innovations that are a must today and what should a restaurant keep an eye on?</i>	Food is associated with environmental, social and economic impacts, inefficiencies and waste	From Quantification to Minimization: implement state-of-the-art IT-based solution to measure and quantify food waste through a digital scale and AI.	Aniek Coumans (HMSM) Bettina Salomo (IU) Cas van Esch (HMSM) Wolfgang Pirlet (IU)
8. <i>Transparency & guest communication: How do we show that we have transparent processes in everything we do in a restaurant all the way to our communication?</i>	Rampant greenwashing and costs related to providing transparent information	Use of QR codes are provided on the menu linking to additional information; implement a social media transparent communication strategy / train staff.	Daniek Verhoeven (HMSM) Rukayat Jimoh (UoH) Christian Schneegaß (IU)
9. <i>Food waste management: From technology to employee and consumer behaviour, what are the 'must do' practices and is zero-waste a possibility?</i>	Bread is amongst the largest fraction of food wasted in the supermarket environment	Collecting unsold bread products to be processed into a local craft beer. The beer is sold again in the supermarket.	Andrii Shcherbyna (IU) Mònica Mota Calomarde (HMSM) Marta Menardi (UoH)
10. <i>Nudging them the right way: How can 'nudges' be used in restaurants to make guests behave in a more sustainable fashion?</i>	Awareness of a problem does not necessarily turn into actions to remediate the problem	Make sustainable food the default and not the option. Implement attractive wording in descriptions. Steer guests towards sustainable options via menu item placement (on menu) or digital path planning.	Loïc Swaelens Boedt (HMSM) Olga Kotova (HMSM) Olivia Pujol (HMSM) Laura Strohmenger (IU) Laura Helget (JMU)

Conclusion

The current food system with its impactful production, distribution and consumption stages is a cornerstone of the EU Green Deal in regards to decarbonisation targets. Beyond climate issues, food is associated to the loss of biodiversity, social inequalities, health, animal welfare and many more sustainable development issues. Food is also the source of life and a key ingredient to a global hospitality sector. This sets the stage for this fourth edition of the 24hr Hackathon with the imperative to find solutions to a series of critical questions. One of the main outcomes of this hackathon is the general understanding that the viable pathway forward is *transformation*. Business as usual in regards to agricultural, food transformation and consumption patterns are not based on sustainable principles. Students here show how either a radical shift or continuous improvement can and should look like. Most importantly, the hackathon once again demonstrated the importance of multi-disciplinary collaboration in advancing sustainability both in new thinking-approaches and developing hands-on applicable solutions.

ORGANISERS / MODERATORS

Prof. Dr. Willy Legrand, Department of Hospitality, Tourism and Event Management, IU International University of Applied Sciences, Germany

Prof. Dr. Dai-In Danny Han, Research Centre Future of Food, Zuyd University of Applied Sciences, The Netherlands

Prof. Dr. Gabriel C. M. Laeis, Department of Hospitality, Tourism and Event Management, IU International University of Applied Sciences, Germany

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