

Corvinus University of Budapest

Department of Geography, Geoeconomy and Sustainable Development

Regional and Environmental Economic Studies

Serving the Right Message

A qualitative study of sustainable catering at European higher education institutions

Madli Rohtla

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Instructor: Dr. Orsolya Diófási-Kovács

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Chapter 1. Introduction

1.1 Purpose

We all need to eat, every day. As the world's population grows and gets wealthier, we need to extract more and more resources to feed ourselves. The food we choose to eat has an impact on the world around us, but it is extremely difficult to see that effect directly. The food is produced, processed, and delivered to us through a complex system. It is not like air pollution where the number of fossil fuel-powered vehicles in the streets or coal-powered factories in the region has a clear relationship with the amount of smog particles in the air. However, today we know that food systems are the source of nearly one-third of anthropogenic greenhouse gas emissions. They are also affecting the health of the Earth's ecosystems, and the health of humanity, reflected in increased rates of obesity as well as malnutrition. Research is now able to quantify the impact of different diets on the planet while also accounting for dietary recommendations, as well as measure the greenhouse gas emissions of food supply chains. Science has shown a direction for the future in terms of sustainable food systems; however, this transition can be difficult to make, as food choices have to satisfy a variety of criteria, including but not limited to economic viability, sufficiency, accessibility, nutritional value, and cultural expectations. As places where up-to-date knowledge is created and accumulated, higher education institutions (HEIs) have a role and responsibility to advance societal goals, including eating sustainably. For this, there are several models developing that represent the diversity of approaches that can be implemented by HEIs. This study places the sustainable catering issue within the larger framework of food systems and explores the solutions that HEIs can use to support food sustainability through their catering services. It aims to compare and analyze case studies and, as a conclusion, suggest economically viable solutions to universities that are open to developing sustainable catering initiatives.

1.2 Background, terms and definitions

Environmental impacts of today's food systems

The population of planet Earth is expected to increase to nearly 10 billion by mid-century (United Nations, 2019), which translates into over three billion additional people compared to today. Growth is projected not only in numbers but also in affluence, leading to higher levels of consumption per capita, including increased consumption of animal products (Godfrey et al., 2018). Food production is currently contributing 26% to humanity's global Ecological Footprint while global livestock is responsible for 9% of all of humanity's carbon emissions (Galli & Mailhes, 2017). Production of meat and other animal products is extremely resource-intensive, using up the majority of agricultural land today (Ritchie, 2019) and contributing to loss of biodiversity as well as to greenhouse gas (GHG) emissions from deforestation

and methane-producing livestock (Bustamante et al., 2012; Leip et al., 2015). Garnett (2014) states that “grazing livestock, and less directly, the production of feed crops are together the main agricultural drivers of deforestation, biodiversity loss and land degradation.” (Garnett, 2014, p. 3) According to the World Bank and GIZ¹, agriculture uses around 70% of all freshwater globally, with the figure reaching 90% in some countries. The World Bank states that “by 2050, feeding a planet of 9 billion people will require an estimated 50 percent increase in agricultural production and a 15 percent increase in water withdrawals.” (Khokhar, 2017; *Water in Agriculture*, n.d.)

Garnett (2013) points out that in the food supply chain from production to consumption, agricultural production makes up the largest part of these emissions, around 50%; this number is higher in developing countries where food supply chains are less developed. It also includes indirect emissions, such as those caused by deforestation to obtain more agricultural land. In addition to CO₂ release, agricultural deforestation also contributes to biodiversity loss, water withdrawals, and water pollution. Regarding the impact of individual food products, livestock production accounts for around half of the food system’s total impacts. These impacts are highest in developed nations and rising among urban consumers in low-income countries.

Up to 30% of all food produced is wasted, according to the Food and Agriculture Organization’s 2017 publication titled *Global Initiative on Food Loss and Waste* (FAO, 2017). In fact, quoting UNEP’s 2021 Food Waste Index Report, “[i]f food loss and waste were a country, it would be the third biggest source of greenhouse gas emissions.” (United Nations Environment Programme, 2021) Food losses and waste account for 6% of the global GHG emissions, with supply chain losses exceeding consumer waste (Ritchie, 2020b).

Social and economic impacts of today’s food systems

In addition to the environmental impacts, there are social concerns related to current food systems. Diets rich in animal products and lack of access to fresh and nutritious food combined with sedentary lifestyle contribute to increasing rates of obesity in both developed and developing nations (Gillespie & van den Bold, 2017). Nutrition poverty disproportionately affects poor populations. Agricultural subsidies distort markets and also change people’s food consumption behavior; for example, agricultural subsidies for corn in the United States have encouraged the consumption of high-calorie, low-nutrition foods among low-income populations (Browne et al., 2016). In addition, many people suffer from environmental health problems caused by exposure to agricultural chemicals and other pollutants related to food production (Hawkes et al, 2006; cited by Garnett, 2013). Similar research done by the International Panel of Experts on Sustainable Food Systems, as quoted in the EU Observer (Burrows, 2017), indicates that “[m]any of the most severe health impacts - from respiratory diseases to a range of cancers and systemic livelihood stresses - are linked to industrial food and farming practices.”

¹ *Deutsche Gesellschaft für Internationale Zusammenarbeit* (German Corporation for International Cooperation)

The widespread destruction and pollution of the Earth's environment caused by today's food systems is contributing to climate change. This, in turn, impacts agricultural yields, which are an especially important part of the economy in developing countries. The World Bank estimates that between 32 million and 132 million people will fall into poverty by 2030 due to climate change. Furthermore, today's food supply chains create economic inequalities by concentrating food production, processing, and distribution in the hands of a few large organizations, on one hand decreasing prices, but on the other hand concentrating a lot of power in the hands of the stronger links in the chain, usually the companies purchasing agricultural products, while disenfranchising agricultural producers (Estonian Ministry of Rural Affairs, 2019).

New path: sustainable development

According to the Brundtland Commission report (1987), **sustainable development** is the kind of development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The concept is commonly operationalized through indicators such as the **ecological footprint**, a measure of human appropriation of natural resources, which is defined as the area of land (and water) that would be required to sustain indefinitely a human population defined in terms of providing all energy/material resources consumed and absorbing all waste discharged (Wackernagel and Rees, 1996, cited by Guarnido-Rueda et al, 2021). Currently, human development is not considered to be sustainable. The average global ecological footprint in 2019 was 2.7 global hectares per person, exceeding the average biocapacity of 1.6 global hectares (*Glossary*, 2020).

The **carbon footprint**, or calculating the CO₂-equivalence of emissions released from one's activities, is another way to measure a country's, organization's, or individual's impact on the environment. According to GHG protocol, "GHG emissions are a great starting point for businesses because of the data availability, their correlation with energy use, and often their correlation with other environmental impacts." (Greenhouse Gas Protocol, 2011)

Sustainable development and food systems

Today's food systems conflict with the concept of sustainable development due to their negative environmental, social, and economic impacts. Therefore, a transition to sustainable food systems is needed. A **sustainable food system**, defined as a food system that is profitable throughout, has broad-based benefits for society, as well as a positive or neutral impact on the natural environment (*Sustainable Food Systems: Concept and Framework*, 2018). Sustainable diets are defined as, "[those] diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations" (Burlingame B. and Dernini S., 2010; cited by Barling et al., 2016, p. 4), which must:

- Protect biodiversity and ecosystems
- Be culturally acceptable
- Be easy to come by and affordable
- Deliver nutritious, healthy, safe and adequate food
- Optimise natural and human resources (Burlingame B. and Dernini S., 2010; cited by Barling et al., 2016, p. 4).

Higher education institutions as champions of food sustainability

Higher education is “any of various types of education given in postsecondary institutions of learning and usually affording, at the end of a course of study, a named degree, diploma, or certificate of higher studies.” Higher education institutions (HEIs) include universities, colleges, and also various professional schools that provide preparation in such fields as law, theology, medicine, business, music, and art as well as teacher-training schools, junior colleges, and institutes of technology. (*Higher Education*, n.d.) HEIs have always held the role and responsibility of spearheading social change and innovation.

Through studying good practice case studies of sustainable catering at HEIs in Europe and trying to apply them to HEIs with sustainable catering potential, the research question this study aims to answer is: What solutions can be used by European HEIs to promote long-term food sustainability through their catering systems?

To answer this main question, the following sub-questions will be addressed:

Sub-question 1: What is the food sustainability framework of the EU?

Sub-question 2: What are current good practices by HEIs to promote long-term food sustainability through their catering systems?

Sub-question 3: How can lessons learned from the good practices be applied to currently developing sustainable catering initiatives at European HEIs?

Chapter 2. Food Sustainability and HEIs: on paper

2.1 Thinking about Food Sustainability: science-based approaches

Science-based sustainable diet and consumption recommendations

Until recently, there was no globally applicable guideline or standard for a healthy *and* sustainable diet (Reynolds & Bumford, 2020; Garnett 2014). This is due to the complexity of the relationship between human health and environmental sustainability in nutrition. The general conclusion is that low meat, especially red meat consumption, along with moderate consumption of dairy with a wide overall variety of foods eaten can best accommodate both health and climate concerns (Garnett, 2014, p. 18). Regional diets such as the New Nordic Diet and the Mediterranean diet are considered to be both healthy and environmentally sustainable (Renzella et al., 2018).

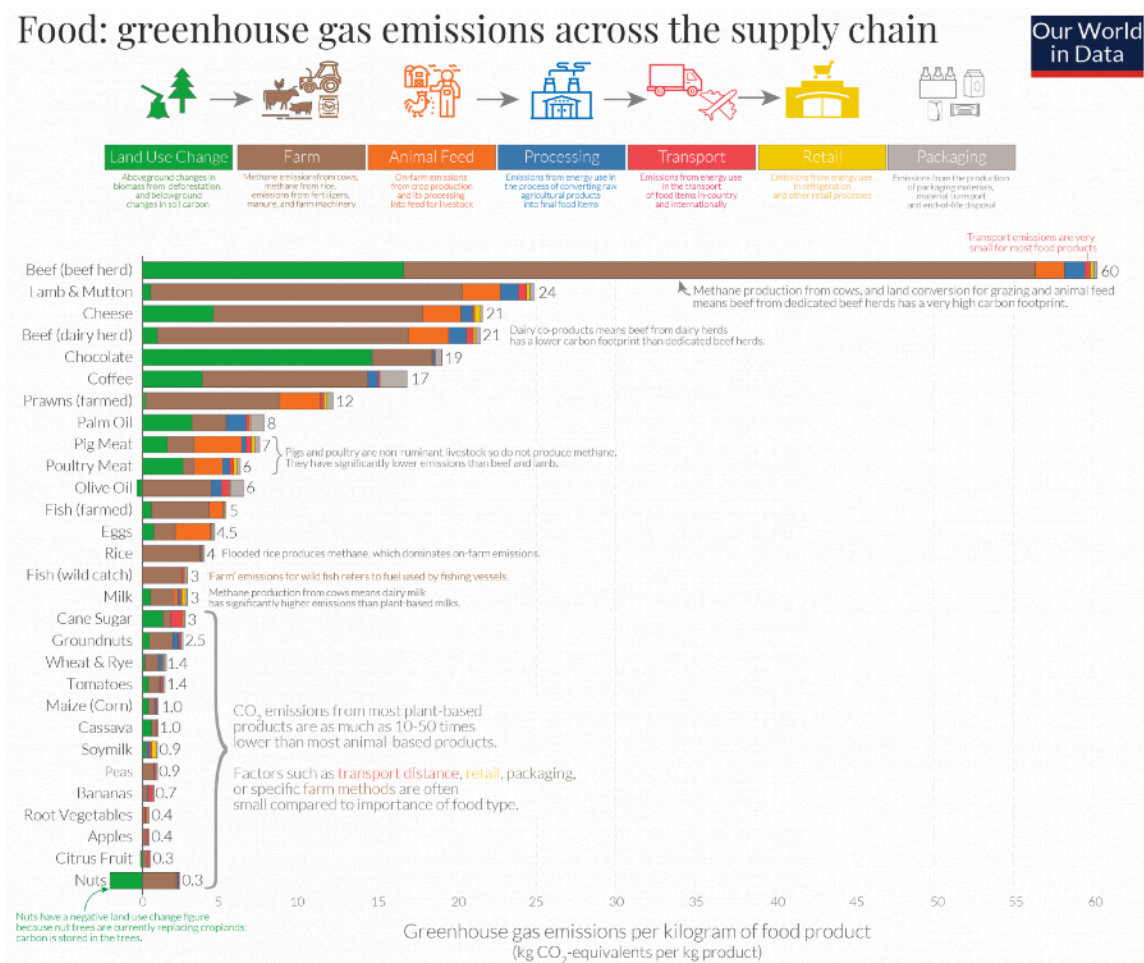


Figure 1. A chart representing the breakdown of GHG emissions for different foods across the supply chain (Source: Ritchie, 2020a).

A recent example of an effort by scientists to marry the global goals of human health and environmental sustainability is the Planetary Health Diet from the EAT-Lancet Commission, which addresses sustainable production and consumption (Willett et al., 2019). Their recommendations are largely based on data about the environmental impacts of different foods across the supply chain, such as those presented in Figure 1. From the perspective of environmental impacts, such as GHG emissions, certain products such as beef are much more impactful than others, and animal products in general are more impactful (on average 10-50 times) than plant products.

The Planetary Health Diet guideline gives daily food group intake recommendations that are heavy on fruits, vegetables, plant-based proteins, and whole grains, and including a greatly reduced amount of fish and meat compared to current global intake. Specifically designed to reduce the environmental impact of food systems in addition to providing adequate nutrition, it surpasses national dietary guidelines as well as WHO guidelines in positive health impacts², reduction of environmental impacts³, as well as food-related emissions targets of the Paris Agreement (Springmann et al., 2020). While criticized for its unaffordability to a significant part of the world's population and its potential effects on traditional diets as well as on the livelihoods of small-scale livestock farmers in developing countries, the guideline is nonetheless a valuable first step in quantifying and reducing environmental impacts while providing adequate nutrition.

The World Resources Institute also addresses the environmental impacts of food systems, comparing the climate impacts of diets with various meat consumption levels. Their 2019 report titled *Creating a Sustainable Food Future* provides, among other suggestions, practical guidance for diet and consumption shifting, including the positive environmental impacts of different diet shift scenarios compared to an average US diet (Figure 6-11, WRI 2019) as well as four strategies for influencing consumers to reconsider their food choices: “move beyond reliance on information and education campaigns to effective marketing, engage the food industry, improve plant-based substitutes, and leverage government policies” (p. 87, WRI 2019). In the category of government policies, procurement, taxes, subsidies, and policy coherence are mentioned as options. In terms of procurement, a shift away from ruminant meats is mentioned as having the biggest positive impact potential. Retail-level taxes to discourage consumption of certain products are reported to have the largest overall potential to shift consumption behaviors; however, they are currently seen as politically unlikely (p. 95, WRI 2019). The report also presents the “Shift Wheel” which describes groups of strategies behind the successes of previous consumption shifts (such as regular to LED lights, caged to free-range hen eggs, etc.). These groups are as follows: evolve

² According to a 2020 study published in the Journal of Nutrition, “The report did not meet standards for transparency and replicability, nor did it fully account for statistical uncertainty.” The authors advise that further independent validation is needed before the report can be used to inform dietary guidelines.

³ This is true for most countries, but not all. Due to protein-poor diets of less developed countries (that are less environmentally impactful), implementing the Planetary Health Diet recommendations would actually increase the country's environmental impacts.

social norms; minimize disruption to current consumption patterns; sell a compelling benefit; and maximize awareness (Figure 6-13, WRI 2019).

Sustainable operations

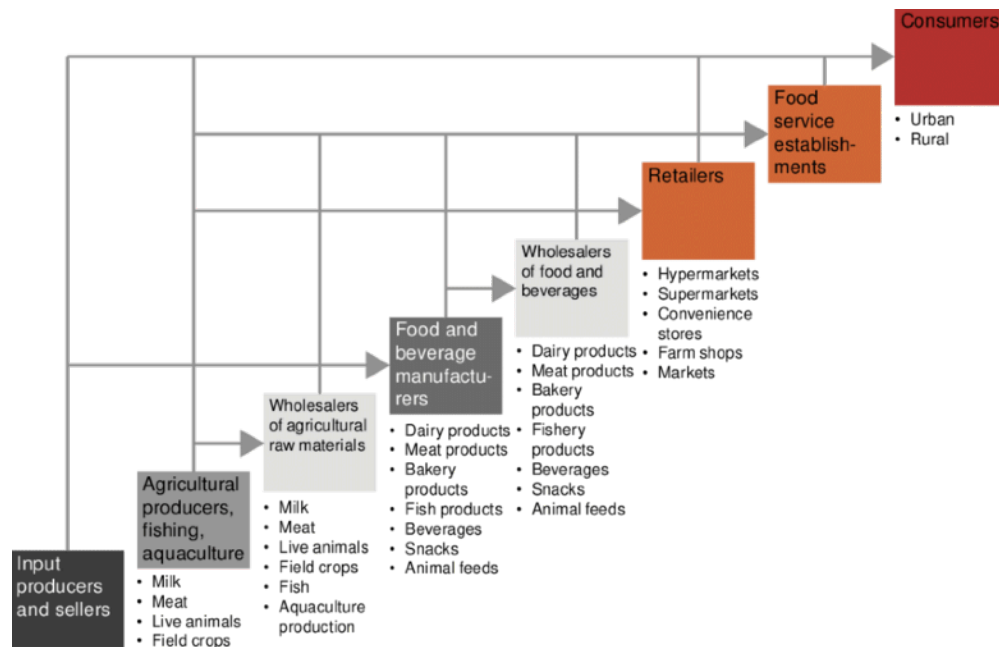


Figure 2. Agri-food supply chain (Source: Viira, 2017, Figure 4).

A way for organizations in the food system to manage their environmental impacts is the supply chain management approach. The main stages of an agri-food supply chain can be seen in Figure 2. According to sustainable supply chain management theory, in order to be able to reduce supply chain impacts, the current impacts need to be estimated. Referring back to Figure 1, we know that in an agri-food supply chain, most emissions occur in the agricultural production stage, which includes land use change (for example cutting down forests to create agricultural land) and the farm stage. The emissions from cows (and sheep) in farm stage are especially high due to their specialized digestive system, which emits methane, a potent GHG, as a byproduct (FAO, n.d.). The smallest amounts of GHG across all food products originate from transport, retail, and packaging. Next, goals for negative impact reduction or positive impact increase set in place. Strategies for sustainable catering systems need to be developed based on available resources. For food service companies, from the perspective of climate change mitigation, the most impactful change would be to reduce the amount of meat, especially ruminant meat, served in meals. From the perspective of other sustainability impacts, strategies such as procuring sustainable seafood (to ensure sustainable use of marine resource) or fair trade cocoa and coffee (to ensure fair wages or working conditions for farm workers) can also increase the sustainability of the caterer's operations. Ongoing monitoring and reporting are required to track progress towards the goals.

The methods for impact estimation include the use of ecological footprint and emissions calculations. For example, the caterer can measure food waste reduction as well as water and energy use reduction or, if enough information is available, even the GHG emissions reduction through serving less meat and more plant-based foods.

Calculating the carbon footprint of a product or service has become so popular among businesses that disclosure of GHG emissions is on its way to becoming a standard process. ISO 14064 and the GHG Protocol Standards are the two global standards regarding corporate carbon calculations. Emissions from organizations are divided into three categories. According to The GHG protocol, scope 1 emissions are direct emissions from sources owned or controlled by the organization, scope 2 emissions are indirect emissions from the generation of purchased energy, and scope 3 emissions are all other indirect emissions that occur in the value chain of the organization, including both upstream and downstream emissions (Greenhouse Gas Protocol, 2011). Scope 3 emissions are becoming increasingly important in light of today's global climate goals, as studies have found them to be on average 11.4 times higher than Scope 1 and 2 emissions (*Transparency to Transformation: A Chain Reaction*, 2020).

Standards like ISO can act as a type of “proof” of an organization's commitment to sustainability. The ISO 14060 is part of the ISO 14001:2015 set of standards for environmental management. ISO 50001:2011 is another set focusing on energy management. More specifically food-oriented standards include ISO/TS 26030:2019 for guidance on using ISO 26000:2010 in the food supply chain, and ISO 20400:2017 for sustainable procurement. The latter two are guidance, rather than standards, and therefore a certification cannot be received for their implementation; their purpose is rather to “clarify what social responsibility is, helps businesses and organizations translate principles into effective actions and shares best practices relating to social responsibility, globally.” (*ISO 26000 — Social Responsibility*, 2021)

As a response to consumers' demand for better quality, safer and more diverse products as well as increased awareness of the environmental impacts of global food supply chains, alternatives to global agri-food networks have appeared. These can be categorized under the umbrella term of Short Food Supply Chains (SFSC). The defining characteristic of SFSCs is a reduced number of intermediaries between the food producer, and the consumer while physical distance is considered an important aspect as well (Jarzębowski et al., 2020). Compared to global food supply chains, SFSCs can lead to minimization of food losses, enhanced food security, and reduced greenhouse gas (GHG) emissions (*IPCC Special Report on Climate Change and Land, Chapter 5 Food Security*, cited by Jarzębowski et al., 2020).

Innovation

Sustainability transition relies on innovation. As stated by the American systems scientist Peter Senge, technical innovations, management innovations, process innovations, and cultural innovations are all needed (Prokesch, 2010). This is echoed, in part, by Nosratabadi and colleagues in their 2020 literature review of business model innovations (BMIs) in food supply chains that can help bridge the gap between

food supply and demand. BMI is viewed as a tool that allows the firms in the food supply chain to optimize the value they create and deliver to consumers. According to the authors, business model innovation can successfully contribute to the advancement of novel food supply chains in the following ways:

1. Value proposition – engaging the stakeholders in value shaping
2. Value creation processes – compatibility with social and environmental constraints, e-commerce models
3. Value delivery processes – Internet of Things, vending machines, Eco-M business model

Additionally, the article breaks down BMI by supply chain actor type. For retailers, BMIs focus on value proposition, such as the “place-based business model” that propagates the use of location-specific resources to create and capture value; on value creation, such as using digital tools to improve final product delivery; or value delivering, for example IoT-enabled grocery management systems and fresh milk delivery via vending machines. Another sustainable BMI for retailers is the “ugly food” business model whereby less commercially attractive produce is sold via a separate channel to reduce food waste. For consumers, the BMI is in value proposition: businesses get feedback from customers to ensure societal and consumer benefits. The article also reviews whole supply chain innovations, such as the customer intimacy-product leadership (CI-PL) business model whereby interactive collaboration and knowledge creation and sharing allows for the production and delivery of high-quality food produce (Nosratabadi et al., 2020).

The article also acknowledges the role of rural female entrepreneurs, social movements, and urban conditions in driving farmers to reconsider business models. New technology, including e-commerce and IoT as well as environmental factors are noted to lead to BMI in retailers. Finally, it is noted that consumption demand and product quality affect all the firms in the value chain (Nosratabadi et al., 2020).

2.2 Global and regional sustainable food systems frameworks, policies, and standards

Given the scope of impact of food systems, food sustainability holds an important place in the international frameworks for sustainable development. Agenda 2030, the UN document that details the Sustainable Development Goals set in 2015, mentions as one of its main goals “A world [...] where food is sufficient, safe, affordable and nutritious” (*Transforming Our World...*, 2015). Among its 17 goals and 169 specific targets, food systems are addressed under goals 2 and 12, focusing on hunger, food security, nutrition, and sustainable agriculture (goal 2) and sustainable consumption and production (goal 12).

There are also strategic documents focusing specifically on food, such as the sustainable food systems

framework document by the Food and Agriculture Organization, the EU's strategy document "Farm to Fork," and voluntary guidelines specific to the food service sector in the Green Public Procurement criteria. Main points from these will be summarized below.

FAO Framework for Sustainable Food Systems

Food and Agriculture Organization (FAO), the UN agency that focuses on poverty reduction, food security, and nutrition, has developed its own framework for sustainable food systems whereby food system activities should be economically viable, contribute to socio-cultural goals, and have a positive or neutral effect on the natural environment (*Sustainable Food Systems: Concept and Framework*, 2018). A food systems approach is able to identify synergies between the economic, social, and environmental goals of a food system as well as reveal trade-offs.

The FAO approach is based on the structure-conduct-performance (SCP) paradigm, where the structure is influenced by various dynamic environmental factors, the conduct of any actor in the system is influenced by the structure as well as the conduct of the other actors, and the performance – the result of the conduct of the actors – is measured in terms of sustainability.

To analyze the performance of such a food system, the FAO framework calls for analyzing its linkages, the governance mechanisms that underlie it and determine actor behavior, and the root causes of underperformance as well the greatest potential for improvement. To improve the performance, it is necessary to change the behavior of actors by achieving more balanced relationships; to create multi-stakeholder partnerships to work towards integrated solutions; and to facilitate positive feedback loops to help the system become self-sustaining (*Sustainable Food Systems: Concept and Framework*, 2018).

The European Union's sustainable development framework: the European Green Deal

According to Schebesta (2018), cited by Pouikli (2021), the EU's approach to environmental policy today is an integrated one, requiring that legislation in different sectors be amended to meet environmental requirements, rather than having a stand-alone environmental policy. This integrated approach can be observed in strategy documents on all levels, starting from the European Green Deal. According to the communication from the European Commission (The European Green Deal, 2019), the European Green Deal (EGD) is a set of policy initiatives that aim to deliver a fair and prosperous transition into a net zero carbon future to ensure a healthy population as well as protected natural resources in the EU. As such, it is the EU's vehicle to achieve the 2030 Agenda and the Paris Climate goals. The EGD points out the need to "rethink policies for clean energy supply across the economy, industry, production and consumption, large-scale infrastructure, transport, food and agriculture, construction, taxation and social benefits". It also emphasizes the importance of natural ecosystems, sustainable use of resources, improving human health, and investment in the digital transformation to support this work. A range of strategies, policies, and directives are outlined to achieve the goals of the EGD. The need for legislative and policy updates both on EU and national levels is stated to ensure the success of the EGD.

The two core strategies of the EGD are the Farm to Fork strategy and the Biodiversity strategy which the EU calls ‘mutually reinforcing’ as they will strengthen the EU’s “resilience to future pandemics and threats such as climate impacts, forest fires, food insecurity or disease outbreaks...” (*Reinforcing Europe’s Resilience: Halting Biodiversity Loss and Building a Healthy and Sustainable Food System*, 2020)

However, according to groups like the Institute for European Environmental Policy, the two policies are not sufficiently aligned. Additionally, the lack of reference of the Common Agricultural Policy (CAP) in the Biodiversity Strategy is criticized, since it is the target of more than a quarter of EU funding and since agricultural policies play a key role in shaping European biodiversity (*EU Green Deal and Biodiversity Strategy: A New Beginning or Nipped in the Bud?*, 2020).

There have been some critical responses to the EGD, showing where the plan's ambition may be lacking. The European Sustainable Development Network (ESDN) points out the need for growth only to achieve social and environmental goals, and questions whether it truly is needed to achieve the EGD and also, whether growth is feasible within the planetary boundaries. The network also demands that consumption-based emissions be used to calculate the climate impact of the EU, rather than production-based ones, and that sustainability impacts should be reflected in the prices of goods and services (ESDN, 2020).

The European Union’s sustainable food systems strategy: Farm to Fork

Overview

The EGD communication (2019) sees the Farm to Fork strategy as a way to leverage the many existing opportunities along the food value chain. It emphasizes the role of the Common Agricultural Policy as well as the Common Fisheries Policy in ensuring the livelihoods of farmers and fishers while implementing the changes. It also considers the circular aspects of this transition, including transport, storage, packaging, and food waste. Finally, soft measures such as presenting information on the origin, nutritional value, and environmental impact of food are mentioned as a strategy to stimulate sustainable food production.

The 23-page Farm to Fork strategy document (*Farm to Fork Strategy: For a Fair, Healthy and Environmentally-Friendly Food System*, 2020) provides further details. The strategy aims to reduce impacts on the environment, economic inequalities, and health issues and increase food security, food quality standards both in the EU and globally, economic gains where they are most needed, and finally, EU’s global competitiveness. The highlights in the introduction titled “Need for action” are “just transition,” “robust and resilient food system,” “reduce dependency on pesticides and antimicrobials, reduce excess fertilisation, increase organic farming, improve animal welfare, and reverse biodiversity loss,” “huge economic opportunity,” “people’s diets,” “wasted,” “obesity,” “raise standards globally,” “improving the incomes of primary producers,” and “competitiveness.” In the goals for the three sustainability dimensions, parallels with the FAO framework can be seen:

- environmentally, the food value chain should have a neutral or positive environmental impact, including aspects such as resource use, climate change mitigation and adaptation, and reversing the loss of biodiversity;
- socially, the goal is to make sure everyone has access to sufficient, nutritious, sustainable food;
- economically, generating fairer economic returns so that most sustainable food also becomes the most affordable; this is the aspect that should also lead to the increase of EU's global competitiveness.

The first sub-chapter, "Ensuring sustainable food production", lists the many intended ways to alter food production methods to achieve a smaller climate impact, grow healthier food, take better care of livestock, and ensure plant health. Some of the measures are market-based, such as carbon farming or the circular bio-based economy, while others are legislative, such as the reduction of pesticide or antimicrobial use. Many of the reduction measures also suggest alternatives to ensure economic viability. The second sub-chapter, "Ensuring food security," addresses the current stresses on food systems, the importance of agri-food workers, and a contingency plan to ensure food security in a crisis. The third sub-chapter, "Stimulating sustainable food processing, wholesale, retail, hospitality and food services practices," addresses the links of the food chain between the primary producers and the final consumer. It addresses responsible business and marketing practices, nutrient profiles for products, circular business models, the safety and wastefulness aspects of food packaging, and geographical indication (GI) products. The fourth sub-chapter, "Promoting sustainable food consumption and facilitating the shift to healthy, sustainable diets," addresses consumer empowerment via standardization, clarity, and accessibility of information about food product sustainability, improving access of sustainable food to institutional caterers via standard-setting, strengthening the educational messages on food sustainability and nutrition, and tax incentives to ensure prices of foods reflect their sustainability impact. It also mentions the plan to determine "minimum mandatory criteria for sustainable food procurement." (*Farm to Fork Strategy...*, 2020, p. 14) The next sub-chapter addresses food loss and waste, including having binding targets to halve per capita food waste by 2030. Finally, in the area of combating food fraud along the food supply chain, better data management, dissuasive measures, and import controls are listed as key aims.

Part 3 of the Farm to Fork strategy discusses the pathways to enabling this food sustainability transition. It lists Research and Innovation (R&I) as a key driver, and defines "increasing the availability and source of alternative proteins such as plant, microbial, marine and insect-based proteins and meat substitutes" as a key focus (*Farm to Fork Strategy...*, 2020, p. 16). Part 4 addresses the global transition to sustainable agri-food systems in line with F2F objectives and SDGs.

Other elements of the EGD, namely the Biodiversity Strategy for 2030, the new Circular Economy Action Plan and the Zero Pollution ambition, are mentioned as having ties to the F2F strategy and having synergistic effects on its targets. Key actions proposed by the F2F strategy include proposing a legislative

Table 1

Summary of sustainable food systems framework and guidance documents

	FAO (2018)	WRI (2019)	Farm to Fork (2020)
Type of document	Concept and framework	Report with technical & policy suggestions	Strategy document
Approach/ framework	Structure-conduct-performance (SCP) paradigm, the development paradigm	Modelling and scenario creation	Systemic approach to food systems transformation, addressing all actors in the food value chain
Benefits of approach	able to identify synergies between the economic, social, and environmental goals of a food system as well as reveal trade-offs	Provides cost-effective scenarios for developing sustainable food systems	a way to leverage the many existing opportunities along the food value chain
Target audience	FAO	Policymakers, businesses, food supply chain stakeholders globally	EU policymakers
Aims/goals	Food system activities should be economically viable, contribute to socio-cultural goals, and have a positive or neutral effect on the natural environment.	To meet food, land-use, and GHG emissions goals in 2050 in ways that can also help to alleviate poverty and do not exacerbate water challenges	to contribute to the accomplishment of the European Green Deal by transforming the current model of primary production
Specific targets/ objectives	N/A	1. Reduce Growth in Demand for Food and Other Agricultural Products 2. Increase Food Production without Expanding Agricultural Land 3. Protect and Restore Natural Ecosystems and Limit Agricultural Land-Shifting 4. Increase Fish Supply 5. Reduce Greenhouse Gas Emissions from Agricultural Production	- Transitioning 25 percent of all member state farm area to organic by 2030 - Reducing total EU sales of antibiotics for farmed animals and aquaculture by 50 percent - Reducing soil nutrient losses by 50 percent by 2030 while ensuring no loss of soil fertility - reduce the use of pesticides by 20% by 2030

framework for sustainable food systems by 2023, and developing a contingency plan for ensuring food supply and food security by Q4 2021.

Feedback from stakeholders

Regarding the Farm to Fork strategy, the ESDN points out the lack of directives about reducing meat consumption, even though animal agriculture is responsible for more GHG emissions than private vehicle use in the EU (ESDN, 2020). It also suggests better integration of cities and regions into the processes of developing strategies for sustainable food.

The relationship between CAP and Farm to Fork is addressed by various actors. The European Commission's Vice President Frans Timmermans, the lead on the European Green Deal policy, has pointed out how "the CAP had both failed to ensure a good income for all farmers, and to achieve green goals"; however, the ideas promoted by him such as capping pesticide use were met with heavy criticism from the agribusiness lobby group Copa-Cogeca, on the grounds that this would significantly impact farmers' incomes (*CAP vs Farm to Fork*, 2020).

Food sovereignty scholars, another key stakeholder group, approve of the legislative approach, but criticize the “(green) economic growth” paradigm in which F2F is situated. In their view, food should be seen as a common good, not a commodity. Their detailed criticisms focus on the over-emphasis on the role of technological developments, large companies, and end consumers, while being less clear about the role of small-scale farmers, European diversity, and social science research.

The responses from civil society groups and other stakeholders points out some key omissions of targets, such as livestock reduction, and a lack of acknowledgement about the role of industrial agriculture in causing many of today’s ecological and social imbalances (Alberdi et al., 2020). In my view, these scholarly criticisms and stakeholder debates are helpful in understanding where compromises have been made in order to ensure the passing of the strategy, and what can and should be taken into account by civil society groups in designing their own sustainable food initiatives.

Sustainable operations, sustainable products

Operations

The EU’s Eco-Management and Audit Scheme (EMAS) is a voluntary scheme that has been in use since 1995 and is aligned with ISO 14001:2005. To be included, organizations need to demonstrate that they have implemented an environmental management system in their operations that meets the criteria set out in the EMAS regulation (Janev, 2019).

Products

The EU organic products label (taken into use in 1991, updated in 2009) applies to products that contain at least 95% organic ingredients and additionally, respect further strict conditions for the remaining 5%. It is compulsory to include the EU organic products logo on all products sold as organic within the EU. The logo cannot be used for mass catering operations such as restaurants or hospitals (*The Organic Logo*, n.d.).

Sustainable public procurement for food: GPP and Public Procurement for Circular Economy

Public institution spending in the EU, which reaches around 1.8 trillion euros annually, accounts for around **14% of the EU’s GDP** (*Buying green! A handbook on green public procurement*, 2016, cited by Stockholm Environment Institute, 2022) Therefore, public institutions have a significant role to play in the transition to a low-carbon economy. Green Public Procurement (GPP) is currently a voluntary instrument in the EU that addresses environmentally friendly procurement. The most comprehensive policy document related to the GPP was the “Communication of Public procurement for a better environment,” published in 2008, which set GPP criteria for more than 20 groups of products. Food and catering was listed as one of the 10 priority sectors (European Commission, 2008). In 2019, there was an update to the GPP criteria for food and catering (*EU Green Public Procurement Criteria for Food*,

Catering Services and Vending Machines, 2019). The document lists the key environmental impacts of food procurement and seven key objectives as guiding principles for Green Public Procurement:

1. increasing the amount of organic food served;
2. serving sustainable fish;
3. increasing proportion of plant-based foods;
4. food waste reduction;
5. avoiding the use of single-use items;
6. reducing energy consumption in kitchens and vending machines;
7. reducing water consumption in kitchens.

There are some caveats to the effectiveness of GPP. National-level GPP criteria exist in some MS, but the uptake of GPP varies widely between EU member states and has been slow, leading to a lowered real impact. Several authors and organizations are advocating for a mandatory GPP policy in the EU (Pouikli, 2020; Stockholm Environment Institute, 2022, etc.), for example through **national GPP minimum targets** (Andhov & Caranta, pp. 43-44, cited by Pouikli, 2020), which has also been mentioned in the EGD as a future direction. Additionally, scholars have found that the effects and costs of green public procurement vary in different industries and therefore a sector-specific approach should be adopted in policy development (Halonen, 2021).

Another possible shortcoming with regards to GPP in the food sector is that it focuses only on environmental impacts of food and catering while giving less focus to the economic and social aspects. Since GPP is an EU-wide document, political compromises were likely made to reach a consensus on its final text. In the current GPP, strengthening the position of the farmer in the public procurement system is addressed through geographical indications, organic food products, and fair and ethical trade products. According to C. B. Henriksen from COCOREADO, a project for rebalancing the position of the farmer in European food systems, it could have been advanced further by specifying tender requirements for local food, seasonal food, and short food supply chains. Henriksen points out that, “due to the existence of a single market in EU-28, the **GPP call for tenders can’t require products produced and processed locally**. Furthermore, in the original proposal for the GPP seasonal food was included as a valid selection criterion, but it was removed in the final version.” (Henriksen, 2022)

In the 2017 Public Procurement for Circular Economy guidelines, circularity and food are linked through the solutions of biodiesel production and food waste composting (*Public Procurement for a Circular Economy: Good Practice and Guidance*, 2019). The 2020 Circular Economy Action Plan includes food, water and nutrients among its priority sectors, pointing out that around 20% of total food produced in the EU is estimated to be lost or wasted and setting a target for food waste reduction. As part of the Action Plan, there will also be further measures to enhance sustainable food production and consumption,

including sustainable packaging. Finally, measures will be taken to manage agricultural water and nutrient use (European Commission, 2020).

Summary

It is worth noting that while dietary recommendations based on environmental science already reveal many complexities and trade-offs between the two goals, they are generally idealised scenarios and can thus provide much more detailed guidance to interested consumers. Policy documents such as the EU's Farm to Fork, need to address a much wider array of issues, including economic, social, and political realities in its diverse regions, and thus may tread carefully when addressing some of the causes of the unsustainability of our current food systems. Voluntary criteria such as the GPP, while more limited in their scope, can be considered a shortcut to

2.3 HEIs and food sustainability

2.3.1 Role of HEIs in sustainable development

Universities are considered to be facilitators of sustainable development by authors writing on sustainability as well as education policy (Sedlacek, 2013; Karatzoglou, 2013; Kolleck, 2016; Dzimińska et al., 2020). In terms of internal governance, Too and Bajracharya (2015) have developed a 6-P framework to illustrate the main factors for engaging the university community in sustainability: psychological needs, physical facilities, personal motivations, public perception, price mechanisms and policies.

According to the framework developed by Sedlacek (2013) to analyze the role of universities in fostering sustainable development at the regional level, the three main functions of a university are education, research and governance. Within the framework, the individual and the societal educational functions, knowledge creation and knowledge transfer within the research function, and the internal and external governance functions are distinguished. Sedlacek (2013) identifies some of the pre-requisites for helping universities in their role as facilitators of sustainable development regionally, for example: a diverse institutional set-up, a committed leadership, and alliances with bridging organizations. Based on empirical research about 80 HEIs around the world, Velazques and colleagues (2006, as cited by Too and Bajracharya, 2015) propose a sustainable university model which incorporates four key aspects:

- 1) A sustainable university should form a sustainability vision, on which a sustainability mission is conceptualised.
- 2) A university-wide sustainability committee should be founded to develop and implement a sustainability strategy.
- 3) The university should network with other universities and share sustainability practices.

- 4) Sustainability strategies should involve the areas of education, research, outreach and partnership, and campus operations.

While the Velazquez model mentions sustainability strategy as a key aspect of a sustainable university, research by Filho and colleagues (2018), based on a sample size of 35 universities from seven countries, arrives at the conclusion that sustainable development (SD) policies cannot be strictly regarded as preconditions for universities to engage on sustainability issues. However, they point out that universities with such policies are statistically more likely to invest in initiatives as green campus, integration of SD in curriculum and have official procedures for joint SD activities with local actors.

According to qualitative research done by Ralph and Stubbs (2014), the success of integrating environmental sustainability into universities is largely dependent on committed individuals willing to lead the work. A strong policy environment, resourcing of strategies, and encouragement of leaders and environmental sustainability advocates are listed as enabling factors while educating and building the awareness of university staff of the importance of environmental sustainability to future generations also contributed to a successful strategy.

When it comes to the education aspect of the role of universities in sustainable development, Lozano's (2010) analysis of the diffusion of sustainable development in Cardiff University's curricula arrives at the conclusion that "to better incorporate SD into curricula, a transformation from compartmentalization, over-specialization, and reductionism towards more balanced, synergistic, trans-disciplinary, and holistic perspectives, is required."

2.3.2 Networks to promote sustainability at HEIs

Principles for Responsible Management Education (PRME) is a global network that supports HEIs' commitment to responsible governance. It is a UN initiative that was launched in 2007 upon recommendations by academic stakeholders of the UN Global Compact. Its signatories, currently numbered at 800 (2021) are business and management schools around the world. PRME has a mission to 'transform management education and develop the responsible decision-makers of tomorrow to advance sustainable development' (*UNPRME*, n.d.). They are public schools or corporate universities whose parent organizations are participants in the UN Global Compact. PRME recognizes the role of higher education in achieving the SDGs and outlines the ways in which business schools can participate, both on individual as well as collective levels. On the individual level, the recommendations are to align curricula and research to the SDG commitments; pioneer new content and methods of learning; support applied and relevant SDG-oriented research; increase student commitment to and support of the SDGs; bring leadership and knowledge to public fora; and contribute to a local PRME Chapter. On the collective level, the PRME recommendations include: collaboration through the PRME Chapter and Global Compact Local Network; using the Local Global process to advance the SDGs locally; sharing good practices and engaging in SDG-oriented projects; joining PRME working groups; hosting events and webinars;

conducting trainings; defining local priorities based on the SDGs; and participating in national-level action plans. PRME has 14 self-governing regional chapters to reflect the importance of geographic context. Finally, PRME places importance on student engagement. Its Global Students movement (PGS) connects student organizations in a collaborative development process.

To bridge commitments and reality, PRME requires its signatories to submit Sharing Information on Progress (SIP) reports to showcase their implementation of the Six Principles. The reports need to include a description of practical actions that the institution has taken to implement one or more Principles during the past 24 months, an assessment of outcomes (i.e. the degree to which previously outlined goals were met, or other qualitative or quantitative evaluation of results), and specific objectives for the next 24-month period with regard to the implementation of the Principle(s).

PRME has given out recognition of excellence awards for quality and delivery of reporting in the years 2020 and 2021 (*Recognition of Excellence in Reporting, 2021*). The recognition does not pertain to the quality of the content (the concrete sustainability actions taken), but rather to the effectiveness of the format. A brief sustainable catering-oriented analysis of the four winning reports of the 2021 Excellence in Reporting awards shows that the depth of sustainable food-oriented thoughts and actions varies a lot between the four schools. One school (Norwegian Business School) has a goal related to increasing sustainable catering on its campuses and another school mentions food as a dimension to improve in to achieve higher organisational sustainability. Two of the schools have implemented a food sustainability initiative or activity each (eco-canteens, food donations to the community), and each of the schools has held at least one knowledge-sharing event or published research in the field of food sustainability.

2.3.3 Food sustainability at HEIs

Catering service model: in-house versus contract catering

Food service at universities is either provided by an in-house caterer (more common in rural and campus-type universities) or by a contract caterer. For many universities, choosing whether to opt for in-house or contract catering is often determined by operational constraints. However, it is valuable to study the differences between these two modes and, in relation to the topic of this research, how each of them affects the pursuit of sustainable procurement (SP). This has been done by Sayed and colleagues (2020) using English universities as case studies. The benefits of in-house catering include developing in-house expertise and ongoing flexibility while the benefits of outsourcing include professionalism, reduced costs, and spreading risks. The authors point out that different implementation processes are needed for the two modes to appropriately influence the buyers in pursuit of sustainable procurement. While in-house catering has been shown to have higher direct costs, there are ways to reduce them, such as using the services of purchasing consortia (an example of one in the UK is TUCO, The University Catering

Organization) which prepare lists of suitable suppliers for them. Purchasing consortia can also help with ‘developing in-house expertise’ which includes ‘building a strong sustainability accreditation and initiatives portfolio and training catering staff’ to successfully include sustainability as a procurement objective. While outsourcing is shown to have lower up-front costs, the literature suggests there are higher transaction costs related to this mode. Outsourcing is associated with reduced flexibility and increased opportunistic behavior. Contractors are known to resist SP practices, especially if these are not included in the initial outsourcing contract. Contractors are also generally also more knowledgeable about SP than university procurement staff, which can lead to opportunistic behavior and lower SP impacts. According to the authors, to reduce these hidden costs associated with outsourcing and to achieve higher efficiency in the long run, two facilitators can be used:

- Develop a collaborative relationship and build trust with the contractor to enhance their motivation to achieve sustainability goals.
- Sustainable contractor management: use market power factors such as the contractor’s current sustainability position and reputation as a safeguard during the procurement process; evaluate and understand the related sustainability issues within their contractors’ processes; learn how to measure and monitor them effectively; and have a greater ability to encourage contractors in all aspects of sustainability.

Governance

In their paper on sustainable catering at universities, Sayed and colleagues (2020) point out that the main motivations for universities to implement sustainable catering are: the University’s social responsibility, the University’s competitive position in national or international higher education sustainability rankings, and student satisfaction. In a review of policies promoting and supporting sustainable food systems at universities in Australia and New Zealand, Grech and colleagues (2020) investigated the governance documents of 19 universities related to the themes of waste management, fair-trade procurement, catering, events, and environmental management. They found that one-third of the universities adopted at least one of the three main strategies, namely sustainable waste management and prevention, ethical procurement practices, and environmentally sustainable food consumption, while only a small minority of universities addressed all three of those strategies. The discussion mentions that the universities’ governance documents considered sustainable food systems from the operations aspect and not in the categories of education and research.

Aspects of successful transitions

Stahlbrand (2016) presents two case studies of sustainable catering from the UK within the framework of the multi-level perspective (MLP), a theoretical approach to sustainability transition. According to the framework, transitions result from interactions among three levels—niches, regimes and landscapes—which eventually lead to a sociotechnical “regime shift.” Niches are defined as “protected spaces” where

innovations are incubated, until they are ready to “challenge a regime.” Regimes are defined as an in-between level that contain “practices, policies, infrastructure and interests” that the innovation can challenge. The landscape is defined as the social, institutional, technical and environmental environment within which both regimes and niches operate (Geels, 2002 and Spaargaren et al., 2012, cited by Stahlbrand, 2016). In the article, the Food For Life Catering Mark⁴ is identified as the niche while the industrial food system is viewed as the regime; the landscape is British traditions, institutions and discourses.

The author describes the current food regime as a system where universities offload food service, seen as having low priority, to large corporations. The system is “convenient and cheap, two significant advantages for institutions.” For a regime shift to occur, “there must be appreciation for the multifunctionality of food and its ability to address the landscape-related factors bearing on the health, economic, environmental, social, cultural and reputational goals of the institution.” Stahlbrand confirms that the landscape level is important in a food sustainability transition, pointing to five key factors – the policy environment, the green movement among university students, an established civil society organization, the poor quality of public school meals, and pre-existence of recognized food production standards with regards to sustainability and traceability – which, in combination, created preconditions for the food transition at UK universities to take place.

“Landscape factors are especially critical in the food sector. Such is the power of global corporate control of the food system that niche challenges to the regime may not be viable unless space is created by conflict within the landscape.” (Stahlbrand, 2016)

She describes the benefits of a food sustainability transition – a healthier student population, more local jobs, a healthier environment, a stronger food culture and a favourable reputation for the institution – as distributive, rather than direct. Stahlbrand also describes the process of food sustainability transition as “an active and on-going process of contestation, which requires skilled, intentional and proactive human agency” and emphasizes the significant role played by “civil society organizations (CSOs), public institutions and many champions in food sustainability transitions.” (Stahlbrand, 2016)

Other key elements have been identified with regards to successful food sustainability transitions in public institutions. Germany’s TRAFO 3.0 project examines innovative approaches and actors in community catering, including at universities, and their contributions to more sustainable food systems. One of the main findings of their project has been that in order to succeed with meat reduction to achieve more sustainable catering, fundamental changes in meal planning had to be made (Lopez et al., 2019). Lazell (2016) examines consumer food waste behaviour in a university setting and the implications for

⁴ Food For Life is a self-financing, third-party certification system in the UK that attempts to “shift responsibility for sustainability transition in the food system away from individual consumers and towards the public realm.” It is closely linked with the Food For Life Program led by the Soil Association, which aims at “transforming food culture” in British schools to focus on health, sustainability and enjoyment. (Stahlbrand, 2016)

encouraging sharing with the help of social media as a means of mitigating food waste. He argues that consumer food waste behaviour can be better understood by focusing on the practices, routines and habits of consumers given the hidden nature of the food waste issue.

2.3.4 Barriers to advancing food sustainability at HEIs

According to a literature review by Karatzoglou (2013), barriers to introducing sustainability principles in general included **organizational factors (e.g. lack of incentives and time), inadequate financial resources, limited creativity, low appreciation of outreach activities within academia, and emphasis to other more traditional priorities**. In their mixed methods study to explore the link between innovation and sustainability in the context of higher education, Ávila and colleagues (2017) find that the **willingness of leaders, policy makers and decision-makers** to envisage a sustainable future inside universities is a similar barrier at universities across different geographical regions, leading bottom-up sustainability initiatives to fail.

In terms of limitations to increasing food sustainability in specific, **cost** has been identified as a key barrier to developing a more sustainable food culture at HEIs (Shaw et al., 2017). It also influences the food choices staff and students make on campus. Cost is also mentioned as one of the scalability limitations for sustainable meal planning at Kassel University (which will be discussed further on as a “good practice” example) beyond their School of Organic Agriculture, with other factors including, “more complicated logistics, the amount of food processing that would be necessary to exclusively cook with gently processed ingredients, and, lastly, the potential lack of acceptance of such locavore menus on the part of the canteen clientele.”

Chapter 3. Methodology

Research design

As mentioned in the introduction, the goal of my study was, through studying good practice case studies of sustainable catering at HEIs in Europe and trying to apply them to HEIs with sustainable catering potential, to provide economically viable solutions to European HEIs to promote long-term food sustainability through their catering systems. The work follows a qualitative approach, specifically the case study method. As stated by Teiu and Juravle (2011), “case study research is the „weapon of choice” when the question that we are trying to answer is like „how” or „why”, when the researcher has a limited or low control over the events that he is researching about and the focus is targeted on a contemporary event in a real life context.” (Teiu & Juravle, 2011, p. 2)

A desk research was conducted to build a theoretical framework for the study, collect good practices in sustainable catering at HEIs in across Europe, and identify schools where sustainable catering was not (yet) a fully developed and applied concept. In the process, academic articles, websites of organizations in the agri-food network, policy documents, scholarly reviews of policy documents, university websites, and other types of online sources were used. Interviews were used for the last part of the work, to understand the perceptions of various stakeholders at the universities without successful sustainable catering programs. The interviews were analyzed for themes and a SWOT analysis was used to analyze the sustainable catering potential of each of the universities. Finally, solutions inspired by good practices that were also in line with theoretical principles and the realities of the universities were provided.

Participants

The participants of my study were HEIs in Europe. The process for choosing participants included several steps.

The first step was identifying universities with successful sustainable catering initiatives, to act as good practice case studies. This was done using several methods:

- 1) Through examining universities in sustainability networks, such as the PRME. The assumption was that a university or business school who has voluntarily joined a sustainability network would have already considered and possibly even implemented some form of sustainable catering. This turned out not to be true: a brief analysis of the four winners of the 2021 PRME Excellence in Reporting awards showed that the depth of sustainable food-oriented thoughts and actions varies a lot between the member schools. One school has a goal related to increasing sustainable catering on its campuses and another school mentions food as a dimension to improve in to achieve higher organisational sustainability. Two of the schools have implemented a food sustainability initiative or activity each (eco-canteens, food donations to the community), and each of the schools has held at least one knowledge-sharing event or published research in the field of food sustainability; however, it was not

possible to identify a school with a well-established sustainable catering program. Another limitation of choosing schools through the PRME network is that PRME is limited to business schools only; therefore, many European universities do not appear on the list of PRME members.

- 2) Another method was a Google Scholar and a regular Google search using keywords such as “university sustainable catering.” The Google Scholar search brought up articles that discussed sustainable catering initiatives at universities. The regular Google search brought up many initiatives as well, which were initially ranked based on order of appearance. The justification for using this method is that there is currently no well-established ranking of universities that are promoting sustainable catering. Only some schools are part of networks such as PRME; however, PRME is not focused on food. Therefore it cannot provide an exhaustive list of sustainable catering initiatives at HEIs.

Using these approaches to identify schools resulted in a relatively long list of schools whose catering initiatives could be categorized to varying degrees as sustainable catering. Based on the food sustainability principles discussed in the theoretical framework, these initiatives were then further studied by accessing the universities’ websites, with priority given to those that were discussed in scholarly articles and those that were recognized by external organizations. The criteria applied to comparing the schools included the GPP criteria as well as a few self-developed criteria, such as existence of a vision for food service, and scale of the initiative. As a result, three schools were chosen as current sustainable catering champions, representing different models and approaches. The three good practice case studies included Basel University in Switzerland, Kassel University in Germany, and London University of the Arts in the UK. These models will be described in detail.

The next step was to identify schools where sustainable catering was not (yet) a fully developed and applied concept. Given my personal connection to Estonia, I selected an Estonian university as one of the case studies. Tallinn University of Technology (henceforth TalTech) was chosen as the only campus-type university in Estonia, which means catering is a more relevant issue there than it is at other universities that are more embedded in their surrounding cities. Another factor supporting the choice of TalTech was its already existing sustainability agenda as well as the membership of TalTech’s School of Business and Governance in the UN PRME, indicating that the university is committed to sustainability improvements. The other university chosen for case study was the author’s alma mater, Corvinus University of Budapest (henceforth Corvinus), primarily for reasons of personal affiliation, but also for its membership in UN PRME.

The individuals chosen for expert interviews at TalTech and Corvinus included university staff, both in administrative as well as academic positions. For one of the case studies, the official position of the university was represented by a faculty member who was also part of the newly formed university-level sustainability working group. For the other one, the official position was represented by the Chancellor,

the administrator who is also responsible for the central budget of the University. Facilities Manager (Head of Campus Services) was the other key role interviewed at both schools.

Case study 1: TalTech

Expert 1: facilities manager (CS1-FM)

Expert 2: academic expert (CS1-AC)

Case study 2: Corvinus

Expert 1: facilities manager (CS2-FM)

Expert 2: administrator (CS2-AD)

Data collection and analysis

The goal of this research was to identify the potential of European universities to contribute to food sustainability. This potential depends on a university's current circumstances and organizational priorities. Therefore, an accurate overview of the current circumstances and organizational priorities was required. For good practice universities, this was available through academic studies or on their websites. Interviews with key stakeholders were used as a means of obtaining information about the situation of catering and stakeholders' perspectives on sustainable catering at TalTech and Corvinus. Some supplementation was done using the universities' official web sites.

Following the guidelines from FAO, the interviews aimed to

1) analyze the linkages in the universities' current catering system, and the governance mechanisms that underlie it and 2) determine actor behavior, and the root causes of underperformance as well as 3) identify the potential for improvement.

Background information for all universities included:

- 1) size of the school
- 2) the type of infrastructure set-up it had (a city-based arrangement where university buildings are part of the urban fabric, or a more concentrated, campus-based arrangement which is to some degree more secluded)
- 3) scope of the sustainable catering initiative (part of the school or the whole school), whether the sustainable catering initiative had top-level support, and whether food sustainability was also addressed in other areas of the school's work besides campus operations. The sustainable catering criteria were based closely on the EU's Green Procurement Practices, with slight modifications. For example, "increasing the amount of organic food served" became simply "the amount of organic food served" as there were universities where the level of organic food served was already nearly 100% and there was no possibility to increase; therefore, in order to do justice to those universities, the relative indicator of "increasing the amount" became an absolute indicator of "the amount" with qualitative

scores such as “None” “Some” and “High” (see Appendix 1 for a table of the criteria as well as the universities’ performance).

Chapter 4. Food sustainability and HEIs: in practice

4.1 Good practices from all over Europe

4.1.1 Basel University: mission-driven sustainable catering program

Background of the university

The University of Basel has around 13,000 students and more than 5,000 employees. It is a multi-campus university located in the heart of the city of Basel. The university has seven faculties⁵ and five strategic focal areas: Life Sciences, Visual Studies, Nanosciences, Sustainability and Energy Research, and European and Global Studies.

Sustainability at the University

Mission. The University has a mission statement specifically for sustainability, which says that the University “orients itself on principles of sustainability for the long term. It supports the development of society through the promotion of sustainability related topics in education and research, and the transfer of this knowledge to the general public. The University of Basel commits itself to respectful management of its resources and strives towards exemplary operation with regard to the ecological and social environment.”

Academics. The University offers an English-language Master of Science in Sustainable Development. The University also has a research network called Sustainable Future, which focuses on “the areas of «non-technical energy research», «(bio-)diversity» and «digitalization» and on the interfaces between these topics.” (*University Networks, Interfaculty Platforms & Institutes*, n.d.) Finally, the University has a Sustainability Research Group which focuses on both theoretical topics (such as theories of societal transformation and governance) and empirical topics (such as energy transition and implementing sustainability in political administrations). Some of its research projects include the CREST (Competence Center for Research in Energy, Society, and Transition), and UtilitEE, which aims to develop a consumer-oriented universal behavioral change framework.

Administration. According to a European Commission case study titled *Sustainable, Climate Friendly Catering* in a newsletter called *GPP in Practice* (2016), the demand for sustainability came from a group of the University’s students, specifically from the Master of Sustainable Development and the Department of Social Sciences and Philosophy. The sustainability program, called Nachhaltige Universität Basel (Sustainable University Basel), was founded in 2010. It was jointly steered by the university administration, members of the existing Sustainability Research program, and a student representative.

⁵ Theology, Law, Medicine, Humanities & Social Sciences, Science, Business and Economics, Psychology.

Through the initiative, the Sustainability Office was set up at the University in 2012 and sustainability was integrated into the University's overall strategy in 2014.

Sustainable catering

The University of Basel's sustainable catering initiative is part of its wider Sustainable University Basel program. The Living Lab approach was implemented in 2013, to better include the community in the initiative. Catering was chosen as the primary means to achieve the University's goal of a 20% GHG emissions reduction by 2016. The main aim of the initiative was to offer healthy and varied catering services at the University's canteens while also meeting environmental, climate friendly and social requirements, such as:

- Reducing the consumption of resources, such as energy and water,
- Reducing food waste,
- Reducing CO2 emissions, and
- Integrating fair trade products. (*Sustainable, Climate Friendly Catering*, 2016)

To achieve its goals, the University decided to work with the catering firm SV Group to implement its climate protection program for catering titled "ONE TWO WE". The program involves the cooperation of suppliers and customers and focuses on three main aspects: the procurement of products, meals on offer and operational processes. (*Sustainable, Climate Friendly Catering*, 2016) According to the life cycle assessment consultancy that helped develop "ONE TWO WE", the largest environmental impacts of canteens come from meat products, air-transported products and vegetables grown in heated greenhouses. Therefore, the program aims for goals such as less meat consumption and alternatives to air transported products or non-seasonal vegetables. Other improvement potentials, identified within 14 themes, include measures in canteen operation such as food waste reduction or energy efficiency improvement. The program was awarded the Zurich Climate Prize in 2013, for bringing public attention to the issue of climate impacts of large-scale catering (*ONE TWO WE – A Case Study...*, n.d.).

Besides the 20% GHG emissions reduction, Basel was aiming for other goals, such as consideration for sustainable production standards in seafood (exclusion of endangered fish species), vegetables (at least 10% organic), and fair trade products; and waste reduction in both food (through adjusted meal offerings and portion sizes) and packaging (project Refiller-friendly).

Good practices related to the implementation process:

- gradual introduction of changes rather than a radical approach; for example, with the gradual introduction of vegetarian and vegan meals

- continuous feedback loop and adjustments; for example, when seasonal food provision turned out to be difficult during cold months, a “blacklist” of products with the highest environmental impact was used instead
- Living Lab approach involving the whole University community; for example, a working group was initiated by the University’s Student Council to improve the quality of plant-based meals.
- collaboration, transparency, and constant updates regarding targets and achievements

Sustainable catering highlights at Basel

- Reusable Uni-cups (1750 total): the cups can be borrowed "free of charge" for university events. Afterwards, there is a cleaning cost (CHF 59 per 350 cups, which amounts to roughly 0.16EUR per cup).
- Sustainable event guidelines: these include food and drink as one of the six categories addressed.

Summary of Basel’s approach

Step 1: overall sustainability strategy

Step 2: specific sustainability goals that target food as a key category

Step 3: research possible partnerships with caterers

Step 4: identify a qualified partner

Step 5: introduce concrete measures

Step 6: measure impact

Step 7: update targets

4.1.2 University of the Arts London: “Food which is healthier for people and the planet”

Background of the University

The University of Arts London (UAL) is public university in London, UK that offers courses in art, design, fashion, communication and performing arts. It is a multi-campus university situated in downtown London with around 26,000 students and around 2700 employees. UAL has six colleges and three institutes. It runs 6 canteens and 11 cafés across its campuses. It was chosen as a good practice case study, because it achieved 100% in the sustainable food category and an overall 7th place in the UK’s People and Planet University League (*People & Planet University League*, 2022).

Sustainability at the University

Mission. The strategic aim of the University is to “create a culture of social and environmental awareness in order to develop and integrate sustainable and ethical practices throughout all aspects of our life and work.” (University of the Arts London, 2020, p. 2)

Academics. Sustainability (also known at UAL as Education for Sustainable Development) is becoming a “required part of the student learning experience, through the introduction of relevant learning outcomes across courses.” The University’s view is that “sustainability is integral to the culture of UAL; that it is relational and not separate from other agendas and should be embedded throughout the curriculum rather than set apart as a discrete unit.” (*Sustainable Learning, Teaching and Research*, 2021) The University commits to creating common principles addressing the climate emergency, auditing all courses for incorporation of sustainability themes, and tracking the progress of sustainability incorporation through the ISO140001 management system for teaching, learning and research. The UAL Research Strategy includes themes of environmental change and sustainable living. The University’s efforts towards Education for Sustainable Development are ISO-verified every year.

Various sustainability-oriented research and innovation groups and projects can be found within the University, such as the Center for Sustainable Fashion, Centre for Circular Design, and Industry Projects (involving partners such as Nike Sustainable Materials Project).

The University also contributes towards education equality through scholarships and funds for refugees, asylum seekers, or persons that are granted humanitarian protection. (*Sustainable Learning, Teaching and Research*, 2021)

Administration. UAL has an Environmental Policy, an Environmental Management System and a Carbon Management Plan (*Sustainability Documentation*, 2022). There are 14 staff members at the University who are involved in ensuring sustainable operations. Some roles address sustainability explicitly, such as Head of Sustainability and Sustainability Coordinator, while others such as Energy and Major Projects Support Officer, Building Maintenance Manager, Procurement Manager and Head of Catering and Retail among others contribute to sustainability within their own fields of expertise (*Sustainability Staff*, n.d.).

Sustainable catering

UAL's sustainable catering initiative is part of its overall sustainability strategy. The main aim of the sustainable catering initiative was to achieve the highest award of the Food for Life Catering Mark, a popular sustainable catering award in the UK (which it did successfully in 2014 as the first University in the UK). According to Percival (2015; cited by Stahlbrand, 2016, p. 2), the Catering Mark “represents a deliberate attempt to shift responsibility for sustainability transition in the food system away from individual consumers and towards the public realm.” The Soil Association (founder of the award) describes the Food For Life Catering Mark as “a clear signal that a caterer is serving food that uses fresh ingredients which are free from undesirable additives and trans fats, meets UK welfare standards, and complies with national nutrition standards.” (Soil Association, 2015)

To achieve its goals, UAL contracted BaxterStorey, a mid-sized UK catering company with a focus on “sustainability and provenance.” (Stahlbrand, 2016, p. 9) Despite being the most expensive bid, BaxterStorey had numerous advantages as a sustainable catering partner, such as a reputation for local, seasonal and fresh food, big enough buying power in the UK market to influence suppliers, and a chef who was enthusiastic about and committed to creating sustainable menus. This turned out to be especially crucial in the area of meat, such as bacon and chicken, which were difficult to acquire for various reasons. In the case of bacon, for example, low-priced bacon was widely available from other parts of the EU, which was affected the development of local organic bacon industry (Stahlbrand, 2016, p. 9). However, BaxterStorey was able to change the farming practices of the producers through the promise of a steady, reliable procurement contract.

Ian Lane, UAL's Head of Sustainability thinks food is a great way to put sustainability front-and-center, since food is something we think about every day. He also views food as a kind of “Trojan horse” for other sustainability initiatives (Stahlbrand, 2016, p. 10). He sees the gold Catering Mark as a way to achieve other goals, such as contributing to local economic development and health. He also recognizes the benefits to the students who, being exposed to food sustainability in practice, may take some of these concepts with them.

Good practices related to the implementation process:

- choose a partner with an existing food sustainability vision
- choose a partner with substantial bargaining power in the supply chain
- reduce overall meat quantity to accommodate additional costs for sustainable, organic meats
- simplify menu offerings at smaller outlets with limited kitchen facilities to control costs and reduce waste

- educate staff so that they can educate students

Sustainable catering highlights of UAL (UAL, 2020)

- vegan and vegetarian offerings at all venues (70% of all food offered)
- plant milks are offered at the same price as dairy milk
- it clearly indicates the origins of its sustainably procured foods
- used cooking oil is recycled into biodiesel
- provision of non-single-use tableware for takeaway
- reusable coffee cup with UAL design for sale at catering venues
- sustainable design, the University's core strength, is incorporated into catering

Summary of UAL's approach

Step 1: overall sustainability strategy

Step 2: specific sustainability goals that target food as a key category

Step 3: research possible partnerships with caterers

Step 4: identify a qualified partner

Step 5: introduce concrete measures

Step 6: measure impact

Step 7: update targets

4.1.3 Kassel University: locavore meal planning

Kretchmer and colleagues, in their 2021 article *Sustainability Transitions in University Food Service—A Living Lab Approach of Locavore Meal Planning and Procurement* present a methodological framework by which to involve a Higher Education Institution (HEI) in potential transition pathways toward sustainable public procurement and meal planning. The approach described in the article, implemented at Kassel University in Hesse, Germany, is based on a local organic diet approach, taking into account (1) dietary recommendations, (2) seasonality, (3) organic certification, (4) foodshed boundaries, (5) budget neutrality, and (6) life cycle assessment. In its framework, the article discusses the sustainable development principles, the different dietary frameworks referred to (the German Nutrition Society's standards and the Planetary Diet), the process of public procurement of food at Kassel as well as supply chain issues in getting local food to universities. It also discusses the issues with the current food system paradigm and the importance of working with nature through Organic Food Systems (OFS).

The method used for this research was Participatory Action Research (PAR) in a Living Lab approach. The key stakeholders included the local organic farms and wholesalers, best practice organizations, researchers who designed a university course specifically for this project, Kassel University's students who designed "locavore" meal plans as part of the course, and Kassel University's catering service who provided feedback on the meal plans. There were two feedback cycles through which student-created meal plans were advised on by the catering service. Finally, a life cycle assessment tool was used to evaluate the meal plans.

In the discussion part, the authors note the success of the PAR method and take an optimistic attitude about the possibility of a sustainable catering transition at HEIs. They also point out that while the role of aggregation in the food supply chain through initiatives like Food Hubs is essential in enabling HEIs to access local food more easily, it is currently not supported by policymakers. Similar to the article about short food supply chains, this article also discusses the definition of 'regional' as a procurement criteria. The role of LCA calculators is emphasized. The synergies between the different criteria are noted: reducing meat procurement was also more budget-friendly, leaving more funds to procure fresh, regional, organic products. The possible bias of the target group (students at the School of Organic Agriculture) towards organic and local food is taken into consideration as it may cause the results to be less universal.

With regards to the GPP criteria, Kassel's approach is much more holistic and while it does not address some aspects of GPP such as food waste or energy and water use, it goes beyond only environmental considerations of sustainability. It considers affordability to students as well as the positive economic impacts of SFSCs through the procurement of local and seasonal food.

The article recognizes some limitations related to the regime and landscape levels. First, existing paradigms around public catering are pointed out, including the requirement to offer meat despite its negative environmental impacts. It recommends multi-sectoral, inclusive approaches to shift these

paradigms. Second, it expresses doubt whether this kind of “locavore” diet would be accepted by the “wider audience” of the University outside the School of Organic Agriculture. Exploring student attitudes and possible motivations for shifting towards a more sustainable diet was pointed out as a future research direction. Another external limitation is the lack of consistent supply, aggregation, and delivery of organic food from local farms, the so-called ‘food hubs.’

4.2 Case Study 1: TalTech

4.2.1 Estonia: the national context

National diet: health and environmental impact

The Estonian policy for health and nutrition is based on the National Health Strategy, which aims to reduce obesity and the rates of noncommunicable diseases such as cancers and cardiovascular diseases. The detailed recommendations for nutrition and exercise are made in publications by the National Institute for Health Development. According to their 2017 publication *Estonian National Diet and Exercise Recommendations* (National Diet and Exercise Guidelines Working Group, 2017), the Estonian dietary recommendations are mainly based on the Nordic Nutrition Recommendations as the closest region to Estonia both in terms of climate as well as principles of societal organization.

The Guidelines give an example of a weekly ingredient plan that meets the recommendations of the food pyramid and the ‘plate rule.’ It does not give an example for any special diets such as pescatarian, vegetarian, vegan, or gluten or lactose free diets, etc.; however, it does list plant-based sources of all main macronutrient groups and mentions the main foods containing allergens such as gluten. A section of the guide titled “Self-restricted diet” explains the dangers of removing a food group completely from one’s menu. For example, it points out the lower bioavailability of protein in the case of a plant-based diet. It also points out the challenges of obtaining vitamin D in the Nordic climate during winter and recommends intake of fish, eggs, and dairy for this purpose, and a food supplement for certain vitamins in the case of a plant-based diet.

The guide also summarizes initial results from a national nutrition study conducted between 2013 and 2015. According to these results, the dietary habits of Estonians are overall quite poor. Fruit and vegetable consumption is insufficient across most demographic groups; intake of grain products and nuts and seeds is also insufficient while fish consumption is severely below the recommended norm. Meat and snacks are the two food groups where norms are met and even exceeded. The overall conclusion is that Estonian dietary habits are poor from a health perspective and that there needs to be an increase in the intake of many key food groups such as fruit and vegetables, grain products, dairy, and fish. At the same time, no

specific recommendation has been made on national level about specific foods and quantities regarding a reduced-meat or plant-based diet.

Comparing the Estonian guidelines to the PHD guidelines, Springmann and colleagues (2020) point out that if the Estonian National Dietary Guidelines were followed, Estonia would be able to reduce its environmental impact by around 13% while the PHD would reduce them by around 61%. In the case of the Paris Agreement goals, the National Dietary Guidelines would lead Estonia to miss the mark by a factor of 2.6 while the PHD would achieve Estonia's target.

The situation of food waste in Estonia

Estonia's food waste prevention plan (2021) is directly linked with the National Waste Management Plan and was created in consultation with "a wide group of stakeholders, and the government, together with other concerned parties, is now carrying out the activities that are listed in the plan." The plan will also be linked to the circular action plan, which was under development as of 2021. It is aligned with the Sustainable Development Goal of 50% food waste reduction at retail and customer levels by 2030. Data presented in the *Food waste prevention* section shows that the catering sector is responsible for 6% of the annual food waste while the food industry contributes 19% and households more than a half. The document also states that households waste the most edible food while the food industry wastes the least. (European Environment Agency, 2021) There are organizations that support food waste reduction initiatives, the biggest one being the Estonian Food Bank. In 2019 it redistributed 1.9 million kg of food, of which 1.4 million was rescued food. (*International Conference 'Food, No Waste!...', 2020*)

The situation of sustainable (public) procurement in catering

There are currently no official national guidelines for sustainable catering; however, the long-term national development strategy *Eesti 2035* (Estonia 2035) includes points relevant to it, such as:

- implementation of sustainable production and consumption models to increase the circular use of materials;
- significant increase in resource efficiency in business to improve productivity;
- prevention and reduction of waste (incl. food) and packaging;
- promotion of food donations to reduce poverty and waste (*Eesti 2035*, 2021).

While not all aspects relevant to food sustainability are directly mentioned, sustainable production and consumption as well as resource efficiency are all aligned with the aims of sustainable food systems and can apply to sustainable catering.

Given the Estonian national policy of providing free hot meals at all public general education schools (grades 1-12), there are specific guidelines for public procurement for those institutions as well as for kindergartens provided by the Health Bureau from the Estonian Ministry of Social Affairs. The guidelines include points such as: meat or poultry should be served at general education schools at least twice a week, vegetables and bread should be served every day, and fish or fish products should be served at least once a week (*Toitlustamine koolides...*, 2011).

The EU-funded StratKIT project for the Baltic Sea Region (full name: *StratKIT – Innovative Strategies for Public Catering: Sustainability Toolkit across Baltic Sea Region*) which ran from 2019 to 2021 has played the role of a platform for the Baltic Sea Region (BSR) countries to exchange experiences and good practices for increasing the sustainability of the public meals served in said countries. The project references global and regional guidelines such as the UN Sustainable Development Goals and the Paris Agreement, the European Green Deal, the EU Action Plan for the Circular Economy, EU strategies on nutrition and food, and the EU Green Public Procurement. Regarding sustainable catering in Estonia, the 2020 StratKIT publication titled *Joint Baltic Sea Region Report for Sustainable Public Procurement and Catering Services* reports the following about Estonia:

- Estonia has the highest proportion of agricultural land under organic agriculture (21%) among the seven BSR countries
- Estonia has no National Action Plan for Green Public Procurement (unlike other BSR countries)
- following logically from the previous, Estonia has not implemented the GPP principles in catering services
- in menu planning, the national nutrition requirements and recommendations as well as price and customer expectations are considered by caterers (use of GPP criteria is piloted in some Estonian municipalities with a focus on organic food)
- according to the Estonian experience, if public institutions organise procurement themselves, then the procurers may lack in-depth knowledge and competence, which may lead to tenders that are neither successful nor satisfying either of the procurement parties
- at universities, on-site food preparation is the most common model (sometimes, central kitchens are also used); most commonly, hot meals are served (sometimes, only cold food is available)

The outcomes of the project include a toolkit for sustainable catering in categories such as ‘Strategies for Change,’ ‘Public Procurement,’ ‘Communication and Capacity Building,’ ‘Organic Food,’ ‘Healthy and Plant-Based Diets,’ ‘Food waste,’ ‘Resource efficiency,’ and ‘Working with Farmers.’ (*StratKIT Sustainable Public Meal Toolkit*, 2021) It also provides a list of good practice case studies or ‘Inspirations’ in various areas such as food quality or education and training (*Inspirations - StratKIT*, 2021).

In terms of product labeling, Estonia's Mahemärk is a three-level organic certification that caterers can use to market the organic content of their meals. Level 1 = 20-50% organic raw materials; level 2 = 50-80% organic raw materials; level 3 = 80-100% of organic raw materials. This is more flexible than the EU organic products label, which can only be used when a product contains at least 95% organic raw materials (Zereen, 2018). Estonian market also has various other food-related labels, such as the "Approved Estonian Taste" (food products of Estonian origin) and "Approved Taste" (non-Estonian, EU-origin) labels as well as the "Estonian Best Food Product" and "Grown in Estonia" labels (Ministry of Rural Affairs; Agriculture and Food Board, 2021). According to research by USDA Foreign Agricultural Service, health-conscious but price-sensitive Estonian consumers tend to confuse the concept of organic certified food and conventional food marketed as "ecological, or "natural", or "green" (Kobuszynska, 2019).

Civil society initiatives: big caterers, short food supply chains

While no official GPP guidelines exist in Estonia, large catering companies such as Dussmann and Eesti Eine mention commitment to aspects of sustainable catering on their websites. On the Estonian website of Dussmann, a German company that offers catering as one of its main services, messages about "regional and seasonal" catering as well as the possibility of "installing energy-efficient kitchen equipment and converting food waste to energy" are displayed (*Menus < Catering...*, n.d.). Dussmann is certified for EMAS, ISO14001, and ISO50001 (*Certification < Quality < Dussmann Service*, n.d.). The company also has a sustainability policy, which includes all three aspects: economic as service/product quality and innovation, social as satisfaction of employees, and environmental as reduction of carbon footprint, and promotion of sustainability in product use (*2020 Sustainability < Annual Report < Dussmann Group*, 2021).

Eesti Eine is a medium-size company with nearly 80 employees whose business model is based on a central kitchen and delivery service. The company states its mission to be "to bring balanced and healthy meals to everyone." Due to their service to hospitals, they offer a long list of special menus for various dietary needs, for example vegan diet, diet rich in fiber, gluten and lactose free diets, etc. (*Püsitoitlustus – Eesti Eine*, n.d.)

With regards to sustainable supply chains, an EIP-AGRI⁶ report (European Commission, 2015) about innovative food supply chain management highlights Estonia's Tasty Southern Estonia (Taluturg) as a viable short food supply chain initiative. Taluturg brings together small producers primarily from Southern Estonia, to aggregate local and seasonal food supply and to distinguish local products from others. Its offerings include fruit and vegetables, meat and fish, dairy and eggs, dried goods and oils, pasta

⁶ A network that brings together innovation actors (farmers, advisers, researchers, businesses, NGOs and others) in agriculture and forestry, at EU level (*About EIP-AGRI*, 2019).

and dough, baked goods and confectionery, gluten free products, lactose free products, and vegan products among others.

4.2.2 Situation of Catering at TalTech

Background

TalTech is a public university that has a total enrollment of over 21,000 students. It has five departments: School of Information Technologies, School of Engineering, School of Science, School of Business and Governance, and the Estonian Maritime Academy (*Our Story | Tallinn University of Technology (TalTech)*, n.d.). It is the only campus-type university in Estonia. In its 2021-2025 strategic plan, it states as its mission “to be a leading provider of engineering and economics education, as well as a leader in the fields of engineering sciences and smart technologies.” TalTech's slogan is *Mente et manu*, reflecting, according to the university, the “equal importance [of] critical and creative thinking, entrepreneurial and practical actions as well as openness, reliability and cooperation.” (*Strategic Plan | Tallinn University of Technology (TalTech)*, 2020)

Sustainability strategy and administration

TalTech has a goal to become carbon neutral by 2035, as part of its aim to be the leader of green transformation in Estonia. According to Tiit Land, the Rector of TalTech, “One of the roles of a university is to take on global challenges and at TalTech there is a wide competence and a lot of knowledge to share externally.” (Land, 2021)

TalTech has taken several steps towards sustainability on the level of the university as well as individual departments.

1. TalTech has incorporated green transformation management into its administrative structure. Since 2021, it has a Vice Rector for Green Transformation (*TalTech Now Has...*, 2021). This puts Green Transformation on an equal level of importance as the areas of Studies, Science, and Entrepreneurship which also have Vice Rectors. A Green Transformation team is currently being built to support the work of the Vice Rector. In addition, TalTech also has a Green Transformation Adviser in the Rectorate's Strategy Bureau.
2. As a school with capacity in science and engineering, TalTech has added masters level curricula that are aligned with the its climate ambitions. In 2022, it opened a program called Green Energy Technologies with an aim to train specialists for industry and public sector, and to ensure that the next generation of Estonian scientists can support the technological aspects of Estonia's green transition (*TalTech toetab rohepöõret uue magistrikavaga*, 2022). In Spring 2022, for the first time a subject

named Introduction to Circular Economy was opened for registration (Mente et Manu, 2022). TalTech scientists research and publicly speak on sustainability-related issues such as the impact of climate change on wave dynamics in Estonian coastal waters, environmentally friendly materials for solar panels, and the indoor climate of buildings.

3. TalTech's School of Business and Governance (SBG) is a member of PRME since 2019.⁷ SBG has also formed an ERS (Ethics, Responsibility and Sustainability) committee and developed an ERS plan for 2020-2028⁸, which includes initiatives to incorporate ERS and SDGs in the school's academic and management operations. SBG claims to have ERS/SDG coverage in over 50% of their courses. Under the 3rd principle, SBG recently implemented a new waste management system for paper, food waste, and packaging. Under the 5th principle (partnership), SBG invites business representatives to speak at the university on SDG-related topics. As part of principle 6, since 2021 SBG organizes an annual Sustainability Day. Students are given a voice through seminars and are encouraged to contact the ERS coordinator or any member of the ERS working group.

Sustainability initiatives by students

In 2020, a student initiative named *Jätkusuutlik TalTech* (Sustainable TalTech) was founded, with the aim to advance and expand the awareness of the TalTech community about the environment and sustainability. It grew out of a project task by five TalTech students. Mainly communicating through Facebook and Instagram, their main goals are to advance sustainability at TalTech in aspects such as waste sorting, single use plastics, vegan food, and the University community's exercise habits. (Jätkusuutlik TalTech, 2020)

Catering at TalTech

TalTech's campus is connected with Tehnopol Science Park that is located adjacent to it. In terms of catering, because of proximity, students of TalTech visit both those located at TalTech campus as well as those located in Tehnopol. However, legally Tehnopol is a separate entity and TalTech has no control over its facilities management, including catering (CS1-FM, Feb 18, 2022).

In a map from 2020, 10 catering venues can be counted on the TalTech map and three additional ones in Tehnopol. However, due to the loss of customers during the lockdowns and the current unpredictability of customer numbers due to ongoing hybrid instruction, four TalTech caterers have since left. In terms of business model, all of the caterers are private companies that come to TalTech/Tehnopol to earn profit.

⁷ *TalTech School of Business and Governance*. (2019). UN PRME. Retrieved April 5, 2022, from <https://www.unprme.org/taltech-school-of-business-and-governance>

⁸ *Ethics, Responsibility and Sustainability | TalTech*. (n.d.). TalTech. Retrieved April 5, 2022, from <https://taltech.ee/en/sbg/ethics-responsibility-and-sustainability>

In terms of catering procurement, TalTech is bound to public procurement criteria. Within this, it has two options:

1. Food concession: this is the preferred way, because it enables TalTech to set criteria for the caterers, including ones about sustainability. However, it is a bit more complicated. Currently, two of the caterers are on public procurement contract.
2. Auction: in this approach, the only criteria is the price of rent. Economically, this is more attractive; however, when using this approach, sustainability criteria become something that the university needs to 'sell' to caterers. Currently, most caterers are on these types of contracts.

Sustainable catering at TalTech: from 'lone wolf' initiatives to strategic consideration – thanks to individual championing

According to the facilities manager (CS1-FM, Feb 18, 2022), sustainability was a 'lone wolf', uncoordinated effort at TalTech in general and in catering more specifically. From the catering perspective, facilities management was mostly 'on their own' in writing public procurement calls. Catering forms only a small part (around 5%) of the work at facilities management; therefore, it was not feasible to study any guidelines or do extra research. As such, only 'common sense' items such as a vegan lunch option, free water, or a certain selection of fresh salads were marked into the tenders as 'sustainability criteria.'

According to the facilities manager, things changed after the arrival of the new rector in 2021. Then the concept of a climate smart university was first introduced and the goal of climate neutral TalTech by 2035 was set. The Prorector for Green Transformation was hired and currently, a team is being formed to support her work. At the same time, students became more vocal in their requests for plant-based meals; for example, the Student Union wrote to Facilities Management regarding sustainable food options (CS1-FM, Feb 18, 2022).

According to the academic expert of TalTech (CS1-AC, Feb 22, 2022), although the management has clearly taken a strong stance on sustainability, food was not listed as one of the initial focus areas of carbon footprint reduction. Since food emissions belong to scope 3 of the carbon footprint calculation, there are no clear rules around how and what to include, and she notes that including food is not a popular choice. She relates this to decisions being made based on personal attitudes of those in leadership positions:

"When a decision-maker eats meat, they will not suggest putting an extra charge on meat."

She quotes a study by Oxford University that shows that the most impactful dietary change an individual can make to reduce their climate impact is to reduce their meat consumption, but points out that *"we [as a community] are not served this message."* The academic expert acknowledges that not everyone can and

will become aware about food sustainability; therefore, the decision to switch to more climate-friendly food options should be motivated by some other factor, such as taste and cost. She emphasizes the role of the university in creating an environment where it is possible to make the right choices, a big part of which is educating people. She mentions the University of Helsinki as an example of such behavior.⁹

Both experts mention various external circumstances that make the transition to sustainable catering more difficult. The facilities manager repeatedly mentions the role of Covid in reducing the attractiveness of the campus in terms of catering. He also mentions procedural issues related to public procurement, for example that existing contracts last for several years and are unalterable during that time; also, they do not allow the University to fund the provider to implement sustainability practices. The facilities manager also points out cost-related barriers to entry for qualified service providers, such as high initial investments into kitchen equipment and furniture. The academic expert mentions two issues related to the national food sustainability landscape: the national dietary guidelines, although modeled after the Nordic guidelines, do not emphasize and even slightly discourage plant-based diets; and the subsidies from the EU agricultural mechanisms to animal agriculture, which render plant-based alternatives relatively more expensive.

Optimism for the future – but change is needed

The facilities manager is enthusiastic about the possible sustainable future, but also frequently notes the importance the economic aspect of doing it successfully. In 2021, the facilities manager and the academic expert, with the help from a nutrition scientist at TalTech, put together a public procurement call for caterers which included various sustainability criteria, including a requirement for a number of organic items on the menu. However, the bid was not successful. Only two caterers responded to the call and later withdrew their offers. The facilities manager does not want to speculate what role was played by Covid and what role was played by the new criteria. He does point out that rent bids from caterers have been going down as sustainability criteria are included in tenders. This is not an economically viable situation for the University; therefore, the University needs to find means to reduce costs and/or increase profits for companies willing to offer sustainable catering services. A summary of the University's pain points is included below, with some initial suggestions from the two experts.

1. The university needs to be an economically attractive venue for caterers. This has turned out to be difficult with the hybrid learning model. There are less students on campus and it is hard to predict how many will show up each day. Caterers have been experiencing very low daily turnover, in some cases only having 50 euros go through the register in a single day. As such, the university is already

⁹ Besides offering an agricultural and resource economics masters program, the University of Helsinki has a Future Sustainable Food Systems research team that focuses on “the assessment of the potential of novel technologies considering environmental, economic and social dimensions of sustainability.” (*Future Sustainable Food Systems*, 2020). The University also leads FOODNUTRI, a national research infrastructure focusing on climate-smart food. (University of Helsinki, 2021)

considering to buy furniture and kitchen equipment from current caterers and offer it to the next caterer to reduce their initial investment.

2. The university needs to help caterers who are doing their part for sustainability to reach their customers. Current, pandemic-induced practices include advertising caterers' specials and offers in the university's intranet or on the screens placed around the university's common spaces. These are not specific to sustainable catering per se but can be and have been used for this purpose. The University has so far not done any outreach to its community or beyond regarding sustainable food in specific.
3. The caterers do not currently believe a completely plant-based menu is feasible as a business model. The facilities manager suggests that there may be a need to fund a sustainable catering project for a few years to show it is feasible and to help change the caterers' mindsets. The academic expert additionally suggests supporting existing caterers with trainings on nutrition and menu compilation. This could also be a consideration for the new tenders.
4. Cost of food for students and staff is an important consideration from the perspective of the facilities manager. So far, the University has been contracting large caterers that can take advantage of economies of scale. The facilities manager points out that while food has been highly accessible and affordable through the eleven caterers present (pre-pandemic) on campus, there may have been too much competition between similar F&B business models ('bistros'), and while the prices were cheap the overall quality was quite low. He sees a potential future of catering at TalTech as having fewer but more specialized venues but each with a more sustainable business model and more customers (win-win).
5. Cost of human resources to advance sustainable catering. Currently, on management level, one person (the academic expert) is handling this through scope 3 emissions calculations for food and catering among other areas. There is no set standard for what to include in scope 3, and there is resistance to including food because of the difficulty of changing food-related habits. At the same time, one person (the facilities manager) takes care of catering through public tenders; he estimates the effort he is able to spend on the issue to be around 5% of his total capacity, which he deems not sufficient to "go to catering conferences and analyze [European Union] directives [for sustainable catering]."

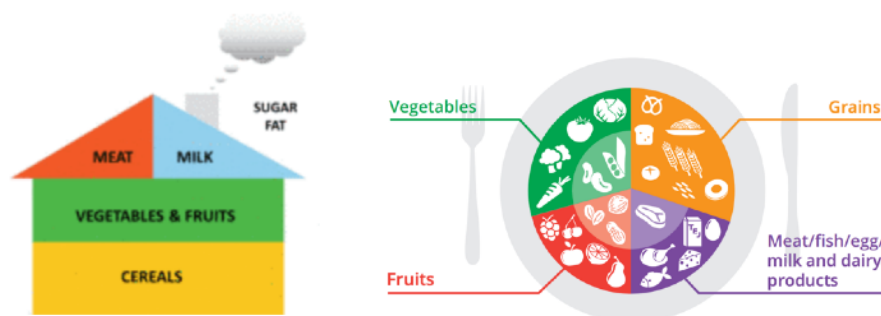
4.3 Case Study 2: Corvinus University of Budapest

4.3.1 Hungary: national context

National diet: health and environmental impact

According to the 2014 Hungarian Diet and Nutritional Status survey (OTÁP2014), the fat intake of Hungarians is above the norm, their carbohydrate intake is below the norm, and their protein intake is adequate. However, ‘unfavorable changes’ were discovered compared to the previous survey in 2009, including the increase of fat and saturated fatty acid intake in women and the decrease in fruit and vegetable consumption, which has a cause-and-effect relationship with decreased fiber intake. The findings also point to an “increasing trend in added sugar energy percent in each age groups of both genders” compared to 2009. The authors of the study point to the need for interventions focusing on “the promotion of fruit and vegetable consumption and decreasing of saturated fat and added sugar intake[.]”

In 2021, a new dietary guideline was released in Hungary, titled OKOSTÁNYÉR or ‘Smart Plate.’ The guideline was made by the Hungarian Dietetic Association (MDOSZ) with recommendation of the Food Science Scientific Committee of the Hungarian Academy of Sciences. It shows a visual of a plate that is half filled with fruit and vegetables (vegetables being slightly over a quarter of the total plate), with grains taking up around 30% and the remaining ~20% allocated for animal products, such as meat, fish, egg, and dairy. It also encourages a reducing salt, sugar, and fat intake, drinking plenty of water, eating whole grain foods regularly, and eating a wide variety of sources of protein. It encourages people to “[c]hoose more seasonal, freshly consumable ingredients and less processed foods. If you can, favour the domestic, locally produced ingredients!” The guidelines also recommend at least one meat-free day per week. Compared to the previous guidelines titled *the House of Healthy Nutrition (Hungary, 2004)*, the key difference is the overall shift of proportions where fruit and vegetables are seen as separate categories with different weights, and meat and milk are combined into one.



Figures 3a and 3b. Visual models of the Hungarian dietary guidelines from 2004 (left) and 2021 (right) (Sources: Hungary, 2004; Hungarian Dietetic Association, 2021)

Comparing the Hungarian 2004 guidelines to the Planetary Health Diet guidelines, Springmann and colleagues (2020) point out that if the Hungarian National Dietary Guidelines (NDGs) were followed, Hungary would increase its environmental impact by around 2% while the PHD would reduce them by around 71%. In the case of the Paris Agreement goals, the NDGs would lead Hungary to miss the mark by a factor of 2.16 while the PHD would help Hungary achieve and even exceed the target. No comparison between the previous dietary guidelines and the new ‘Smart Plate’ was made within the scope of this research regarding the environmental or climate impact; however, it can be assumed that following the new guidelines will have a positive impact in both categories.

Situation of food waste: focus on processing and production

According to a 2016 Interreg Central Europe – STREFOWA¹⁰ report, Hungary has national strategies¹¹ and market-based instruments with implications on food waste, as well as regulations and regulatory instruments addressing food waste generation and food waste management. As of 2016, Hungary did not have regulations or regulatory instruments addressing food waste reduction or food (re-)distribution. (Gruber & Obersteiner, 2016)

According to a 2018 report about food waste in Hungary published by the Embassy of the Kingdom of the Netherlands in Budapest, Hungary’s annual waste generation rate is similar to the EU average; however, “Hungary differs in the fact that most food goes to waste in the processing and production stages (62 per cent), while household consumption and retail amount for the remaining 38 per cent.” According to the report, this breakdown of food waste is more common to a less wealthy society where a lower level of technology and digitalization decreases the resilience of the agricultural sector and the inefficiency of the logistics and processing sectors leads to more waste generation. At the same time, the end product is valued more by consumers who spend a relatively high share of their income on food; therefore, food waste is less common in that stage.

The report also lists initiatives dealing with food waste, ranging from civil society and the private sector to the public sector. Among these is the Hungarian Food Bank Association that works with several large retail food sellers, supermarket chains such as Spar and Tesco that have included a variety of waste-reducing practices in their operations, and government initiatives such as *Maradék nélkül* (*Without leftovers*) that focus on developing national guidelines for waste reduction in the food industry. The Hungarian Food Bank is also in a partnership with Munch, a social enterprise with a focus on saving food. The Munch platform, which already hosts (as of 2021) 150 different hospitality companies, is a place where companies can advertise food at discount prices as an alternative to throwing it away. As part of the partnership, the Hungarian Food Bank is now able to collect the discounted food that still does not

¹⁰ Strategies to Reduce Food Waste in Central Europe

¹¹ “Food Chain Safety Strategy 2013 - 2022” and “National Waste Management Plan (2014 - 2020)”

get sold, further reducing food waste (*Hungarian Food Bank and Munch Enter into Strategic Partnership...*, 2021). A smaller-scale, civil society-based initiative whose mission to reduce food waste through equitable redistribution is the Budapest Bike Madia. Its operations are powered by cycling as a way to engage urban youth in social activism (Venn, 2015).

Situation of sustainable public procurement in catering

In Hungary, there is currently no green or sustainable public procurement legislation or national action plan (*GPP National Action Plans*, 2022); however, pilot projects for implementing green procurement practices at public and private organizations started in 2010. It was discovered through the pilots that the challenges faced by organizations participating in the green procurement pilot arose mainly due to “the interdisciplinary nature of environmental aspects, the lack of experience of the procurers in green issues taking part in the project, and even the risk aversion especially in public procurement procedures.” (Diófási-Kovács & Valkó, 2016) It was also discovered that depending on the type of procurement procedure implemented (public procurement, tendering, small ad hoc purchases), a different approach was required to succeed with greening the procedure. A green procurement toolkit was developed specifically for supporting organizations committed to this goal. The aim of the initial version of the toolkit was to address the two biggest barriers of green procurement at the time, “lack of technical knowledge, and perception of financial burden.” (Diófási-Kovács & Valkó, 2016) The toolkit was later developed to address the specific requirements of public procurement. Currently, the toolkit contains 18 product criteria, including some directly relevant to catering, such as kitchen equipment (electric ovens, refrigerators, dishwashers), facility management, and cleaning products.

Civil society initiatives

Despite the lack of legislation, there are local initiatives that aim to improve the sustainability of the food systems, such as the Budapest-based FoodHub, whose goals are to develop a resilient local food economy, support small-scale producers with advisory products and chefs and consumers with quality food products, and to “cultivate relationships between food system actors to build a community that fosters transparency and fair business.” FoodHub is also a partner of the Hungarian Food Bank.

4.3.2 Situation of Catering at Corvinus

Background

Corvinus University of Budapest is a private university with approximately 11,500 students and around 900 staff members. Its urban-type main campus is located in central Budapest. The university has three schools: Business Administration, Economics, and Social Sciences. It states as its mission to “train the responsible economic and social elite of twenty-first century Hungary and the region.” Its vision is “to

become the best university in the field of economic and social sciences in the Central and Eastern European region by 2030.” (Budapesti Corvinus Egyetem, 2021) It has 17 research centres, covering areas from business and finance to centres such as Competitiveness Research Centre and Sustainability Indicators Research Centre.

Food sustainability in academics and administration

Academics

There are several departments at Corvinus where courses and research projects focus on sustainability, some of which also address links with food and food supply chains, or which teach skills that are applicable to the catering sector. A selection of these will be highlighted here to show the penetration of research on the topic of food sustainability and, at the same time, its fragmentation. First, the department of Agricultural Economics and Rural Development (also listed on the Corvinus website as the Department of Agribusiness) has done research projects on topics such as *Economic and social impacts of food quality systems and short food supply chains in Hungary* and *Innovation adaptation of food production and consumption* (Budapesti Corvinus Egyetem, 2021a). They also offer courses on the topic of food security. The department of Geography, Geoeconomy, and Sustainable Development runs a Master-level program titled Regional and Environmental Economic Studies; it also offers courses titled *Global sustainability challenges*, *Green economic policy*, and *Environmental assessment* (Department of Geography, Geoeconomy and Sustainable Development, 2022). The department of Logistics and Supply Chain Management has researched topics with titles such as *Sustainable supply chain*, *Scope 3 carbon accounting and management*, and *Examining the competitiveness of Hungarian food supply chains in light of their European competitors*. It also offers courses such as *Sustainable public procurement* and *Sustainable supply chain management* (Logisztika és Ellátási Lánc Menedzsment Tanszék, 2022). Finally, the Department of Marketing Management offers a course titled *Sustainable Consumption*. Prior to structural reforms, there was also a Department of Environmental Economics and Technology that has produced research relevant to sustainability and even specific to food sustainability, such as Z. Vetőné Mózner’s 2013 PhD thesis titled *Towards Sustainable Food Consumption? The Ecological Footprint of Food Consumption in Hungary*, which was the first survey-based research undertaken in Hungary to evaluate the environmental impacts of food consumption (Vetőné Mózner, 2013).

In addition to the individual departments, there are several research centres focused on sustainability at Corvinus: the Regional Centre for Energy Policy Research (REKK), Centre for Business Ethics, Sustainability Indicators Research Centre, and the Sustainability Excellence Centre, where food sustainability issues could potentially be addressed.

Administration and partnerships

Corvinus, in some form, has been a member of the PRME since 2010.¹² As a member, the Corvinus School of Business prior to 2019 and the University as a whole has been submitting ERS reports every two years. Its active commitment is symbolized by the founding of the ERS Hub, with a mission to “create an active, collaborative and inclusive platform for embedding ethics, responsibility and sustainability into all activities of Corvinus,” and a vision to “support and drive Corvinus in becoming a leading change agent university in Europe for a sustainable future by 2030.” (*Responsible Management Education PRME Report 2021*, 2021) The vision shows a commitment not only to support the University in its existing sustainability efforts but also to push it further, based on guidance of the mission statement.

Corvinus recently joined the UI Greenmetric University Ranking, which scores universities based on their sustainability performance in the following categories: Setting and Infrastructure, Energy and Climate Change, Waste, Water, Transportation, and Education and Research. The motivation for joining the ranking was to give the university a framework for its sustainability activities. Today, there are several campus-wide initiatives and ideas for future initiatives. The staff-oriented Green Office focuses on paper recycling and reduction of the use of single-use water bottles through installing a water filtration system in the taps. The students are encouraged to participate in the paper recycling initiative, and there is a plan to hold a student contest for smart sustainability action ideas (Interview, CS2-admin, March 11, 2022).

There are also efforts towards sustainability through outreach programs and events. The Corvinus Science Shop “acts as a bridge where community partners bring their questions and challenges to the university and where they are partnered up with lecturers, courses and students.” (*Responsible Management Education PRME Report 2021*, 2021) In 2020, Corvinus held “the first Central European Scientific Conference on Green Finance and Sustainable Development,” which aimed to be “a forum for researchers, policy makers and practitioners to discuss the financial aspects of transitioning to a sustainable and low-carbon economy, with special regards to the role of central banks.” (*The Financial Sector Supported by Academic Knowledge...*, 2021)

Sustainability initiatives by students

Food sustainability has been a topic of events and academic projects in the recent years. In 2020, a group of Corvinus students worked on a class project called Green Canteen, with the aim to collect information from students on their food-related needs and opinions, and to deliver them to university administration to raise awareness. The group’s opinion was that members of the university community with diverse nutritional needs (vegan, vegetarian, food intolerances) were not adequately supported by the university. The real outcomes of the project were the installation of various ready-made food vending machines as well as microwaves in one of the academic buildings (*New Vending Machines in the Main Building*,

¹² For most of this time, only the School of Business Administration was a member of PRME. The membership of the university as a whole began in 2019.

2021). This gives students access to more diverse food options and also a chance to heat up their home-brought meals. In 2021, Corvinus Students' Union organized Greenspire, a two-day 'sustainability festival' with eight main themes, which included sustainable gastronomy alongside topics like green business and the role of education in sustainability.

Catering at Corvinus

At Corvinus, the Campus Services department fulfil a similar role as the Facilities Management at TalTech, taking care of the infrastructure-related matters such as upkeep of dormitories, maintenance of sufficient working spaces for staff, and supervision of the construction of the new campus across the Danube river. According to the current facilities manager (CS2-FM), there are currently two working buffets and two cafes at the University. There used to be cafeterias in two of the academic buildings on the city center campus; however, one of them ended its operations several years ago while the other left due to bankruptcy in fall 2021, despite Corvinus waiving its rental obligation throughout the whole pandemic period (around 1.5 years). The cafes and buffets are able to sustain their operations due to a 50% rental discount offered by Corvinus. The University recognizes the need to offer hot meals to students on its premises and is looking for solutions; however, according to both experts interviewed for this study, it is not easy to find a quality service provider, both in terms of quality of food and the management of the service. The facilities manager (CS2-FM, April 7, 2022) says the following about the canteen service:

"The providers are not interested in this business model. We don't know why. Because there are 10,000 university citizens, it's a huge market. But the market has a lot of competitive companies... So, we are searching for the working business model."

The most viable option for the future, according to the facilities manager, is cooperation with the in-house caterer of another university in Budapest, who could bring the experience of succeeding in university catering.

"Our hope is that the other university's provider comes here[.] They are experts. They have very good experience in that. And I hope they can make a working business model. Why not? They made one at another university. Why not here?"

According to the administrator (CS2-AD, March 11, 2022), another option is to simply take advantage of the central location, which offers many dining venues within 5-10 minutes' walk from the University.

"Most of the students... it's completely understandable... one day they are going to eat Chinese, another day, Thai, then burgers... You can do it in this neighborhood."

Sustainable catering at Corvinus – information and perception gap

Currently, no sustainability practices are considered at the catering venues at Corvinus. According to the facilities manager, one of the main obstacles to achieving this is the lack of relevant expertise.

“We have no expert advisers in this. My colleagues and I sometimes read some article on the Internet, but it’s not enough.”

According to the administrator (CS2-AD, March 11, 2022), given the failure of the canteen business model in the recent years, the University’s biggest contribution to food sustainability is when its consciously minded students visit the F&B establishments in the area and voting for sustainable options with their wallets.

“[B]ecause in the neighborhood, students from Corvinus and other universities... are important customers to these small snack bars and cafes and small restaurants. [T]here is a change process in this sense... and without pressure from the state, there is a change. Because the students want [sustainable options] and if somebody does it, most of the students go there. [B]ecause of the customer and because of this special pressure coming from the customer, the market will solve this problem.”

To contrast this perspective, the results from the Green Canteen project’s student survey show that only 27 students out of 157 (or around 17%) consider sustainable operations when choosing where to eat. Furthermore, students consider reduction in meat consumption significantly less important (3.3 on a scale of 1-5 where 5 equals the highest importance) than using reusable tableware (4.2/5) or consuming seasonal foods (4.3/5), while many authoritative sources have named meat reduction as the single largest sustainability impact an individual can make with their diet.

4.4 Analysis and Recommendations

Facilitators and barriers: strategic prioritization determines opportunities and attitudes

Based on the content analysis of the four expert interviews, the most popular as well as common themes were identified. The themes were split into “current (perceived) facilitators for sustainable catering transition,” “current (perceived) barriers to sustainable catering transition,” and “proposed solutions.” Additionally, each theme was categorized as ‘external,’ ‘strategic,’ ‘resources,’ or ‘attitude.’

The only current facilitator for transitioning to sustainable catering that is shared between the two universities, is interest or pressure from students. Administrative mandate and individual leadership are mentioned only by TalTech experts. At the same time, many common themes emerge among the barriers to sustainable catering transition. Three experts mention lack of relevant expertise as a barrier. Related to this is “lack of time/resources to develop sustainable catering” (3 mentions). It was my choice to distinguish the two – while they may sound similar, the arguments given to support each were different. Expertise was described as something that came already with a person, usually an academic staff or expert advisor, and it was somewhat implied that if it were available, the costs of the transition would be lower, while time referred to time spent trying to acquire relevant expertise and resources referred to funds required to hire a person, both of which implied higher additional costs.

Table 2

Thematic analysis based on interviews with TalTech (CS1) and Corvinus (CS2) experts

FM=facilities manager AC=academic role AD=administrative role			CS1-FM	CS1-AC	CS2-FM	CS2-AD	Mentions	Common theme between schools	Common theme between roles
	Theme	Category							
Current (perceived) facilitators for sustainable catering transition	Student interest/pressure	Attitude	x	x		x	3	Yes	Yes
	Administrative mandate	Strategic	x	x			2		Yes
	Individual leadership	Resources	x	x			2		Yes
Current (perceived) barriers to sustainable catering transition	Lack of expertise	Resources	x	x	x		3	Yes	Yes
	Effects of the pandemic	External	x		x	x	3	Yes	Yes
	From administrative perspective, food is not a priority	Strategic		x	x	x	3	Yes	Yes
	Lack of time/resources to develop sustainable catering	Resources	x	x	x		3	Yes	Yes
	Loss of income to university	Resources	x		x		2	Yes	
	Service providers are not willing to change business model	Attitude	x		x		2	Yes	
	Requires investment	Resources			x	x	2		Yes
	Lack of qualified service providers	External			x	x	2		Yes
	External landscape-competition from nearby F&B establishments	External			x	x	2		Yes
	Lack of clear direction from administration	Strategic	x	x			2		Yes
	Personal beliefs and attitudes of leadership	Attitude		x			1		
	Procedural issues related to public procurement	External	x				1		
	Cost-related barriers to entry for qualified service providers	External	x				1		
	External landscape-dietary guidelines	External		x			1		
	External landscape-financial support to animal agriculture	External		x			1		
	Lack of student empowerment	Strategic		x			1		
Proposed solutions	Gradual implementation of sustainability practices	Strategic	x				1		
	Higher specialization of providers	Strategic	x				1		
	Bring food sustainability to policy level	Strategic		x			1		
	Trainings to catering staff	Expertise		x			1		
	Academic subjects with a focus on sustainability	Expertise		x			1		
	Investigate consumer behavior	Expertise		x			1		
	Expert advisor	Expertise			x		1		
	Material support from university	Resources	x				1		
	Marketing and communications support from university	Resources	x		x		2		
	Work with another university's provider	External			x		1		
	Students' sustainability demands will impact F&B scene in the area	External				x	1		

Effects of the pandemic, an external factor, is another popular common theme that was discussed at length by three experts. While this was certainly a shock to the university and especially the caterers, it is now a

new “normal” for most societies, and something that, in my view, could be overcome by strategic planning. The fourth common theme between the two universities is that from administrative perspective, food is not considered a priority. This is a strategic barrier, which will be more challenging to overcome; however, an interesting observation can be made here about the experts’ perspectives. The facilities’ manager at TalTech is optimistic about the overall orientation of the university towards sustainability and therefore he also sees hope and possibilities for innovative and systemic solutions even though currently they are not implemented.

Solutions: very little overlap between schools, stakeholders

A total of 12 solutions are proposed by the four experts, most of which are unique. The most popular category of solutions was “expertise” (four solutions), which relates to a key perceived barrier, “lack of expertise.” “Strategy” was the second most popular category (three solutions), relating to decisions that would need to be made on a higher level as they will impact many aspects of the University’s operations. The solutions from TalTech (eight solutions) are mostly categorized under “strategic,” “resources” or “expertise,” with all expertise-related solutions proposed by the academic expert. The solutions suggested by Corvinus experts (three solutions) include one related to expertise and two related to external influences. It should be clarified that the expertise-related solution (employing an expert advisor) was proposed by the Corvinus expert under “what if” conditions, which were deemed by him as unlikely to occur. There was some agreement between the two facilities managers over the need for the University to provide marketing and communications support to the caterer(s), which indicates their shared understanding of the caterers’ difficulties.

Future of sustainable catering at TalTech: SWOT analysis

Strengths

1. One of TalTech’s key strengths is its forward-looking administration that is focused on strategically optimizing its resources to meet the most pressing societal needs. Having an ambitious climate goal is the first evidence of this, but TalTech has already gone beyond just goals and has created positions and structures that are aligned with the goal, making an organizational and financial commitment to it. Considering the fact that the academic expert, a Marketing lecturer and plant-based nutritionist, was invited to join the Green Transformation Team and to take the lead in calculating the University’s Scope 3 emissions, including from food and catering, shows the University’s willingness to examine its shortcomings and its openness to change. Also, the strategy-oriented approach that the administration has taken creates the right environment for science-based, long-term, systemic changes to take place.
2. Another strength of TalTech is its modern and practically oriented curricula, with a mission to address real-world issues and provide applicable solutions. While no project has addressed food sustainability specifically, its existing capabilities allow for it, from business, science and technology, or food technology and nutrition perspective.

Weaknesses

1. TalTech's current approach to catering focuses solely on price and does not provide diversified options.
2. Science-based knowledge and attitudes about food sustainability are currently not well integrated into either science or business curricula.
3. According to the academic expert, sustainable food is currently not yet thought of as a university priority, even though it clearly has a carbon footprint impact. The work of making it a priority is dependent very much on her individual efforts.
4. There is currently no standard for what sustainable catering means to TalTech.
5. Students do not feel empowered to ask for changes to their catering services.

Opportunities

1. Being free of any national mandates relating to costs of school food is an opportunity, especially in the case of TalTech, since such mandates exist in Estonia for public primary and secondary schools, but not for public universities.
2. A key opportunity for TalTech and for sustainable catering in general is the national commitment to organic and an already high proportion of organic production, which is the highest in the Baltic Sea Region and even among the top in all of Europe, even though it concentrates in only a few sectors, mainly grains, pulses, and oilseeds (Kobuszynska, 2019). Economically, this could be a synergic moment for catering: according to StratKIT, replacing "basic" products such as cereals, pulses, potatoes, vegetables, fruit, eggs, and milk, with organic ones, it may be possible to stay within budget as these items tend to be cheaper than value-added ones (*Starting to Use Organic Food...*, n.d.). There is also a high percentage of organic meat production. While meat, especially ruminant meat consumption is not recommended under the Planetary Health Diet guidelines, the relative importance of the sector to Estonia's economy and its central role in the Estonian diet means that the meat industry will not disappear overnight; therefore, sustainable caterers at TalTech could choose to offer less meat but from local, organic sources, keeping the overall budget in balance and satisfying the omnivore dietary needs with more environmentally friendly products.
3. Another opportunity is the high digitalization of the government. Combined with the University's strengths in science and technology, TalTech could spearhead the development of technology to digitalize the food supply chain in Estonia, which could lower transaction costs of obtaining local, organic produce as well as enhance and possibly expand the current short food supply chains available in the region. Other ways of tapping into digitalization could include partnerships with existing digital food platforms that are popular with students, such as Wolt, to better connect caterers and students during the pandemic.

4. Finally, since Estonia is quite small, universities are all seeking specialization. This can also be an opportunity for TalTech. A partnership with the University of Life Sciences in Tartu (EMU) which recently founded a new chair called the ERA Chair for Food (By-) Products Valorisation Technologies and runs an institute focused on agricultural and environmental sciences as well as a program titled Agri-Food Business Management¹³, could be beneficial hopefully for both sides, but certainly for TalTech. EMU could provide tools such as seasonality charts for agricultural produce, to support caterers interested in sustainable practices. It could also support the offerings of TalTech's business school with guest lectures about the agri-food business.

Threats

1. One of TalTech's major threats in achieving sustainable catering is the lack of sustainable catering as a "package" service on the Estonian market. There simply isn't a caterer such as SV Group in Switzerland that has already put in the work and climate-proofed its service. Therefore, TalTech needs to influence the restaurants' behavior through their catering tenders and also use other means to achieve sustainable catering.

Future of sustainable catering at TalTech: potential solutions

In the case of TalTech, whether to have food services provided on university campus is not a matter for debate; therefore, various solutions are provided below for how to maximize on the University's impact through these services.

Solution 1: adapting an existing climate-friendly or sustainable catering model

Given the amount of work it takes to design a sustainable catering program, it may be more beneficial for a university such as TalTech where sustainable food systems are not an academic focus to simply adapt the goals of an existing sustainable catering model, such as Basel's ONE TWO WE (*ONE TWO WE – A Case Study...*, n.d.). Considering that the goals of TalTech and Basel are similar in this regard (sustainability with a focus on lowering the climate impact) and that both Estonia and Switzerland experience long periods of cold weather and are large producers of animal products, the model should prove to be quite suitable in terms of practical application. Of course the adaptation cannot be one-to-one as there are many national variations in terms of laws and regulations, seasonally available agricultural produce, consumers' preferences and even availability of providers willing to engage in such a project; however, it can provide a tested methodology and likely an enthusiastic partnership with the University of Basel.

¹³ *Agri-Food Business Management*. (n.d.). Estonian University of Life Sciences. Retrieved April 5, 2022, from <https://www.emu.ee/en/admissions/agri-food-business-management/>

Solution 2: making sustainable options more attractive

Building well-considered plant-based menus that are attractive to students at a smaller environmental impact seems like an obvious opportunity for TalTech, both in terms of its climate neutrality goals as well as the larger Estonian healthy eating goals. As research shows, there is a lot of work to be done on attitudes of leaders, caterers, as well as nutrition experts.

Focus on caterers. The StratKIT project provides a variety of tools aimed at caterers in its “Healthy and plant-based diets” section, including “Attractive serving of plant-based foods,” “Climate protection in school kitchens,” “Motivating changes for cooking plant-based menus,” and “Organizing training for plant-based cooking.” (*Healthy and Plant-Based Diets - StratKIT...*, n.d.)

Focus on consumers (everyone in the TalTech community). Some StratKIT tools in this sub-category are also aimed at consumers, such as “Plant-forward eating” which can be used by caterers to help consumers to learn more about recipes and meal possibilities in plant-based eating. Additionally, tools such as carbon impact labels are easy to implement and can help well-meaning consumers that do not have the time or willingness to research the topic make environmentally friendly meal choices.

Solution 3: short food supply chain

Given the scale of organic production in Estonia, using more local (Estonian) ingredients could be a way for TalTech to make a positive impact in the broader region. While the aspect of locality is not so much promoted in Farm2Fork and GPP criteria, procurement of local, seasonal food still addresses sustainability through economic and social dimensions. According to the the StratKIT toolkit guide titled *Procurement criteria for lower climate impact*, “seasonal vegetables with better taste, quality and prices can also promote the shift of the menu towards more plant-based meal options, contributing to a climate-friendly and healthy diet.” (*Procurement Criteria for Lower Climate Impact...*, n.d.)

An indirect collaboration between TalTech and Taluturg via a contracted caterer at TalTech could be beneficial for all parties involved. While the retail prices offered by Taluturg are generally multiple times higher than those of similar products at supermarkets, these prices will likely be lower in the case of a caterer in a long-term contract with a public institution and in the case of selling basic products, rather than value-added ones. According to StratKIT, replacing basic products such as cereals, pulses, potatoes, vegetables, fruit, eggs, and milk, with organic ones, it may be possible to stay within budget as these items tend to be cheaper than value-added ones. For Taluturg, the collaboration could provide needed financial stability and a chance for farmers to make a long-term plan based on stable demand. Taluturg could re-position itself in the market, going from solely targeting wealthier consumers to having a much wider consumer base. From the perspective of the caterer, it will be able to expand its menu and offerings to include eco-labeled meals or products. More information may be obtained from a successful Danish public sector initiative to switch to 90% organic produce while keeping the cost per meal. (*Starting to Use Organic Food...*, n.d.) This could be of common interest to both TalTech as well as the caterers. As

another reference, a Finnish organization has created a program titled Steps to Organic, aimed at “public and private professional kitchens of all sizes,” to help caterers advance towards using organic foods at their own pace. (*Steps to Organic*, n.d.)

Solution 4: sustainable business models that can be adapted to pandemic conditions

Due to the "new normal" created by the Covid-19 pandemic, TalTech will need to consider pandemic adaptability as a criteria in its food service offerings. Willingness by caterers to adapt to pandemic conditions, for example through the use of circular packaging systems for sustainable takeaway options could support both economic and environmental goals. One such system, RingKarp, has recently been created by a TalTech student and is currently being used by 67 venues in Estonia, including 30 in Tallinn. RingKarp is also a member of the European-wide ReCircle network, with partners in Denmark, Germany, the Netherlands, and Switzerland (*Our Network*, 2022). Another, even more technology-based option would be the installation of vending machines that also cook food, such as a pizza vending machine or a vegan sausage roll machine, which are some types of cooked food machines already in use in European cities (Sözer, 2021). A vending machine project has also been listed on the European Commission's GPP good practice case studies (University of Cagliari, 2021). These require higher up-front investment, but allow for more flexible and accessible service while also reducing labor costs.

Solution 5: tapping the student potential to support administration and caterers

Given the PRME membership of TalTech's business school, there is potential for hands-on research and internship work within the catering space for sustainability-minded business and economics students. This could be a win-win-win situation for TalTech as a way to bring stakeholders together, to involve students in real-life problem-solving, and to enable willing caterers to implement more sustainability practices. Cooperation could involve creating carbon impact labels for different meal offerings, organizing catered events where sustainable menu offerings are served along with information about their environmental impact, or assisting with organizing sustainability trainings for catering staff.

Future of sustainable catering at Corvinus: SWOT analysis

Strengths

1. Status as private university. As a private university, Corvinus has more freedom to handle its finances and invest according to its values and strategic priorities.
2. Knowledgeable faculty. There is rich scholarship at Corvinus on the topic of food sustainability, sustainable supply chain, and sustainable consumption, a lot of it focused on Hungary and its food industry.

3. Student leadership. The Students' Union showed strong initiative with organizing the Greenspire Sustainability Festival in November 2021; including food and gastronomy as one of its key topics shows interest from the student body in this area. Students have also taken academic initiative on the topic with the Green Canteen project.
4. A fully equipped kitchen in Corvinus' rental dining space. This could save potential contractors from large upfront investments and could make bids from SMEs more feasible.

Weaknesses

1. Institutional know-how. As pointed out by the two experts, there is currently not enough institutional know-how about food sustainability. There have been individual attempts by stakeholders to address the topic; however, not enough administrative resources are allocated to address this issue, leading to a lack of direction regarding sustainable catering at Corvinus. There is also no systematic academic focus on food sustainability. While there are individual departments and researchers focusing on aspects of food sustainability, there is no subject to connect them into a coherent whole. Therefore, Corvinus is currently not giving its students an opportunity to educate themselves on the economic, social, and environmental impacts of the food system.
2. Decentralized sustainability budget. While a decentralized budget allows for more autonomy for institutes and departments to spend according to their priorities, this creates fragmentation in implementing sustainability initiatives, especially those not prioritized by administration that impact the whole community but are too complex for any one department to tackle on its own (such as food).
3. Student awareness. The administration seems to be under the impression that Corvinus students have sufficient knowledge about food sustainability to make well-reasoned decisions regarding their dining and even impact the F&B establishments in the areas near Corvinus. However, data collected through the student survey done for the Green Canteen project shows there is a gap between this perception and reality. Therefore, the stakeholder group that is seen by the administration as the driver of sustainable dining not only at Corvinus but in the surrounding areas, may not be interested or informed enough to carry out this mission successfully.

Opportunities

1. The location. Being located in a neighborhood full of various dining options can be an opportunity for Corvinus, especially if it eventually decides not to offer a hot meal service on campus. However, it could be an advantage also in the alternative case. Since the area is already popular with students, tourists, and some office staff, a specialized eatery operating from the Corvinus campus could fill a niche in the central area's dining scene.

Threats

1. Quality of the F&B scene in the area. Assumptions are made about the affordability, healthfulness and sustainability of the F&B establishments in the surrounding area. While university students do tend to be well-informed about sustainability practices, understanding the impacts of one's eating choices is not so straight-forward. Most climate-friendly eating guides recommend eating seasonal, local, and, where possible, organic fruit and vegetables; consuming less meat and dairy; and considering packaging. However, according to the author's own experience as a student in Budapest, this kind of information is rarely available at dining venues that are student-oriented or offer affordable meals likely to attract students. In these cases, it is reasonable to assume such practices are not employed by the venue.
2. Stability of the F&B scene in the area. There may be venues implementing sustainability principles in their operations; however, due to harsh competition and/or pandemic conditions, they can go out of business quickly. Many of the venues on the popular Ráday utca are quite small and may therefore have less resources available to properly promote their sustainable offerings.

Future of sustainable catering at Corvinus: potential directions

Direction 1: a specialized eatery to complement the F&B landscape of the area

Given its status as a private university, its fully equipped food service kitchen, and its location in an already popular area during both daytime and at night, inviting a niche service provider into its canteen space could be a beneficial solution for Corvinus. The service provider should either already be following some sustainable catering principles and/or should be ready and willing to cooperate with Corvinus to make its operations more sustainable as part of its contract terms. Additional support in transitioning to sustainable operations could be provided by a sustainable catering project team from Corvinus, consisting of academic staff with relevant expertise, students whose studies are in some way linked with the topic, and (optionally) an administrative liaison. While some staff should be on the project on a more permanent basis to create continuity, students may “sub in” and “sub out” as their relevant courses begin or end.

The support could be given over several years and could include, for example, calculating the carbon impact of individual menu items; calculating scope 3 emissions of the provider's operations; helping the provider find sustainable product alternatives; connecting the provider with existing short food supply chains; helping the provider with researching and designing new, climate-friendly menu items, etc. The skills and knowledge taught at Corvinus (sustainable supply chain management, short food supply chains, environmental assessment, sustainable consumption, etc.) will become more valuable through this kind of practical application. This could be the true embodiment of the motto of the University: *Scientia mea - adiutor meus* (My knowledge is my helper).

Affordability to students could be solved by student card-based discounts, lunch specials, and/or a rent discount for the first few years of operation. Digital solutions could be used (for example through the

MyCorvinus App or, given the ambition of Corvinus to make an impact, through established delivery platforms such as Wolt) to allow pre-orders and designated pick-up times, in order to accommodate the students' need to retrieve their food in a timely manner. Packaging issues could be solved by allowing students to bring their own containers and/or by implementing a simple deposit container system (given the vicinity to the University, this could be a workable small-scale solution). The issue of students' boredom with repeat menu items could be solved by changing ingredients or menu items seasonally, sourcing locally where possible. Finally, food waste could be addressed by offering varying portion sizes; leftovers could be put into good use through partnerships with the Hungarian Food Bank or the Budapest Bike Mafia.

Direction 2: closer ties between the University and sustainability-oriented F&B establishments in the area

Given the perspectives presented by the experts at Corvinus, we conclude that an eatery offering hot meals with deep consideration for sustainability practices may not materialize at Corvinus in the coming years. Therefore, a direction should be given for how Corvinus can maximize its food sustainability impact. A stronger academic focus should be given to the topic of food sustainability, with research and projects targeting real-life problems, such as greening the operations of interested F&B establishments in the surrounding area. The detailed tasks (some are listed as part of Direction 1) should be worked out in collaboration between Corvinus academic staff and dining venue managers, as each venue has its own unique needs. At the same time, there are likely some venues that are already considering sustainability as a key part of their business model. A partnership between the University and these F&B establishments could lead to internships in logistics, supply chain management, marketing (including to the Corvinus community), and so on.

In both of the above scenarios, additional expenses to the University will be minimal; however, they do require commitment from academic staff as leaders and facilitators of any partnerships between the University and F&B establishments. However, it should be mentioned that while the impact of Corvinus in this direction can have a broader societal base, it also largely depends on the willingness of the F&B establishments (external factor). Corvinus students will likely be a minority of the target clientele at most of the venues; therefore, sustainability transition will depend on the motivation of the venue's management and whether it sees the efforts as economically worthwhile. Secondly, the impact of Corvinus students' food choices will depend on if and what type of provider will be invited to the Corvinus canteen space, since a hot food provider in the Corvinus building will attract a certain amount of student clientele.

Chapter 5. Conclusion

Summary of the findings

Within the framework of this study, I aimed to identify the foundations and objectives of the EU's food sustainability policy, analyze existing good practices in sustainable catering at HEIs, and to explore ways that these practices could be transferred to HEIs where sustainable catering has not (yet) been implemented in a systematic way. Below, the main findings will be summarized.

- 1) There are differences between science-based recommendations and policy-based recommendations for sustainable production and consumption of food. While science-based recommendations are quite straightforward and describe an “ideal scenario,” policies are bound by political realities. In the case of the EU, the framework for sustainable catering includes the European Green Deal, the Farm to Fork Strategy, and the voluntary Green Procurement Criteria. While the general policy direction is lauded by stakeholders, there are doubts about the reach and impact of GPP as long as it remains a voluntary standard.
- 2) When comparing the EU (Kassel, UAL when it began its sustainable catering initiative, TalTech, Corvinus) and the non-EU (Basel) case studies, it appears that EU policies, while complex and holistic on paper, do not seem to play a key role in the development or potential for development of sustainable catering initiatives at European HEIs. In the case of local food procurement, in the case of Kassel (lack of food hubs) and UAL (low-priced, non-organic meat coming from other parts of the EU) EU policy seems to even act as a barrier. This possibly negative impact of the EU framework is also pointed out by an academic working on a project focusing on supporting EU farmers.
- 3) The potential of HEIs for sustainable catering transition depends on their organizational priorities and motivations for engaging in sustainability initiatives. While student initiative or pressure was seen as a facilitator for sustainable catering transition at both TalTech and Corvinus (it being the *only* facilitator at Corvinus), by itself seems unlikely to affect change. It is important that food sustainability matters to more stakeholders, especially the administration. While TalTech is not much further than Corvinus in terms of practical implementation of sustainability challenges, the attitudes of TalTech experts are much more positive and forward-looking than those of Corvinus experts.
- 4) For a sustainable catering business model to be successful, there needs to be support from the University, either in the form of material provisions to lower the barrier to entry for smaller providers. Communications and media support needs to be given by the University as well.
- 5) Digital solutions, obtained through partnerships or endogenously, can help address issues such as food waste, sustainable delivery, and ensuring a clientele for providers even during uncertain times such as the Covid-19 pandemic.

- 6) Based on the MLP framework, the recommendations given to the two universities focus on the ‘niche’ space of sustainable catering at HEIs, while also drawing on and impacting the current ‘landscape’ resources. However, for universities to further contribute to food sustainability, they should take any available opportunities to participate in national-level decision-making, to impact the ‘regime’ space.
- 7) There is currently no "best practice" model for sustainable catering at HEIs. One reason for this is that HEIs do not all function in similar ways: some have formal campuses while others do not; some have to follow certain procurement guidelines while others do not. The other reason is that even in the case of schools committed to sustainable catering, the initiatives are still new and do not incorporate all aspects of sustainability (e.g. food waste, life cycle assessment, or ethical procurement). This relates to the universities' motivation to implement sustainability practices in the first place: whether it is out of a sense of societal mission, to gain more points in a given ranking, or to increase student satisfaction.

Implications of the research

This paper adds to case study research on sustainable food transition at HEIs with a focus on Europe. With the presentation of different perspectives (facilities management, administration, academic staff, students) and reference to the Multi-Level Perspective framework, it helps to clarify how different external and internal factors can play into universities' decisions to implement sustainability practices in catering. It also confirms some of the previous research findings regarding the reasons behind the successes and failures of food sustainability transitions. Finally, it provides a pragmatic way to think about food sustainability to HEIs who are interested in implementing sustainable catering.

Weaknesses in methodology

There were several weaknesses in the methodology, such as the fact that only management and one faculty member were interviewed, resulting in possibly a limited range of perspectives. The number of case studies was also limited, not allowing for broad generalizations. Additionally, interviews were conducted under differing conditions: Estonian experts were able to speak in their mother tongue while Hungarian experts had to use English, a foreign language to them. This may have potentially led to disparity in the depth of ideas shared. Finally, I was not able to obtain information about the statistical methods used in the Corvinus Green Canteen survey.

Directions for future research

In light of the above findings, implications, and weaknesses, future research suggestions include: the impacts of EU sustainable food policies on universities' sustainable catering transition; cost-benefit analyses of implementing specific sustainable catering practices in Estonia, Hungary or other EU countries; and a wider, literature review-type study of sustainable catering initiatives at European HEIs to better understand the extent of sustainable catering transition at European HEIs.

JEL classification of this work:

I23: Higher Education

Q01: Sustainable Development

Q18: Food Policy

Q56: Sustainability

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Appendices

Appendix 1

Criteria for development of sustainable catering at HEIs

		University of Basel	London University of the Arts	Kassel (School of Org. Agriculture)	TalTech	Corvinus
	Country	Switzerland	UK	Germany	Estonia	Hungary
Self-developed criteria for Food Sustainability	Food sustainability vision	Yes	Yes	Yes	No	No
	Designated HR for FS (none, individual, multiple/team)	Team	Team	Team	Individual	None
	Transparency regarding food sustainability impact	High	Some	High	None	None
	Reach of sustainable catering (part of the uni, whole uni)	Whole	Whole	Part	Whole	None
Sustainable catering criteria (based on GPP)	amount of organic food served	Some	Some	High	Some	None
	serving sustainable fish	Yes	Yes	No	No	No
	increasing proportion of plant-based foods	Yes	Yes	Yes	Yes	No
	food waste reduction	Yes	Yes	No	No	No
	avoiding the use of single-use items	Yes	Yes	No	No	Yes
	reducing energy consumption in kitchens and vending machines	Yes	Yes	No	No	No
	reducing water consumption in kitchens	No	Yes	No	No	No