

## 1.4 Sectoral Studies, Marketing and Sustainability

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<b>Dimitrios Batakis</b> Technical University of Crete	Medical Tourism as a Driver of Financial Development: conceptual approach and empirical analysis on the dynamics of health providers, hotel services and tourist markets in Greece
<b>Kontodimou Zoi</b> Open University of Cyprus	Drivers and Outcomes of Corporate Sustainability Management Systems
<b>Varela Panagiota</b> University of the Aegean	Sustainable Food Consumption: an analysis in the region of Attica

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*Medical tourism as a driver of economic development: a conceptual approach and an empirical analysis on the dynamics of health providers, hotel services and tourist markets in Greece*

*By*

*Dr Dimitrios Batakis*

# Introduction



- **The aim of this paper is to promote medical tourism as a tool of economic development for Greece and to propose actions or policies to achieve this goal.**
- **The paper stresses the strengths, opportunities, and strategies for better organization of medical tourism in Greece.**
- **As a methodological tool, the paper used interviews and conducted surveys from the main policy actors and market players.**
- **Undoubtedly, medical tourism is a part of the tourist industry, and has been particularly developed in recent years in Greece.**
- **Medical tourism has accomplished a combination of necessity with luxury and has become a highly competitive product.**

# Definition: What is medical tourism?



**By medical tourism, we mean patients who travel to a foreign country with the intention of receiving a particular medical service. Reasons for travelling would for example be cost, wellbeing and expertise in a field of medicine. Patients most often choose to travel abroad for the following therapies:**

- **Kidney**
- **Cardiovascular**
- **Cancer treatment**
- **Ophthalmology**
- **Dentistry**
- **IVF services**
- **Cosmetic surgery**

# Literature review - Purpose



- **The aim of the literature review is to record and establish the purpose and scope of the research.**
- **For its completion, a record of the relevant literature was made in order to show the current situation of medical tourism both in Greece and especially in Crete, as well as in foreign countries.**
- **Also, there are references concerning the development of medical tourism in Greece and Crete.**

# Literature review – An overview



- **Specific studies in the past have shown that medical tourism is associated, for many countries, with their development.**
- **Also, some studies conclude that in Greece specifically, many steps need to be taken to strengthen medical tourism through the design of a strategic plan based on innovation and on the introduction of successful practices from foreign countries.**
- **Other studies express the view that Crete offers high quality services and competitive prices for medical treatments, a great cultural heritage, Cretan food and an abundance of natural resources. These are ingredients that are suitable for treatment and recreational purposes.**

# Literature review – 2012 survey



- **Research (a survey conducted in 2012 which involved executives of 5-star hotels throughout the country and members of the Greek Association of Professional Conference Organizers) shows medical tourism positively impacts Greece's economy, with hotel executives backing its growth potential.**
- **Greece and Crete's existing infrastructure is capable of attracting patient-tourists, with room for enhancement.**
- **Recommendations include developing thalassotherapy centres, additional physical medicine centres, and specialised medical departments.**
- **The development of specialised geriatric centres could further enhance Greece's appeal in global medical tourism.**

# Literature review – Turkey as an example



- **Other studies emphasize the importance of Greece adopting specialized marketing strategies for medical tourism, citing the success of similar campaigns in Turkey.**
- **Taking the example of Turkey, a well-structured marketing plan can significantly boost the development of medical tourism as an industry.**
- **Supportive legislation on IVF in Greece has benefited many IVF centres involved in medical tourism.**



# Literature review - Hellenic Chamber of Hotels results



- **Research results from the Hellenic Chamber of Hotels suggest a long-term goal (over 4 years) to attract 100,000 patient-tourists annually.**
- **Each of these patient-tourists is projected to spend an average of €4,000 per visit.**
- **This strategy could potentially generate €400 million annually for the Greek economy.**

# History of medical tourism in Greece



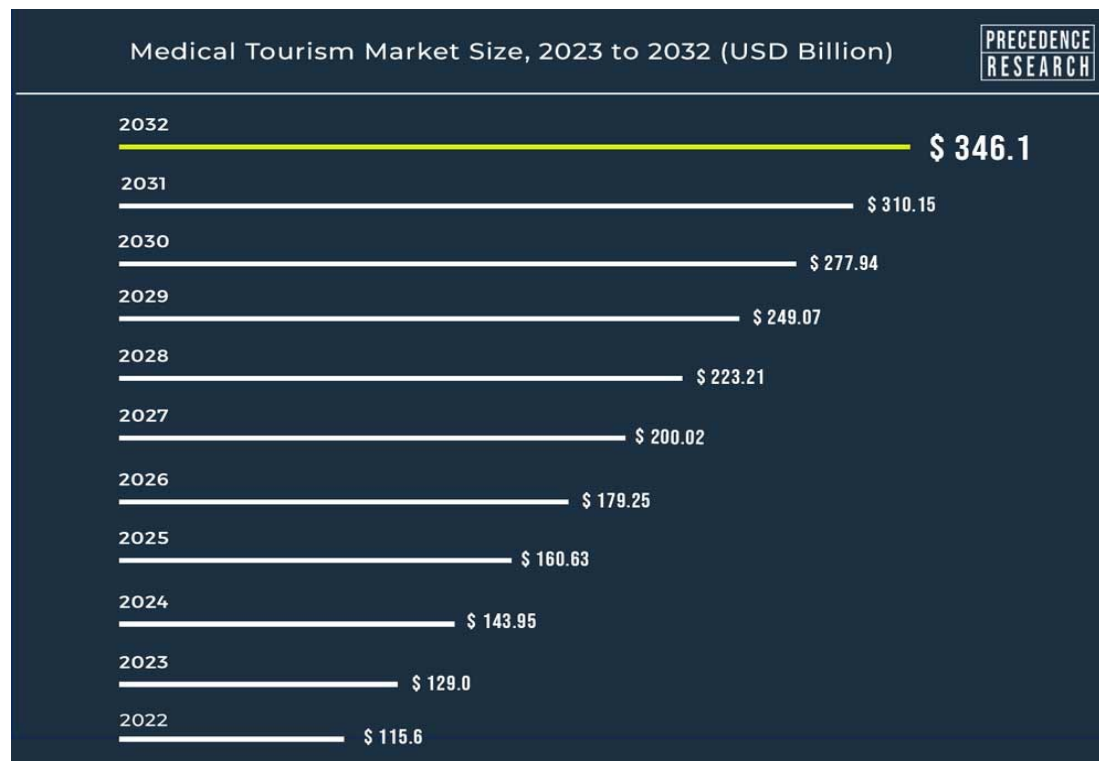
- **In 2013, the Greek Government established a medical tourism department within the health ministry to develop and promote medical tourism in Greece.**
- **Concurrently in 2013, private clinicians founded the Greek medical tourism council (NGO) to market health tourism in Greece and collaborate with international organizations on related matters.**
- **Subsequently in 2018, health tourism was formally legislated, with the Greek Ministry of Tourism defining it to include medical tourism, thermal tourism, and wellness tourism.**



# Market size of medical tourism

## What we know so far

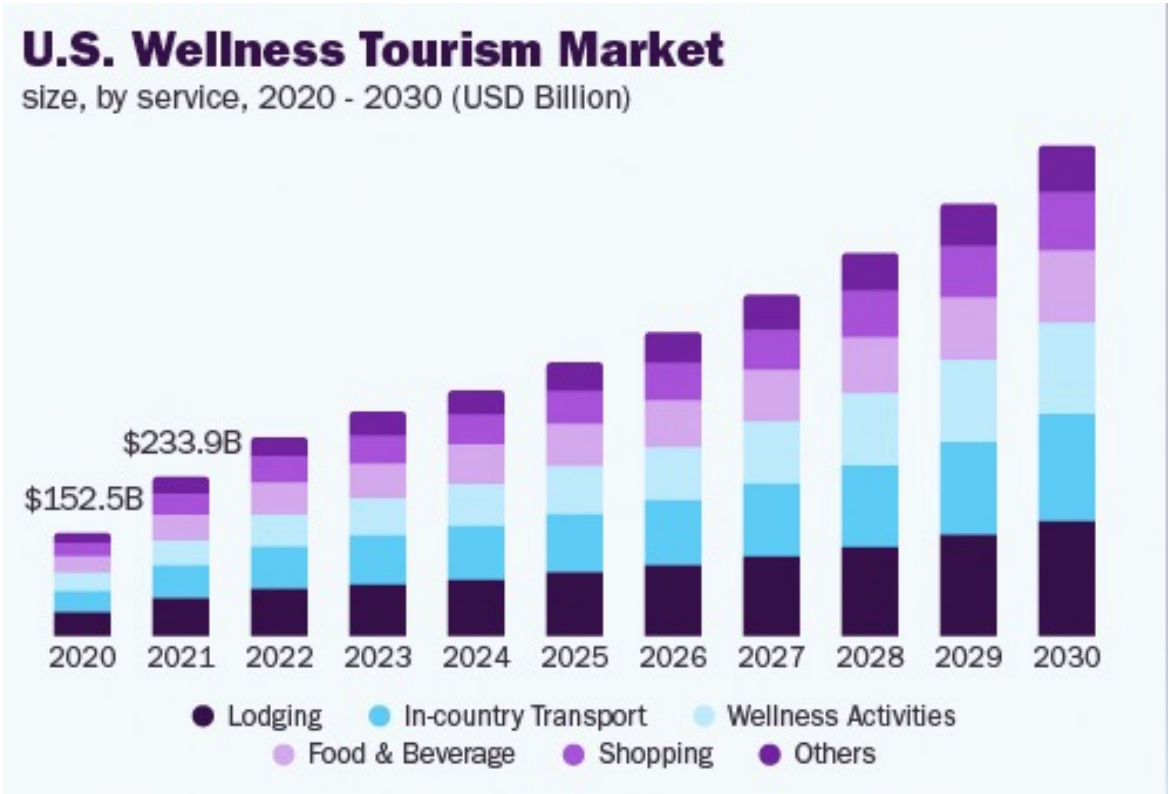
**According to Globe News Wire: "the medical tourism market size from 2022 to 2032 is estimated to be worth up to \$115 billion to \$346 billion".**





# Wellness tourism market size

**Wellness tourism is a category of tourism that is expected to experience a growth rate of close to 11% annually in the next 7 years.**



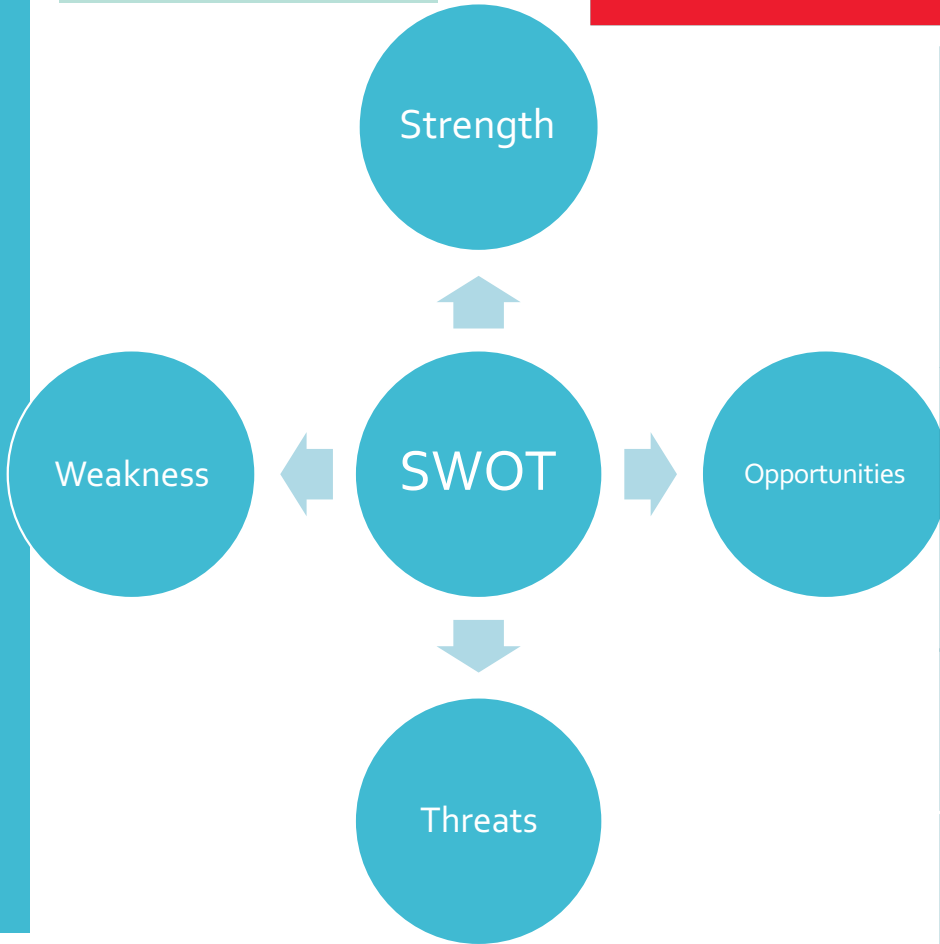
Where should  
we focus ?



- **IVF**
- **Ophthalmology**
- **Dialysis**
- **Rehabilitation**
- **Dental**



# SWOT analysis- Greece / regional focus



- S**-Location, tolerance ,high professional level ,EU, accepted in the region , Labor cost , accessibility, infrastructure, "internal" know how in medical tourism
- O**-Declining activities in the region  
Unstable region, rising prices in western Europe, cultural gaps, heavy regulations,
- T**-Neighbors (Israel, Turkey, UAE , Egypt)
- W**- Active Regional Reach out strategy
- Regional Supply chain model

# Methodology



- **A primary survey was conducted involving 97 owners of 4- and 5-star hotels on the island of Crete, out of the total 218.**
- **The second target group included 515 doctors of various specialties, out of 1500 registered in Crete's medical associations.**
- **Lastly, 890 medical tourists responded to questionnaires at Chania's international airport.**



## The view of hotel owners – Developmental prospects

- **“Medical tourism is a propellant for the country's development” – what do hotel owners think?**

#	Answer	%	Count
1	yes	90.63%	87
2	no	6.25%	6
3	not reply	3.13%	3
	Total	100%	96





# The view of hotel owners – Policy recommendations

- **“Policy measures that induce entrepreneurship in medical tourism” – what do hotel owners think?**

#	Answer	%	Count
1	tax deductibles	35.43%	62
2	financing actions through NSRF	32.57%	57
3	favourable business lending	28.00%	49
4	other	4.00%	7
	Total	100%	175



# The view of hotel owners – Readiness

- **“Is the local market ready for the provision of medical tourism services?” – what do hotel owners think?**

#	Answer	%	Count
1	yes	60.42%	58
2	no	28.13%	27
3	no reply	11.46%	11
	Total	100%	96



# The view of hotel owners - Crete

- **“What health services should be provided in Crete?” – what do hotel owners think?**

#	Answer	%	Count
1	Eye surgery	21.56%	72
2	ivf	19.76%	66
3	dental services	14.67%	49
4	haemodialysis	12.28%	41
5	Diagnostic cardio services	9.28%	31
6	well being	8.98%	30
7	elective medicine (hair transplant, plastic surgery)	7.78%	26
8	Heart surgical operation	4.19%	14
9	other	1.50%	5
10	Total	100%	334



# The view of clinicians – services to non-locals

- **“Should there be provision of health services to non-locals and foreigners?” – what do clinicians think?**

#	Answer	%	Count
1	yes	81,3%	418
2	no	12,1%	62
3	Not reply	6,5%	33
	Total	100%	513

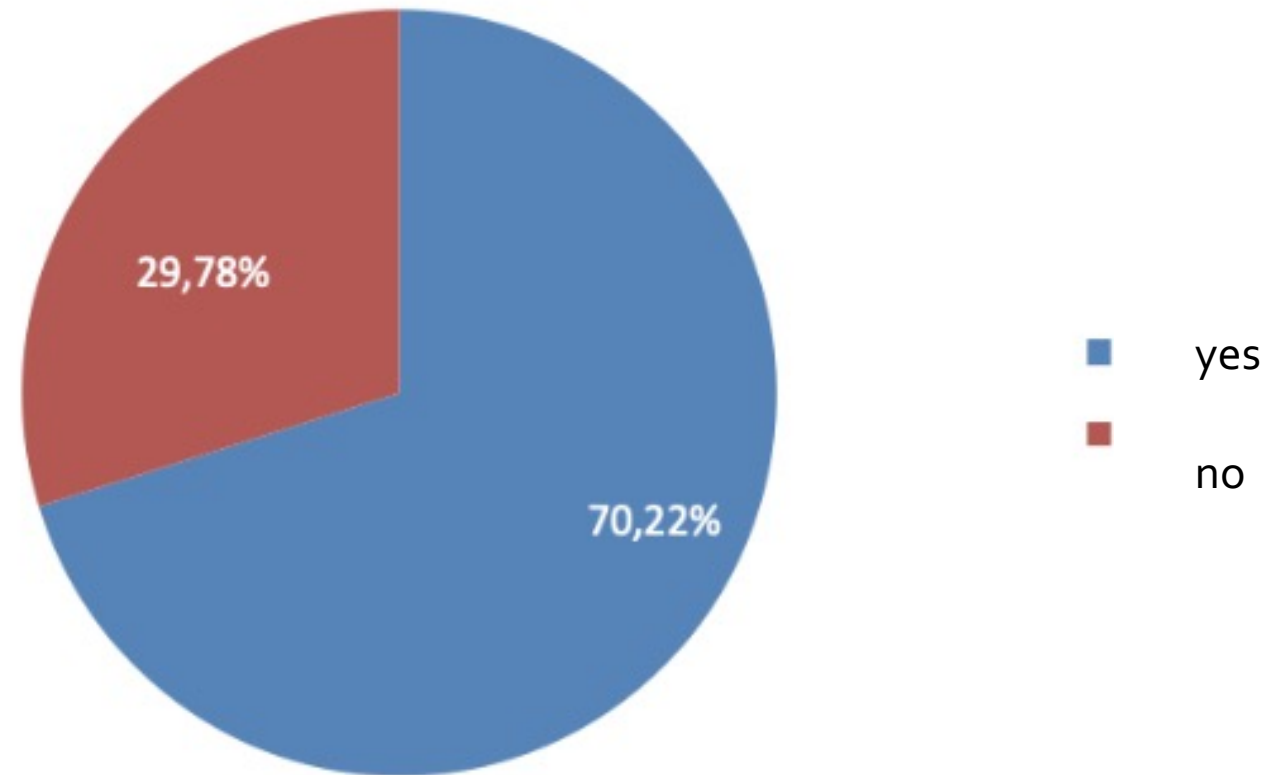


# The view of clinicians – health services

• **“Which health services should be provided to medical tourism consumers?” – what do clinicians think?**

#	Answer	%	Count
1	haemodialysis services	90%	464
2	eye services	86,2%	444
3	ivf	71,4%	368
4	Dental services	53,3%	274
5	Elective medicine (plastic surgery, hair trasnplant)	39%	201
6	Thermal Baths/ Thalassotherapy, Hydrotherapy	38,6%	199
7	Cardio diagnostic services	34,8%	179
	Total	100%	2129

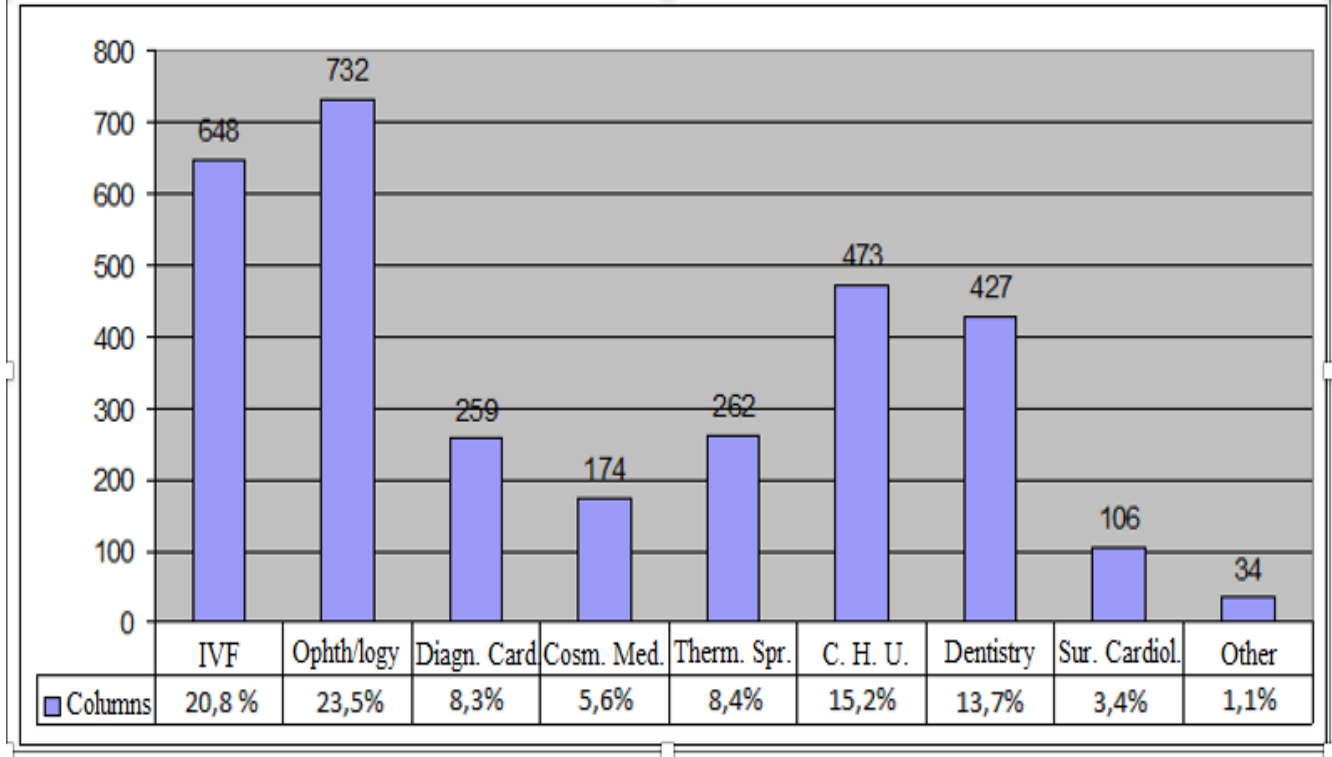
# The view of medical tourist - if they would visit Crete for medical tourism





# The view of medical tourists - desirable health services

- **“Which health services should be provided in Crete?” – what do medical tourists think?**



# Medical tourism and the EU



- **Medical tourism is a significant issue for the EU, with implications for Greece as a member state in managing challenges and leveraging opportunities.**
- **The EU-28 countries recorded a total of 56 million domestic and 5 million international medical tourism trips, totalling 61 million trips.**
- **Medical tourism accounted for 4.3% of all EU-28 arrivals, representing 5.8% of arrivals within a member-state country and only 1.1% of all international arrivals.**
- **Medical tourism revenues in 2017 totalled €34.2 billion in the EU, representing 4.6% of all tourism revenues and 0.33% of EU GDP, with the exact number of medical travellers arriving from non-EU countries estimated to be 6% of the total tourism market.**





# Medical tourism and the EU

COUNTRY	HEALTH-TOURISM TRIPS (MILLIONS)			HEALTH-TOURISM SHARES		HEALTH-TOURISM REVENUES (BILLION €)		HEALTH-TOURISM SPENDING (BILLION €)
	DOMESTIC	INTERNATIONAL ARRIVALS	INTERNATIONAL DEPARTURES	DOMESTIC PLUS INTERNATIONAL DEPARTURES	INTERNATIONAL ARRIVALS	DOMESTIC ARRIVALS	INTERNATIONAL ARRIVALS	INTERNATIONAL DEPARTURES SPENDING
Austria	0.77	0.42	0.73	6.7%	1.7%	€1.44	€0.31	€0.61
Belgium	0.25	0.06	0.40	3.7%	0.8%	€0.07	€0.04	€0.23
Bulgaria	0.29	0.08	0.05	9.0%	1.1%	€0.04	€0.03	€0.03
Croatia	0.18	0.13	0.09	3.3%	1.1%	€0.09	€0.08	€0.06
Cyprus	0.04	0.03	0.04	3.0%	1.0%	€0.03	€0.03	€0.04
The Czech Republic	2.34	0.10	0.49	8.7%	1.0%	€0.25	€0.04	€0.34
Denmark	0.48	0.07	0.17	2.0%	0.7%	€0.15	€0.03	€0.13
Estonia	0.08	0.15	0.04	3.0%	5.3%	€0.01	€0.07	€0.02

# Medical tourism and the EU



COUNTRY	HEALTH-TOURISM TRIPS (MILLIONS)			HEALTH-TOURISM SHARES		HEALTH-TOURISM REVENUES (BILLION €)		HEALTH-TOURISM SPENDING (BILLION €)
	DOMESTIC	INTERNATIONAL ARRIVALS	INTERNATIONAL DEPARTURES	DOMESTIC PLUS INTERNATIONAL DEPARTURES	INTERNATIONAL ARRIVALS	DOMESTIC ARRIVALS	INTERNATIONAL ARRIVALS	INTERNATIONAL DEPARTURES SPENDING
Germany	11.29	0.60	6.09	7.3%	1.8%	€12.70	€0.51	€5.11
United Kingdom	1.88	0.09	0.76	1.3%	0.3%	€0.74	€0.11	€0.94
Greece	0.22	0.12	0.04	6.0%	0.5%	€0.95	€0.13	€0.05
Hungary	1.98	0.48	0.63	13.3%	3.9%	€0.18	€0.13	€0.36
Ireland	0.22	0.06	0.18	3.0%	0.7%	€0.31	€0.06	€0.17
Italy	3.34	0.64	0.77	6.7%	1.3%	€4.32	€0.88	€1.06
Latvia	0.47	0.05	0.20	14.3%	2.8%	€0.05	€0.03	€0.11
Lithuania	0.15	0.05	0.10	5.7%	2.3%	€0.04	€0.03	€0.05
Luxembourg	0.01	0.03	0.12	6.7%	2.5%	€0.00	€0.02	€0.10
Malta	0.01	0.06	0.03	9.0%	3.4%	€0.01	€0.06	€0.03

# European Commission – new investment opportunities for Greece



- **Logistics: e.g. Thessaloniki port containerisation, linked infrastructure, modernised railways, planning for industry, human capital. Impact: +0.5% GDP, 50,000 jobs (IOBE).**
- **Urban regeneration: e.g. Hellenikon impact: +2.5% GDP, 90,000 jobs (IOBE).**
- **Gas market: Trans-Adriatic pipeline offers big expansion in 6% gas share: building domestic gas networks (DESFA, DEPA).**
- **Tourism: major opportunity sites.**
- **Medical tourism: good pricing and market positioning.** ←
- **Agro-food: (e.g. wine) good skills, excellent indigenous varieties.**

# Conclusion – Why Greece and why now



- **It's important to emphasize that medical tourism is a very promising market for Greece.**
- **Greece has both appropriate features and the necessary medical facilities to attract such tourism.**
- **There is interest, benefits and opportunities to make Greece a health care centre.**
- **The market of medical tourism in Greece should have a strategic plan, be studied and improved.**

## Conclusion – Policy recommendations



**It is recommended that the Greek Ministry of Health considers the below health polices:**

- **Improve and ensure the quality and safety of healthcare services.**
- **Establish transnational relationships / agreements on health tourism issues.**
- **Advertise the levels of health services in Greece and the health levels of the Greek population in the whole world.**
- **Difficulties issuing medical visa.**
- **Advertising capacity of health providers (law issues).**
- **Provide NHS structures to private sector under the PPP (private-public partnerships) status, in specific tourist destinations (i.e. Rhodes island, Santorini): PPPs will focus either on the function of specified clinics or integrated health units.**



Thank you for  
your attention



## **Drivers and Outcomes of Corporate Sustainability Management Systems**

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**Abstract:** The terms Sustainability and ESG have been gaining traction in the last years. The performance of an organization in those issues is important since nowadays any sustainability or ESG risk is considered a financial risk by many investors. The best way for an organization to address those issues in a balanced way is by developing and operating a Corporate Sustainability Management System, due to the complexity of the sustainability issues. The proper development of such a system should consider the antecedents of corporate sustainability and the lessons learned from their implementation. For the time being, the sustainability risks management, the performance evaluation, reporting practices and sustainability initiatives are researched separately, and not researched enough for the Greek market in general. The research so far does not provide insight to the benefits of a system's approach towards sustainability, which was an approach with great benefits in issues such as quality and environmental management.

**Keywords:** Corporate Sustainability, Corporate Sustainability Management Systems, ESG, Risk Management, Sustainability Performance

## **1. Background to the Issue**

### ***1.1 Corporate Sustainability***

Corporate sustainability is an approach that targets added value for the shareholders as well as the stakeholders of an organization, for a long term and in a proper way (UN Global Compact, 2015). To accomplish that, environmental, social, and financial risks should be managed (DJSI, 2010) and opportunities should be approached in a balanced way (Durst and Zieba, 2020). For many investors, corporate sustainability is a “crucial success factor” (DJSI, 2010) which starts with a company’s value system (UN Global Compact, 2014) and unless it becomes a part of the strategy of an organization it cannot be successful (Amini and Bienstock, 2014). It is regarded to be the process of organizational change, driven by sustainability to which it contributes (Mazur and Walczyna, 2020, Dyllick and Muff, 2016).

For a company to enter the corporate sustainability path, the principles of sustainable development must be incorporated into its policies, practices, procedures, and products (Bansal, 2005). Environmental integrity, social equity, and economic prosperity - the principles of sustainable development that were initially discussed in the Report of the World Commission on Environment and Development, “Our Common Future” in 1987 - are necessary conditions that should all be addressed to achieve corporate sustainability (Bansal, 2005). All the above issues are linked through a company’s governance, which is a major concern of its stakeholders and a big part of its performance (Aras and Crowther, 2008), and is the responsibilities and rights allocation regarding sustainability issues (Aguilera et al, 2021).

Corporate sustainability has both tangible and intangible benefits. By having good performance in environmental and social issues a company may lower its operating costs, improve competitive advantage, and enhance its reputation and stakeholder engagement as well as its overall competitiveness in the long term (Haffar and Searcy, 2017, Derqui, 2020). This is the “Business case for Corporate Sustainability” that moved the concept of corporate sustainability from a corporate compromise to a win-win situation, by its proposition that non-financial performance and financial performance are linked (Haffar and Searcy, 2017). Consumers tend to be more committed to companies they consider sustainable and “responsible” regarding ESG (Environmental, Social, Governance) issues and, therefore more motivated to support them. When a company meets customers’ requirements by being sustainable, it increases its profits and has many chances of long-term survival (Lee, 2019).

Internally within a company though, tradeoffs are made between financial and non-financial performance as well as resource allocation. All corporate sustainability initiatives carry opportunity costs. Competing financial and non-financial priorities as well as sustainability–profitability objectives exist, so trade-offs are to be made by managers in everyday decision-making (Haffar and Searcy, 2017). By addressing the three pillars of corporate sustainability separately though, it is bound to be unequal treatment of them (Kleine and Von Hauff, 2009).



Just like sustainability and sustainable development, corporate sustainability has been given many definitions over the years (Searcy, 2012). Some of them had a business orientation including its management, while others remained general and vague, using the rationale behind the definition of sustainable development by Gro Harlem Brundtland to a corporate level.

From all the above definitions and the literature review, it is evident that there is not a commonly accepted one for corporate sustainability (Kantabutra and Ketprapakorn, 2020, Robinson, 2004, Lankoski, 2001). All those proposed are developing and transforming over time, according to the understanding and the perspective, allowing various interpretations. Most of them are vague and general in their context, just like the definitions of sustainability and sustainable development.

Because of the complex nature of the concept of corporate sustainability, a commonly accepted definition would not be either possible or desirable (Robinson, 2004, Bostrom, 2012, Missimer et al., 2017) After all, a strict definition would cause disagreement rather than consensus, which is required for the establishment of an idea (Lankoski, 2016) and for creating a broad appeal (Bostrom, 2012). It would also exclude all those whose opinions are not included in this definition (Robinson, 2004).

By analyzing the definitions, we resulted they negotiate one or more of three issues:

- The social, environmental, and economic performance of a company relating to managing risks and embracing opportunities resulting from related developments.
- The interactions between a company and its stakeholders as well as meeting their needs, both current and future.
- The consideration of corporate sustainability as a business approach or a set of practices that help a company contribute to sustainable development and sustainable development goals.

As the definition of corporate sustainability evolved over time, the business approach became a more important element. So did corporate sustainability management and governance that was included in the agenda either as a part of the risk management discussions, or the management processes from a system perspective.

Apparently, to approach corporate sustainability issues, one should deal with all the above aspects. Likewise, when a company begins the corporate sustainability journey, it should consider and include all of the above issues in the process: from incorporating sustainability elements in the corporate goals, strategy and supporting systems for decision making, to aligning the performance measuring and disclosure systems and processes, always having in mind the environmental, social and economic risks and opportunities to be managed, as well as its performance in those fields.

Furthermore, since sustainability is considered the “long term goal” (Lozano, 2008, UNESCO, 2021) so should corporate sustainability as well, when approaching sustainability from a business perspective. In this context a company seeking corporate sustainability, to achieve it, should have a unified approach to setting its sustainability goals, managing the processes needed to achieve them, monitoring, and making the necessary adjustments required as well as involving all interested parties in the process.

## ***1.2 Theories and Approaches behind Corporate Sustainability***

As observed, the idea of corporate sustainability is broad, and it includes various elements and pillars. Also, many tools and initiatives have been developed, aiming to help companies to achieve sustainability (Lozano, 2019). It is an issue that is multi-disciplinary by nature (Kantabutra, 2019, Kajikawa et al., 2014 in Lankoski, 2016, Baumgartner, 2011), and is surrounded by theories, elements and issues that are complex (Amini and Bienstock, 2014, Baumgartner, 2011, Ahlstrom et al, 2020, Baumgartner, 2014, Schaltegger et al., 2013). As a result, the concept has been broadened and re-focused over the years, to be able to respond to both academic as well as practical issues (Amini and Bienstock, 2014).

It includes concepts, theories and approaches such as sustainable development (Wilson, M., 2003, Azapagic, 2003), corporate social responsibility (Arceiz et al, 2020, Wilson, M., 2003, Bansal and DesJardine, 2014), stakeholder approach (Searcy, 2012, Wilson, M., 2003, Kantabutra and Ketrapakorn, 2020, Roca and Searcy, 2012), corporate accountability (Wilson, M., 2003), corporate citizenship (Bansal and DesJardine, 2014), and many more.

Corporate sustainability is the operationalization of previous theories such as Ellington's triple bottom line (Bansal, 2005, Searcy, 2012, Lozano, 2012, Venkatraman and Nayak, 2015, Azapagic, 2003, Bansal and Des Jardine, 2014), or Hart's Natural Resource Based View of the firm which identifies as strategic advantages of a company the prevention of pollution, product stewardship, and sustainable development (Hart, 1995, Hart and Dowell, 2011).

### ***1.2.1 Sustainable Development***

The definition of sustainable development that seems to have the largest acceptance (Missimer et al, 2017, Johnston et al, 2007, Dyllick and Hockerts, 2002, Amini and Bienstock, 2014) and has the most influence (Christen and Schmidt, 2011) is the one included by Gro Harlem Brundtland in 1987, in a report known as the Brundtland report and is described as "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (WCED, 1987:16).

Besides its broad acceptance, this definition has also received a lot of criticism for being vague, for attracting hypocrites and for fostering delusions (Robinson, 2004). During the years, many academics required a clearer and more specific approach to what sustainable development is, since vague definitions are considered to be "*hostage to ambiguity, and hence to flexible interpretation to suit vested interests and/or pre-existing agendas*" (Johnston et al 2007:62) and "*vagueness allows unsustainable action to be couched and presented as sustainable*" (Jacobs, 1999 in Missimer et al., 2017:43).

On the other hand, this absence of a sharp definition is not without advantages (Lankoski, 2016:848), since "*the lack of definitional precision of the term sustainable development may represent an important political opportunity*" (Robinson, 2004:374),

since this ambiguous meaning has gained acceptance for the concept (Giddins et al, 2002) in a period that was much needed.

Over the years the term “sustainability” was used more and more and sometimes was used interchangeably with the term “Sustainable Development”. However sustainable development and sustainability are not interchangeable terms (Lozano, 2008). Sustainable development is a process and not a fixed state (WCED, 1987). In this context, sustainability is considered a long-term goal, while sustainable development refers to the many processes and paths to achieve sustainability (UNESCO, 2021, Lozano 2008).

Sustainability in corporations covers the three aspects, based on the principles of sustainable development, which are environmental performance, societal responsibility, and economic contribution, operationalized through the triple bottom line and supported through corporate governance (Krajnc and Glavic, 2005, Nuhnes et al, 2020, Aras and Growther, 2008).

From a company perspective, environmental integrity and performance can be assured by Environmental Management Systems or Good Environmental Practices as well as reduction of a company’s “ecological footprint”. Corporate Social Responsibility initiatives contribute to societal equity and finally a company’s Value Creation and economic contribution drives economic prosperity (Bansal, 2005). A company’s governance is the element that ensures accountability and stakeholder engagement to unify the corporate sustainability approach.

### ***1.2.2 Corporate Social Responsibility (CSR)***

Corporate Social Responsibility is “*the organization’s contribution to sustainable development*” (ISO 26000, 2010:3), and “*its responsibility for the impacts of its decisions and activities on society and the environment, through transparent and ethical behavior*” (ISO 26000, 2010:3).

CSR has a positive impact on a company’s operations such as lower operating costs and higher profits, better market reputation, better risk management, and improved competitiveness (Weber, 2008). About half of large companies appear to have an improvement in their financial results as well as cost reductions since their initial internal CSR-related changes were implemented. Other benefits such as an increase in the market share and profitability on the other hand, require major changes in the processes and overall approach to the development of their products (KPMG, 2011).

CSR is the core of all sustainable systems (Frink, D., Klimoski, R., 2004). Each year, there is increasing pressure towards organizations to demonstrate social, ethical, and environmental performance and accountability (Accountability, 1999). In this case an organization is accountable to its stakeholders for its overall impact and not only its financial performance (i.e. water, energy and land usage) and is responsible for providing such information to interested parties (KPMG, 2010).

Corporate social responsibility is considered reputational insurance from a strategic management point of view, which is related to higher risk management benefits. Those benefits are greater for companies that operate under higher uncertainty or have higher

growth opportunities and lower for companies that already have high market value and better financial performance (Kim et al, 2020).

Even though CSR approaches make attempts to contribute to sustainable development, corporate sustainability is a better term to describe those attempts (Kleine and Hauff, 2009). This is mostly since corporate sustainability includes a wider agenda, going beyond the business perspective that corporate social responsibility addresses (Kleine and Hauff, 2009).

The corporate social responsibility approach excludes the financial and governance aspects that the corporate sustainability approach includes. In this context, corporate sustainability is a broader and more appropriate approach to evaluate a company's added value to stakeholders.

### ***1.2.3 Triple bottom line***

The triple bottom line is a sustainability framework developed by John Elkington in 1994 (Elkington, 2018). It is a voluntary approach that made sustainability part of the business agenda (Isil and Hernke, 2017:1235) and gives a sustainable firm a competitive advantage (Hussain et al, 2018). It involves the maximization of performance on economic, social as well as environmental dimensions (Isil and Hernke, 2017) and is a means to sustainable development (Rambaud and Richard, 2015). The triple bottom line theory resulted from the inclusion in the corporate picture of environmental and social responsibilities as well as human rights (McWilliams et al, 2016).

The social dimension includes all those aspects that promote well-being such as corporate social responsibility initiatives, employee health and safety etc. The environmental dimension refers to issues relevant to the proper use of resources such as energy and materials as well as the reduction of the company's ecological footprint. The economic dimension refers to a company's economic performance and value generation (Yu et al, 2020).

The triple bottom line is used to track the economic, social, and environmental value added, maintained, or destroyed. The framework was developed to be more than an accounting tool, having as an ultimate goal system change and transformation. Using the triple bottom line properly means – as a minimum - progress in at least two of the bottom lines, while the third is unaffected (Elkington, 2018).

Corporate sustainability is much related to the triple bottom line theory, since it addresses the same three economic, environmental, and social aspects. However, the governance element of corporate sustainability is defining it as the most appropriate approach from a company point of view, which could address in a balanced way all those three aspects, especially if it is managed through a system.

### ***1.2.4 Stakeholder Approach***

Stakeholders are “*any group or individual that can affect or is affected by the achievement of a corporation’s purpose*” (Freeman, 2004:229), its activities (AccountAbility, 1999) goals or its performance. That includes its products, operations, services as well as environmental and social behavior and impact. In this context an organization has many stakeholders with sometimes opposing interests (AccountAbility, 1999). Stakeholders of a company can be its, shareholders, employees, NGOs, regulatory authorities, customers, consumers, suppliers, competitors, etc.

Since a group of individuals can affect or be affected by a company’s activities, then this company should include those stakeholders in its strategy development. Their interests should be gathered, analyzed, and balanced over time due to their conflicting nature (Freeman, 2004).

Being accountable to its stakeholders includes monitoring and even re-designing a company’s operational processes in a reliable and systematic way, so that their needs and requirements are accounted for. An accounting and reporting process should thus be established to collect and communicate the results of corporate activities to stakeholders (Hall et al, 2015).

Stakeholders’ requirements give a fair idea of the changes – including risks and opportunities - in the external and internal environment with which a company should have to deal (Freeman, 2004). Risk is inherent in both accounting and value creation. While a company tries to create the most value for its stakeholders, it faces two types of risks that should be managed. The risk of “acting and losing” and the risk of “waiting and losing” (Mitchell et al., 2015). The latter refers to opportunities that are not identified and addressed.

All decisions made by the company’s management should bear in mind the maximization of firm value while addressing stakeholder’s balanced requirements and needs. This process includes trade-offs between their inconsistent and conflicting requirements e.g. clients require lower prices, employees higher wages and shareholders increased profits (Jensen, 2001).

Different stakeholders understand different outcomes from a company’s value creation activities, as this depends on a stakeholders’ point of view, so a multi-stakeholder approach should be used when sustainability issues are dealt with (Freudenreich et al, 2020).

Corporate sustainability efforts, to effectively address environmental, social, economic, governance and product stewardship issues, should include all the company’s stakeholders in the process. Proper stakeholder mapping should be part of the corporate sustainability strategy development process in order for a company to create the most possible value for its stakeholders.

### ***1.2.5 Corporate Sustainability and the UN Sustainable Development Goals (SDGs)***

To assist the transformation to a more sustainable world, a new philosophy is required regarding corporate sustainability. The 17 Sustainable Development Goals included in the 2030 Agenda along with 169 targets, were developed to stimulate action of critical importance (OECD, 2016).

The achievement of the sustainable development goals could make the companies use resources more efficiently, since there will be increased economic efficiencies in doing so (GRI, UN Global Compact, WBCSD, 2015). Corporate sustainability value drivers will be strengthened even more by government efforts to achieve the sustainable development goals with multiple means, such as taxes and pricing mechanisms, to increasing the pressure of customer decisions based on the achievements of the SDGs (GRI, UN Global Compact, WBCSD, 2015).



Figure 1. The 17 SDGs. Source: SDGs.UN.org

Business opportunities to contribute to the achievement of the SDGs are plenty and can be found upstream or downstream in the value chain. A company's operations across the value chain may have a positive or negative impact on the SDGs. A mapping of the SDGs against the value chain - including end-of-life of products - can make an impact on environmental and social issues and assist companies to choose which SDGs they will focus on (GRI, UN Global Compact, WBCSD, 2015).

Contributing to the achievement of the SDGs should be a big part of its corporate sustainability efforts. And to achieve this, those efforts will have to be strategically set, and a part of a systematic approach to improve performance regarding relevant issues. The adoption of international standards such as ISO 14001 on Environmental Management Systems, or guidelines such as ISO 37000 on Governance of Organizations, enhance the possibility of an organization to contribute to the SDGs (ISO, 2023).



## **2. Corporate Sustainability Performance Measurement Systems**

The elements and results of corporate sustainability are described and communicated by various indices (Global Reporting Initiative 2006). Those indices are used in the prediction of trends to prevent social, financial, and environmental issues, or even to support the decision making and the corporate strategy development processes (Singh et al, 2009). The publication of such indices in annual reports (social, environmental, financial or sustainability) is the key route of communication with stakeholders (Singh, R.K. et al, 2009).

All the indices chosen should be measurable, systemic, reasonable, and able to be categorized and hierarchized as well as easy to communicate. Otherwise, some corporate sustainability elements could be missing or overlapping (Dalal – Clayton and Bass, 2002 in Tahir and Darton, 2010). To date, the indices used by the majority of organizations correspond to individual requirements and focus areas such as environmental - as required by ISO 14001- or social - based on HR by developing an SA 8000 system -without considering the possible interactions (Lozano, R., Huisingh, D., 2010).

Furthermore, the indices used for performance evaluation and reporting purposes are mainly a company's lagging indicators, while to improve the management decisions for improved sustainability performance, leading indicators should be used (Maas et al, 2016, Weber, 2008). By monitoring the financial, social, and environmental trends, a company can choose to monitor and implement Key Sustainability Indicators (KSI'S). The monitoring of those indicators is a long-term commitment due to their more complicated nature (WBCSD, 2002, DJSI, 2010). Similar indicators can also be developed for the products, innovation, training, or any other indicator the organization considers proper to improve its Corporate Sustainability.

So far, a company's corporate sustainability management and corporate sustainability performance are not related in practice as they should be (Gianni et al, 2017). Traditional ways of sharing the company's sustainability performance - i.e. sustainability reports – so far lacked transparency, reliability, or even information on how the indicators used were obtained (Gianni et al, 2017).

Approaches used for the sustainability performance measurement, such as the balanced scorecards, focused on issues such as long-term growth or short-term profits and their trade-offs (Pryshlakivsky and Searcy, 2017). The development of such approaches measured short- and long-term success in predefined performance perspectives, such as finance, growth, customers, learning and internal processes (Hansen and Schaltegger, 2016).

A company's corporate sustainability performance should be evaluated in an integrated manner and its elements should be included in the corporate vision, strategy, enterprise risk and control systems, accounting, and reporting systems (Maas et al, 2016). The company's strategy, processes and management systems should be allied to manage the effects of company operations and communicate them to all related stakeholders (Gianni et al, 2017).

### **3. Corporate Sustainability Reporting**

A great challenge for business has been the communication of its corporate sustainability performance, management approaches, strategy, and prospects. Those disclosures reflect the value created by the company during the reporting period (Mio et al., 2019). Those disclosures are communicated through corporate sustainability reports.

For the corporate sustainability reports to be useful to interested parties, they should be credible, appropriately presented, reliable and according to specific guidelines (Boiral et al, 2019). Sustainability reports enhance corporate image and communications by releasing information within social expectations (Boiral et al., 2019b). On the other hand, corporate sustainability reporting has received much criticism regarding whether sustainability reports are a reliable information source, or effectively a marketing or a public relations tool (Boiral et al., 2019b).

Company motives for corporate sustainability reporting are both internal and external. External motives can be the stakeholder pressure for social and environmental ethical behavior. Through corporate sustainability reporting, the company is accountable to its stakeholders regarding its corporate impacts, activities, and performance on important issues. Internal motives are linked to the corporate sustainability practices improvement. Indicators designed to monitor corporate sustainability performance – either dictated from reporting guidelines or created by the company itself- are used as an information management tool. Furthermore, most of them were related to internal information requirements (Pérez-López et al., 2015).

Research on reporting companies considered risk monitoring and reduction, knowledge management, employee motivation and innovation as the most important drivers for reporting. On the other hand, research on companies not producing sustainability reports, resulted that implementing monitoring and reporting processes was considered a challenge and was overweighing reputational considerations or stakeholder pressures (Pérez-López et al., 2015). In practice reporting is used as a means of information sharing, since it is not usually incorporated in corporate sustainability practices or processes, even though it facilitates sustainability practices within companies (Pérez-López et al., 2015).

### **4. Corporate Sustainability Management Systems**

In previous years, sustainability management, accounting, control, performance, and reporting have been researched extensively, however usually in an isolated way (Maas et al, 2016, Gianni et al, 2017). The development of an efficient sustainability management system and strategy though, cannot be successful if management practices are adopted by companies in an isolated way (Silva et al, 2020) or as different tools and issues in different parts of an organization (Maas et al, 2016).



As the research on corporate sustainability issues was developing, it became apparent that corporate sustainability should be used as a driver for transformation that could lead to competitiveness (Schaltegger et al., 2013). Sustainability should be managed within a system - and as a system its performance should be monitored, measured, and managed (Gianni et al, 2017).

Corporate sustainability management should include all those activities that – in a systemic way – analyze, measure, control and improve the company’s performance in economic, social, and environmental issues (Schaltegger et al., 2013). This enables the company to contribute to the sustainable development of society, economy, and environment, as well as to achieve the company’s sustainable development (Schaltegger et al., 2013).

Successful corporate sustainability management and strategy will affect the company’s organizational structure, its operational practices, as well as stakeholder management and make them more oriented to sustainable development. Several management system standards can be used as tools to support this goal since sustainability issues are included in several standards. Hence, integrated management systems are considered a “sustainable competitive advantage” or a “sustainable approach” (Silva et al, 2020).

On the other hand, an Integrated Management System includes only the sustainability issues that are included in the standards the company chose to adopt and integrate. This means that a number of issues will not be dealt with if a standard is not adopted by a company and integrated e.g. social issues if a standard such as SA 8000 or ISO 26000 is not integrated, or environmental issues if ISO14001 or EMAS is not integrated. In this context, a unified Corporate Sustainability Management System (CSMS) is required, to efficiently manage all aspects of sustainability.

A proper CSMS should be an “umbrella”, a holistic system that manages financial, environmental, and social issues (Azapagic, A., 2003) as well as product stewardship issues. It should also be governance oriented, and functionality based (Gerner, 2019). This integrated approach increases the competitiveness of an organization, initially by strengthening its reputation which is a big part of its market capitalization, as well as lowering the operational costs and increasing the market share and profits (Azapagic, A., 2003, Weber, M., 2008).

This CSMS should include the company’s objectives, policies, processes, resource requirements, targets, indicators, monitoring systems as well as the communication of those indices and results to stakeholders. This communication has the potential to result in continuous improvement through feedback from all interested parties. This feedback can be used to re-evaluate the objectives, goals and strategy of the company while reviewed through the management system (WBCSD, 2002).

## **5. Purpose of the research**

This research aims to address the gaps identified in the literature regarding the unified approach in the research on sustainability management, accounting, control, performance, and risk management, all through the prism of corporate sustainability management systems. Those topics so far have been researched separately, so there is

limited evidence on the overall benefits of a unified approach, such as the one used for Quality or Environmental Management Systems.

The outcomes will be important to managers and strategists that seek good practices to reduce their companies' environmental, social, and financial risks and improve their performance in those areas, something that a successful CSMS has the potential to do. It could also assist the achievement of the SDGs initially by assisting their "transformative vision" but also by addressing traditional "blind spots" within a traditional ESG approach, by shifting the focus from "governance" to "management".

## **6. Research Questions**

A Corporate Sustainability Management System (CSMS) is defined for the research purposes, as a management system that includes all aspects of a company's corporate sustainability, from managing sustainability risks, to establishing related controls, to monitoring and improving its sustainability performance. This includes the sustainability initiatives adopted and the indicators used for strategy development and/or reporting purposes, relate to better corporate performance and reduced risk for the company.

A number of articles were found relating to the aforementioned subjects, as well as related to environmental systems implementation in relation to a company's performance and risk management. Several publications from Intergovernmental initiatives (such as UNEP, IPCC, WBCSD etc) were also included in the review.

The articles and publications reviewed so far, did not include solid evidence and conclusions relating to the following research questions, especially regarding the Greek market:

- Why do companies develop and implement a CSMS?
- What are the facilitators of a CSMS implementation?
- Under what conditions do facilitators lead to CSMS implementation?
- What are the performance outcomes of a CSMS?

## **7. Research Framework**

This research aims to develop and validate a model of the drivers and outcomes of the successful development of a Corporate Sustainability Management System by an organization, operating in the Greek market. The initial model is developed through literature review and was based on the Motivation, Opportunity, and Ability Framework.

The Motivation, Opportunity, Ability (MOA) Framework is used in literature as a theoretical base for an explanation of corporate decision-making and performance, customer choices, social capital activation as well as knowledge management (Siemens et al, 2008). Multiple variables have been used in the literature to represent the three elements of the MOA framework (Shu et al, 2020).

Motivation is defined as “the willingness to act” (Siemsen et al, 2008, Shu, 2020) or as a “goal-directed arousal” (MacInnis et al, 1991). Opportunities are the mechanisms that enable action (Siemsen et al, 2008) and reflect a firm’s perception of the external environment and the outcomes of its decisions (Shu et al, 2020). Finally, abilities are the skills or knowledge base related to the action taken (Siemsen et al, 2008).

The MOA framework suggests that in each organization’s strategic actions, there are three primary precursors: the knowledge of the organization's competitive environment (opportunity), the motivation to act, and the capability of an organization to act (ability) (Shu et al, 2020). In general, those elements differ when different industry sectors are considered. For example, opportunity plays a significant role in the mining industry’s performance, however, it is not such an important one in an insurance agency. Furthermore, the contribution of all three is required for optimal performance, especially since opportunity addresses all the factors that are outside of the organizational control e.g., external environment, etc (Blumberg and Pringle, 1982, Bos-Nehles et al, 2013).

The MOA framework is considered an appropriate theoretical approach for this research to find how they affect the development of a CSMS so that an organization can achieve better performance both in sustainability as well as in market and financial terms.

On a corporate level motivation is the incentive of acting or not, through the strategic evaluation and judgment of risks and opportunities, that result in possible losses or gains from action or inaction (Shu et al, 2020).

The awareness or knowledge of an organization’s competitive environment and capabilities is the way to evaluate possible results that will result in gains or losses (Shu et al, 2020).

Finally, without capabilities and knowledge, an organization cannot act sufficiently in competitive actions (Shu et al, 2020).

## **8. Research Methodology**

The research process started with the review of relevant literature regarding corporate sustainability and its antecedents, sustainability reporting and performance, as well as risk management and management systems. By reading and comparing the articles and publications found, a research framework was established as well as the research questions.

The research was decided to be quantitative and will use a questionnaire to gather the data. The questionnaire development was decided to take place in three stages. The first stage was a literature review to identify corporate sustainability issues, practices, initiatives, performance and risks a company is facing.

The second stage was a review of standards and guidelines related to environmental, social, quality, governance, and reporting, so that requirements and indicators related to a CSMS are found, as well as sustainability valuation requirements.

The third stage used input from individuals working in the quality sector, that comprises individuals highly experienced in developing and managing various management systems. For this stage the results that derived from a questionnaire on corporate sustainability prepared by the researcher and sent by the Chartered Quality Institute (CQI) to its members were considered. 355 responses were gathered, and results were used to identify material issues regarding the development of a corporate sustainability management system and the adoption of sustainability practices whether short or long term.

After the questionnaire is ready, Greek companies will be chosen to get the data to be analyzed, according to their performance on sustainability issues and reporting patterns. Greece is a European Union member country, that will have advanced disclosure requirements due to new stricter legislation on the subject.

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**Submitted to: LSE, 10th Biennial HO Ph.D. Symposium on Contemporary Greece and Cyprus, 26th of May 2023.**

**Sustainable Food Consumption:  
an analysis in the region of Attica.**

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**Abstract**

While the planet is facing enormous environmental and social challenges, sustainable development discussions are more urgent than ever. One essential aspect of sustainable development is sustainable food consumption. Sustainable food consumption is a topic that covers a wide variety of issues from the environment, the purchase of organic products, the well-being and the living conditions of animals, reducing meat consumption, fair trade products, supporting the local market, consumption of seasonal products, the increase in the consumption of plant foods but also the limitation of food waste. This paper aims to draw conclusions on sustainable food consumption in the region of Attica through consumers' preferences and behaviours. Statistical analysis was conducted to investigate if there is a relationship between sustainable food consumption and different socio-demographic and geographical factors. In addition, an evaluation of consumers' preferences in food purchasing was conducted.

**Keywords:** sustainable food consumption; environmental awareness; consumers' food purchasing preferences; Attica; Greece.

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## 1. Introduction

### 1.1. Sustainable development meets sustainable food consumption

It was in 1987 when sustainable development was defined in the Brundtland Report, also known as “Our common future,” as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. Nowadays, it is more important than ever due to environmental threats, biodiversity loss, the COVID-19 pandemic, climate and energy crisis, and failure to set and meet net-zero targets to adopt a sustainable model. Food systems are complex yet fragile; planning and understanding them is key to achieving sustainability. As McGregor (2014) mentions, human well-being and sustainability are interconnected.

A critical aspect of sustainable development is sustainable food consumption, a topic with growing interest. The processes related to the food systems, such as agricultural production, processing, distribution, and consumption contribute to an increasing level of greenhouse gas emissions and a series of other environmental threats, such as biodiversity loss, water pollution and scarcity, and soil degradation (Reisch *et al.* 2013). “Food research concerns the intersection between geography and social and environmental sciences but also is a cultural process since food is an essential part of our daily life. Consumers are key actors as their choices shape the world. Therefore, they should become more aware of sustainable food consumption” (Varela 2023: 42). Sustainable consumption concerns both the social responsibility of the consumers and their personal choices. The sustainable development of food consumption and agricultural production is an issue that involves both the local and the global environment. “Food consumption is a major issue in sustainable production and consumption policies as it has a significant impact on the environment, the economy, health - public and individual - and social cohesion” Reisch *et al.* (2013:7).

The 12th goal of the United Nations’ sustainable development goals concerns responsible consumption and production; it refers to the eating habits in the production, processing, and consumption of food that ensure the food system's sustainability and that all the relevant actions will be environmentally friendly. In addition to this, Article 2 of the United Nations Framework Convention on Climate Change (UNFCCC) commits signatory nations to stabilize greenhouse gas concentrations in the atmosphere to allow ecosystems to adapt “naturally” to climate change and protect the production of food and finally to enable economic development sustainably (1992: 4).

The transformation of food consumption is considered a necessary condition for achieving global sustainability goals. According to FAO (2010), “sustainable diets are those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources”. Food consumption is influenced by accessibility, availability of food, and also personal choices. Furthermore, these factors depend on geography, demography, culture, urbanization, globalization, marketing, consumer behaviour, and, of course, disposable income (Kearney 2010). It should be noted here that food consumption has the most significant environmental impact of all

forms of consumption (Druckman and Jackson 2010; Jackson and Papathanasopoulou 2008; Lorek and Spangenberg 2001). Environmental impacts mainly concern land uses for food production, contributing to increased greenhouse gas emissions (Lorek and Spangenberg 2001). Specifically, domestic food consumption maximizes more than 60% of global greenhouse gas emissions; therefore, changing eating habits to a sustainable one is essential (Ivanova *et al.* 2016).

A definition for Sustainable Food Consumption can be food “that responds to basic needs and bring a better quality of life while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations” (Oslo Roundtable on Sustainable Production and Consumption 1994).

Another version of the environmentally sustainable diet is mentioned with the acronym “SHARP”, which stands for “environmentally sustainable” (S), “healthy” (H), “affordable” (A) for consumers but also provides and strengthens the agri-food sector, “reliable” (R) in terms of the supply and demand relationship and, finally, “preferable” (P), i.e., in keeping with dietary preferences and cultural norms (Mertens *et al.* 2017).

Another significant definition is summarized by:

UK Sustainable Development Commission (2005; 2009), defining “sustainable food and drink” as that which is safe, healthy, and nutritious for consumers in shops, restaurants, schools, hospitals, and so forth; can meet the needs of the less well off at a global scale; provides a viable livelihood for farmers, processors, and retailers whose employees enjoy a safe and hygienic working environment; respects the biophysical and environmental limits in its production and processing while reducing energy consumption and improving the wider environment; respects the highest standards of animal health and welfare compatible with the production of affordable food for all sectors of society; and supports rural economies and the diversity of rural culture, in particular by emphasizing local products that minimize food miles (Annunziata and Scarpato 2014: 353-354).

Sustainable food consumption covers a wide variety of issues from the environment, the purchase of organic products (Hughner *et al.* 2007; Magnusson *et al.* 2003; Scalvedi and Saba 2018), the consumption of fruits and vegetables (Cox *et al.* 1998), the well-being and the living conditions of animals (Hansen *et al.* 2003; Verbeke *et al.* 1999), reducing meat consumption (Hoek *et al.* 2004; Mylan 2018), fair trade products (Raynolds 2002), supporting the local market (MacGregor and Vorley 2006), consumption of seasonal products (Macdiarmid 2014), the increase in the consumption of plant foods (Lea *et al.* 2006) but also the limitation of food waste (Derqui *et al.* 2018; Lagorio *et al.* 2018) and in general the consumption of food with a small carbon and water ecological footprint. Furthermore, adopting the Mediterranean diet, found among others in Greece, Italy, Spain, and North Africa, is a critical element of sustainable food consumption (Bach-Faig *et al.* 2011; Pairotti *et al.* 2015) (Varela 2023: 44).

### 1.2. Elements of Originality

Green consumption has been extensively researched by rural sociologists and geographers. More emphasis has been paid to agricultural production, but little attention has been paid to social, demographic and psychological factors. Any transition towards sustainability and sustainable living should be researched holistically. As reported by Gilg *et al.* (2005) the language of consumption needs to change from “green” to sustainable. By examining the practices and behaviours of different groups we will be able to transition to a sustainable way of life more effectively. Previous research has focused on the profile of the green consumer in Greece (Abeliotis *et al.* 2010), the consumer of organic products (Krystallis *et al.* 2006), but there has yet to be any other research regarding the Attica region that examines sustainable consumption food.

The current study’s main objective is to analyse consumers’ perceptions of sustainable food consumption in purchasing decisions in Attica. That enables us to increase the understanding of consumers’ attitudes towards sustainable food and can play a key role in promoting sustainability in food systems. Attica region was selected as it encloses the Athens metropolitan area, part of which is Athens, Greece’s largest city and capital.

### 1.3. Why the role of the consumer is important?

Sustainable consumption, especially in Western societies, is critical in order to achieve sustainable development (Abeliotis *et al.* 2010). Consumer behaviour and dietary choices are of major importance in understanding their direct and indirect effects on the environment and shape both individual and collective well-being (Jackson 2005). The consumer shapes the promotion of a sustainable food system and affects the environment and natural resources through their choices and habits (Lim *et al.* 2019). With the ever-increasing environmental concern, consumers’ expectations can shape policies and participate in decision-making (Beckford *et al.* 2010; Lee, 2011). Many consumers show increased demands regarding the convenience of food in connection with the efficient management of time and work (Homo Economicus: maximization and pursuit of goals at the minimum cost and rational criteria).

Sustainable consumption is based on a process of making decisions taken by the social responsibility of the consumer (Homo Politicus: who tries to consider what is best for society) (Faber *et al.* 2002; Vermeir and Verbeke 2008). The role of consumers is crucial in achieving the goals of sustainable development. Understanding the practices and preferences will raise awareness and help adopt policies contributing to sustainable habits. Moreover, companies can shape their strategies and move towards a sustainable business model and, therefore, a sustainable future. Consumers who value local and organic products “place a positive value on local economic and social connectivity, environmental preservation and known origin and quality - in other words, authenticity - and taking into account the negative costs of global food transport, pesticide use and industrial agriculture” (Seyfang 2005: 300).



#### 1.4. Socio-Demographic Criteria

Sustainable food consumption can be influenced by many factors, such as attitudes, perceptions, and food knowledge; therefore, determinants can vary and can be pretty complex. Social and demographic factors have been highlighted in many studies regarding sustainable food consumption. A significant amount of research suggests that households and families can shape attitudes and behaviours on food choices and sustainability issues (Grønhøj and Thøgersen 2012; Verain *et al.* 2015; Verain *et al.* 2016). It was found that consumers with higher income and who are highly educated tend to have healthier eating habits and generally buy more fruits and vegetables (De Irala-Estévez *et al.* 2000; Giskes *et al.* 2002; Hupkens *et al.* 2000; Kontinen *et al.* 2013). Furthermore, they seem to care about their consumption habits and their environmental impact; therefore, they choose more sustainable foods (Allès *et al.* 2017) and consume less meat (Verbeke *et al.* 2000). The idea that consumers with higher income tend to have more sustainable food habits have been presented in many articles (Fransson and Gärling 1999; De Pelsmacker *et al.* 2005; Tanner and Kast 2003).

Several educational and informative efforts have been made to change and improve people's eating habits. However, it is a complex process that requires targeted information, considering consumers' social and demographic criteria. Information about dietary habits is more effective among people with a higher level of education, the "nutrition elite" (Andrews *et al.*, 2009).

Verain *et al.* (2012) conducted a literature review in Scopus by searching consumer segments with regard to sustainable food consumption; age was found as a variable in eleven articles, and education was included in ten articles. Research also suggests that women and older people tend to buy more sustainable food products (Griffin and Sobal 2013; Von Meyer-Höfer *et al.* 2015). Another study found that highly educated consumers who live in urban areas are more likely to purchase sustainable food (Meijers and Van Dam 2012).

## 2. Materials and methods

### 2.1. Data Survey and Statistical Tests

The study is based on a literature review and a data survey on consumers in the Attica region. All of the data was acquired through an online survey done in 2022, from April to September. The survey was open to all adult consumers who lived in Attica. The online survey was distributed via e-mails (samples acquired from large exhibitions, e.g., HORECA, FoodExpo, Xenia), municipalities of the Attica region, and municipal services. Moreover, social media (Instagram, Facebook, and LinkedIn) and a blog were used in order to acquire a larger sample of responses. Respondents did not receive a financial incentive. In total, a valid sample of 363 participants was obtained. Questionnaires have been used to unpack consumers' views, perceptions, and preferences in the Attica region while observing the correlation between food consumption and social, economic, demographic, and geographical factors. During the survey, consumers were asked to answer 26 questions. The survey was written in Greek and was conducted by Qualtrics (an online survey company). The survey's questions

gather information on socio-demographic characteristics (gender, age, education status, income, occupation, family status, number of children, and place of residence).

The study's main objective is to analyse the perceptions and preferences of consumers in Attica on sustainable food consumption. Through the understanding of attitudes towards sustainability and food consumption policies can be improved.

Data were analyzed using SPSS. Descriptive statistics were used to report means and standard deviations. Factor analysis was used to identify the variables that correlate with each other and construct a variable for sustainable food preference. Reliability was tested by using Cronbach's alpha ( $=.856$ ). The purpose of factor analysis is to identify groups of variables that show a relationship between them and thus interpret a phenomenon and produce a theory. This use mainly concerns the construction of questionnaires in which multiple questions/items are used to measure a single concept.

For each different use of factor analysis, there are also the corresponding methods of extracting components or factors, as well as, the corresponding rotation methods. For data reduction, Principal component analysis (PCA) was used. PCA produces components, which are a linear combination of the observed variables, and are uncorrelated with each other. It also takes into account the uniqueness of each variable. PCA is a widely used multivariate statistical technique for data reduction in behavioural and social sciences. It is a technique that finds combinations of variables in order to maximize the variance explained by the components (Field 2016; Raykov *et al.* 2017).

**Table 1.** Rotated Component Matrix.

	Component 1	Component 2
To be packed in the least possible or environmentally friendly way.	.740	
Have a low environmental footprint.	.730	
They must not have "travelled" long distances.	.724	
To be healthy.	.698	
Fair Trade.	.682	
No preservatives.	.680	
Avoid food waste.	.663	
To be organic.	.614	
To be Greek or local products.	.605	
Not requiring preparation.		.819
Low in calories.		.726
Not expensive.		.563
Good taste.		-
<b>Cronbach's Alpha</b>	.856	.508

As we can see above, in Table 1, Principal Component Analysis (PCA) produced two components. Component number 1 includes the following items: to be packed in the least possible or environmentally friendly way, have a low environmental footprint, must not have "travelled" long distances, to be healthy, to be Fair Trade, no preservatives, avoid food waste, to be organic, to be Greek or local products. All these attributes can be considered sustainable food preferences. On the other hand,

component number 2 includes items that did not fit into component number 1 and had a lower Cronbach's alpha ( $=.508$ ); therefore, it is not included in the analysis.

The study aimed to investigate if consumers prefer sustainable food consumption based on a set of questions. Based on this, eight hypotheses were made and were analyzed with a t-test and a one-way analysis of variance (ANOVA). The analysis was conducted in order to examine if there is a relationship between several socio-demographic and geographical attributes and sustainable food consumption. The tests are done in order to understand if consumers' gender difference, age, education level, occupation, family status, income level, and place of residence influence their perception of their attitude towards sustainable food consumption.

### **3. Results and Discussion**

#### *3.1. Descriptive statistics of the sample*

The data acquired from the data survey is summarised in the following paragraphs:

About 61% of the participants were female, and 39% were men. The participants were grouped into six groups according to their age, and the dominating age group was found to be 26-35 years old (32.5% of the total), followed by 46-55 years old (24.2% of the total). The rest of the age groups were: 36-45 years old (18.5% of the total), 56-65 (15.2% of the total), 18-25 (7.2% of the total), and, 65 and above (2.5% of the total).

In regard to the education status of the participants, 38.8% of the total had a bachelor's degree, 35% had a master's/MBA degree, followed by high school education 9.6% of the total. Participants with doctorate degrees were 7.2 % of the total, while only 0.2% of the total had not completed high school education.

When it comes to the occupational status of the participants, 47.9% of the total work is in the private sector, while 19.8% is in the public sector. About 18.5% of the total were freelancers, 6.6% of the total were students, and 4.1% of the total were pensioners. Only 2.2% of the total were unemployed, and 0.8% of the total occupied with domestic work.

Regarding family status, the highest number of responses came from 43.8% of total single people, followed by married people 43.3% of the total. Divorced were 6.6% of the total, people who did not want to answer, and people in civil partnership 2.8% of the total. Only 0.8% of the total were widowed.

The participants were also grouped according to if they were parents. Participants with children were 47.1%, and participants without children were 52.9%.

Another grouping category was income level; participants were grouped into four categories in terms of their annual income. The highest number of responses were from people with an annual income of 10,000-20,000 € (39.7% of total participants), followed by consumers with an annual income below 10,000 € (21.5% of total).

Participants with an annual income of 20,000-30,000 € were 14.9%. An annual income under 40,000 € had 11.8% of the total, and finally, 10.7% of the total were respondents with an annual income of 30,000-40,000 €.

### 3.2. What matters the most when purchasing food products?

Respondents were asked to rank six variables in order of preference when purchasing food. From 1, the most important, to 6, the least important. As shown in Table 2, the six variables were quality, price, health, taste, appearance, and origin (locality). The response to this question showed that about 37.7% of participants consider health the most important attribute when purchasing food. In addition to this, about 37.2% of participants consider quality the most important when buying food. Interestingly, the taste was ranked first by 11% of participants. Price was the most important for 7.4% of participants, and origin (locality) by 4.4%. Lastly, the least important item was appearance; only 2.2% of participants ranked it first.

**Table 2.** Ranking of attributes when purchasing food products.

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>Quality</b>	<b>37.2%</b>	36.4%	15.2%	7.7%	2.2%	1.4%
<b>Price</b>	7.4%	13.8%	16.8%	<b>27.0%</b>	21.2%	13.8%
<b>Health</b>	<b>37.7%</b>	20.4%	20.9%	13.5%	6.1%	1.4%
<b>Taste</b>	11.0%	18.7%	<b>31.1%</b>	26.4%	11.0%	1.7%
<b>Origin (locality)</b>	4.4%	8.8%	12.4%	17.6%	<b>36.4%</b>	20.4%
<b>Appearance</b>	2.2%	1.9%	3.6%	7.7%	23.1%	<b>61.4%</b>

In order to investigate who the sustainable consumers are, and what their preferences are, a set of questions were asked on food preferences on different attributes: organic, fair trade, seasonal, Greek (local/regional) products, food waste, low environmental footprint, packaged in the least possible or environmentally friendly way, food miles, meaning not have “travelled” long distances, health, no preservatives, not requiring preparation, low in calories, not expensive and good taste. Perceptions and attitudes were measured on Likert-type scales of 6 points: (1: not important, 2: slightly important, 3: moderately important, 4: important, 5: very important, 6: do not know/no opinion). Respondents who answered do not know/no opinion were excluded from the analysis.

**Table 3.** Evaluation of different attributes in sustainable food preference.

	1: not important	2: slightly important	3: moderately important	4: important	5: very important
No preservatives.	2.2%	6.3%	19%	40.5%	32%
To be organic.	4.4%	15.5%	35.4%	28.5%	16.3%
Not requiring preparation.	23.9%	25.8%	29.4%	15.3%	5.6%
Low in calories.	11.6%	14.6%	38.3%	24%	11.6%

Have a low environmental footprint.	3.6%	9.8%	26%	36%	24.6%
Good taste.	-	1.4%	8.5%	48.2%	41.9%
Not expensive.	0.8%	6.6%	33.9%	39.4%	19.3%
To be Greek or local.	2.5%	5%	22.6%	37.2%	32.8%
To be healthy.	0.6%	1.1%	7.5%	37.6%	53.3%
Fair Trade.	3.6%	8.7%	31.3%	32.8%	23.6%
To be packed in the least possible or environmentally friendly way.	3.9%	5.6%	24%	35.4%	31.2%
They must not have “travelled” long distances.	4.5%	14.5%	25.3%	31.5%	24.2%
Avoid food waste.	0.3%	1.9%	12.7%	40.6%	44.5%

As shown in Table 3, respondents who value food products with no preservatives are 40.5% of the sample and ranked it as important, and 32% of the total considered it very important. Only 2.2% found no preservatives insignificant. Regarding the organic label, the majority of respondents, 35.4%, considered it moderately important, and only 4.4% considered it unimportant. As for the factor “not requiring preparation,” 29.4% found it of moderate importance, and 23.9% of the total did not find this attribute important. Another attribute was low in calories: 38.3% found it of moderate importance, 11.6% considered very important, and 11.6% viewed it as unimportant. Food with a low environmental footprint was considered important by 36%, and only 3.6% found it unimportant. When it comes to good taste, none of the respondents answered that it is not important, 48.2% considered it important, and 41.9% valued it as very important. Not expensive was found to be important by 39.4% of the total, moderately important by 33.9%, and slightly important only by 6.6%. Greek or local food products are considered important by 37.2% of the total, very important by 32.8% o, and not important by 2.5%. More than half of the respondents, about 53.3%, answered that a very important attribute when purchasing food is to be healthy, and ranked it as important 37.6%, less than 0.6% found it unimportant. Regarding the Fair Trade label, 32.8% ranked it as important, 31.3 % as moderately important, and 3.6% as not important. Environmental-friendly packaging, or the least possible one when purchasing food, is considered important by 35.4%, very important by 31.2%, and 3.9% ranked it as not important. Another variable was food products that had not traveled long distances, which were important for 31.5% and not important for 4.5%. Finally, avoiding food waste is considered very important by the majority of 44.5%, also important by 40.6% only 0.3% found it not important.

### 3.3. Hypotheses analysis

#### 3.3.3 Alternative Hypotheses

- There is a relationship between gender and sustainable food consumption.
- There is a relationship between age and sustainable food consumption.
- There is a relationship between the level of education and sustainable food consumption.
- There is a relationship between occupation and sustainable food consumption.
- There is a relationship between family status and sustainable food consumption.
- There is a relationship between being a parent and sustainable food consumption.
- There is a relationship between place of residence and sustainable food consumption.
- There is a relationship between income and sustainable food consumption.

#### 3.3.4. Null Hypotheses

- **Hypothesis 1:** There is no relationship between gender and sustainable food consumption.
- **Hypothesis 2:** There is no relationship between age and sustainable food consumption.
- **Hypothesis 3:** There is no relationship between the level of education and sustainable food consumption.
- **Hypothesis 4:** There is no relationship between occupation and sustainable food consumption.
- **Hypothesis 5:** There is no relationship between family status and sustainable food consumption.
- **Hypothesis 6:** There is no relationship between being a parent and sustainable food consumption.
- **Hypothesis 7:** There is no relationship between place of residence and sustainable food consumption.
- **Hypothesis 8:** There is no relationship between income level and sustainable food consumption.

A factor analysis using principal components was used in order to construct a variable for sustainable food preference. Cronbach's alpha resulted in around 0.8. The study aimed to investigate if there is a relationship between several socio-demographic attributes and geographical attributes and sustainable food consumption. Based on this, eight hypotheses were analyzed with a t-test and ANOVA. The tests are done in order to understand if consumers' gender, age, education level, occupation, family status, having children, income level, and place of residence influence their perceptions and attitudes toward sustainable food consumption.

**Hypothesis 1: There is no relationship between gender and sustainable food consumption.**

Preference for Sustainable Food Consumption	Gender	N	Mean	Std. Deviation	t	p
	Male	126	3.71	.69	-3.456	<.001
	Female	201	3.97	.64		

An independent sample t-test was implemented to investigate possible differences between men and women in terms of preferences for sustainable food consumption. It was found that women showed a higher preference for sustainable food (M = 3.97, SD = 0.64) than men (M = 3.71, SD = 0.69) sampled ( $t(325) = -3.456, p = <.001$ ). (If the effect size is calculated) The relationship between gender and sustainable food consumption has moderate strength (Cohen's  $d = .393$ ). As a result, declaring that the null hypothesis should be rejected, indicates that gender has an influence on attitudes toward sustainable food consumption. That shows that female consumers could play an essential role in promoting sustainability in food consumption.

**Hypothesis 2: There is no relationship between age and sustainable food consumption.**

ANOVA					
Preference for Sustainable Food Consumption					
Age groups	N	Mean	Std. Deviation	F	p
18-25	26	3.57	.67	11.652	<.001
26-35	105	3.61	.65		
36-45	60	3.80	.64		
46-55	77	4.07	.63		
56-65	51	4.28	.52		
65 and above	8	4.31	.38		
Total	327	3.87	.67		

Univariate analysis of variance (One-way ANOVA) was implemented, and a significant difference was found between the age categories in terms of preference for sustainable food consumption. ( $F(5,321) = 11.652, p = <.001$ ). As a result, it is declared that the null hypothesis should be rejected. This suggests that age matters in sustainable food consumption. That indicates that older consumers prefer sustainable food to younger ones.

**Hypothesis 3: There is no relationship between education status and sustainable food consumption.**

ANOVA					
Preference for Sustainable Food Consumption					
Education status	N	Mean	Std. Deviation	F	p
Middle School	2	3.50	.55	.723	.606
High School	30	3.75	.71		
Vocational School	27	3.97	.76		
Bachelor's Degree	127	3.91	.65		
Master's / MBA degree	116	3.82	.65		
Doctorate Degree	25	3.96	.71		
Total	327	3.87	.67		

A one-way ANOVA was implemented, and no statistically significant difference was found between education status and sustainable food consumption ( $F(5,321) = .723, p = .606$ ). As a result, the null hypothesis is accepted, and there is no significant influence on education status regarding sustainable food consumption.

**Hypothesis 4: There is no relationship between occupation and sustainable food consumption.**

ANOVA					
Preference for Sustainable Food Consumption					
Occupation	N	Mean	Std. Deviation	F	p
Student	24	3.80	.63	2.894	.009
Civil Servant	62	4.00	.66		
Private Servant	157	3.78	.69		
Freelancer	60	3.96	.60		
Unemployed	7	3.35	.54		
Retired	15	4.24	.60		
Domestic work	2	4.39	.55		
Total	327	3.87	.67		

A one-way ANOVA was implemented, and a significant difference was found between occupation and sustainable food consumption. ( $F(6,320) = 2.894, p = .009$ ). As a result, declaring that the null hypothesis should be rejected indicates that occupation matters toward sustainable food consumption. That indicates that people who are retired and people who are occupied as civil servants tend to purchase sustainable food. Again, this contributes to hypothesis 2, that age matters; older people buy sustainable food products. Consequently, the null hypothesis is rejected, and there is a significant influence of occupation regarding sustainable food consumption.

**Hypothesis 5: There is no relationship between family status and sustainable food consumption.**

ANOVA					
Preference for Sustainable Food Consumption					
Family Status	N	Mean	Std. Deviation	F	p
Married	140	4.01	.59	6.753	<.001
Widowed	3	4.67	.11		
Divorced	23	4.24	.60		
Single	142	3.67	.68		
Civil Partnership	10	3.98	.66		
No answer	9	3.68	.87		
Total	327	3.87	.67		

A one-way ANOVA was implemented, and a significant difference was found between family status and sustainable food consumption ( $F(5,321) = 6.753, p = <.001$ ). As a result, it is declared that the null hypothesis should be rejected. That indicates that family status is significant in sustainable food consumption. Married, widowed, and divorced people tend to buy sustainable food products. Consequently, the null hypothesis is rejected, and there is a significant influence of family status regarding sustainable food consumption.



**Hypothesis 6: There is no relationship between being a parent and sustainable food consumption.**

Preference for Sustainable Food Consumption	Having children	N	Mean	Std. Deviation	t	p
	Yes	152	4.06	.60	5.028	<.001
	No	175	3.70	.68		

A t-test was implemented to investigate possible differences between people with and without children in terms of preferences for sustainable food consumption. It was found that people with children showed a higher preference for sustainable food (M = 4.06, SD = 0.60) than people without children (M = 3.70, SD = 0.68) sampled ( $t(325) = 5.028, p = <.001$ ). (If the effect size is calculated) The relationship between having children and sustainable food consumption has moderate strength (Cohen's  $d = .557$ ). As a result, it is declared that the null hypothesis should be rejected. That indicates that consumers who are parents have more sustainable preferences in food consumption.

**Hypothesis 7: There is no relationship between the place of residence and sustainable food consumption**

ANOVA					
Preference for Sustainable Food Consumption					
Place of residence	N	Mean	Std. Deviation	F	p
North Athens	54	3.84	.62	2.335	.025
West Athens	18	4.07	.72		
Central Athens	106	3.90	.66		
South Athens	82	3.72	.73		
East Attica	35	3.85	.59		
West Attica	7	4.19	.62		
Piraeus	20	3.94	.58		
Islands	5	4.71	.26		
Total	327	3.87	.67		

A one-way ANOVA was implemented, and a significant difference was found between the place of residence and sustainable food consumption ( $F(7,319) = 2.335, p = .025$ ). As a result, it is declared that the null hypothesis should be rejected. That indicates that place of residence is significant towards sustainable food consumption. People from the regional units of West Attica and the islands tend to consume sustainable food products.

**Hypothesis 8: There is no relationship between income and sustainable food consumption.**

ANOVA					
Preference for Sustainable Food Consumption					
Annual Income €	N	Mean	Std. Deviation	F	p
Below 10,000	68	3.71	.60	2.148	.075
10,000-20,000	127	3.85	.75		
20,000-30,000	50	3.93	.58		
30,000-40,000	36	4.01	.57		
Above 40,000	41	4.95	.68		
Total	322	3.88	.67		

A one-way ANOVA was implemented, and it cannot be concluded that there is a statistically significant difference between income and sustainable food consumption, as it is marginally significant ( $F(4,317) = 2.148, p = .075$ ). As a result, this confirms that the null hypothesis is accepted. Nevertheless, there is a trend; as income increases, so does the preference for sustainable food consumption.

#### 4. Conclusions

To conclude, this study aimed to identify sustainable food consumption in the Attica region by researching the preferences and behaviour of the consumers. As already highlighted, consumer awareness is critical in achieving sustainability. Since there is not one definition of sustainable food, a number of attributes were chosen to synthesise sustainable behaviour and preference. Questions were targeted to ask perceptions about organic products, fair trade, Greek (local/regional) products, food waste, low environmental footprint, packaged in the least possible or environmentally friendly way, food miles, meaning not having “traveled” long distances, health, no preservatives, not requiring preparation, low in calories, not expensive, and good taste, amongst others.

In general, the results of this study have shown that female consumers have a stronger preference for sustainable food consumption, as well as older generations. Education level has little influence on the relationship between sustainability and food consumption. Occupation influences sustainable food consumption. Family status, meaning being married and being a parent, increases sustainable food preference. The place of residence is also related to sustainable food consumption, as differences are noted within the Attica region. Lastly, income level, while there is a trend, meaning as the income increases, so does the preference; it is not statistically significant.

Consumers value health and quality as the most important attributes when purchasing food. The taste and the price of food products were of medium importance. Lastly, the least important ones were origin (locality) and appearance.

Respondents were asked to evaluate different attributes of sustainable food; healthy products are the most important by the majority, and they, also care about food waste. Organic labels and Fair Trade products need more attention than they should have from consumers. Taste is another important factor when purchasing food. Not

being expensive is an important factor when buying food. Greek and local products should be gaining more popularity. Mediterranean diet could strengthen sustainability through local production and consumption.

Environmental-friendly packaging is an important aspect to consider. Food miles and low environmental impact need more attention than it has. Environmental food labeling will allow consumers to see the environmental impact of a food on its packaging so that they can make more sustainable food choices.

In sum, the results of this study show that it is difficult to characterise the sustainable consumer. While sustainability awareness exists, there needs to be more information on food consumption and sustainable preferences as it is understood differently and depends on consumer social, demographic, and geographical factors; policymakers should focus on these factors and also provide information on specific food products. The results of this research could be used as an input for food-related policymaking. It is crucial to have policies that provide accurate and meaningful information and strategies which are targeted toward sustainable solutions for different actors. Therefore, a regulatory framework is needed to support and guide their decisions. Consumers value sustainability, but there is a need to explore this topic more, as targeted information campaigns are required which could be crucial in promoting environmental awareness and sustainability.

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