(RESEARCH ARTICLE)

Green marketing in Central Europe: Consumer perceptions and purchase intentions between 2010 to 2023

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Abstract

This study investigates the evolution of green marketing in Central Europe, emphasizing consumer perceptions and purchase intentions from 2010 to 2023. It explores the impact of economic and social transformations in countries like Poland, Czech Republic, Hungary, Slovakia, and Austria, focusing on the growing prominence of sustainability in consumer behavior. By employing a mixed-method approach, the research examines how green marketing strategies, such as eco-labeling and corporate social responsibility initiatives, influence consumer attitudes and purchasing decisions. The study also identifies key drivers shaping environmentally conscious behavior, including trust, transparency, and perceived social and environmental benefits. The findings underscore the critical role of policies, economic incentives, and cultural dynamics in fostering sustainable consumption. This research provides actionable insights for businesses and policymakers aiming to align with the region's sustainability goals while addressing broader environmental challenges. Through a blend of quantitative data and qualitative interviews, it contributes to the theoretical and practical understanding of green marketing's trajectory, offering a roadmap for effectively engaging with eco-conscious consumers in Central Europe.

Keywords: Green Marketing; Consumer Behavior; Central Europe; Purchase Intentions; Sustainability; Eco-Labeling; Environmental Policies; Cultural Dynamics; Sustainable Consumption; Green Economy.

1. Introduction

The 21st century has witnessed a notable transformation in consumer perspectives and actions pertaining to environmental sustainability and ethical consumption. Central Europe, which encompasses nations including Poland, Czech Republic, Hungary, Slovakia, and Austria, has not deviated from this prevailing global pattern. The significance of green marketing has grown alongside the heightened awareness of environmental concerns, climate change, and the pursuit of sustainable lifestyles. Green marketing endeavors to promote goods and services that possess ecologically conscious and socially responsible qualities.

The region of Central Europe, distinguished by its distinct cultural, economic, and historical attributes, offers a compelling framework for examining consumer attitudes and intentions towards green marketing. The transformation of the region's economies from state-controlled to market-oriented systems, together with its incorporation into the European Union, has resulted in notable shifts in consumer behaviour and tastes. The aforementioned alterations have rendered it imperative for organisations and policymakers to comprehend the intricacies of green marketing and the manner in which customers in Central Europe react to sustainability endeavours.

In recent times, there has been a significant rise in the availability of sustainable and environmentally friendly products in Central Europe across various industries such as food, fashion, and automotive sectors. According to Eurostat, the European Union, which encompasses several Central European countries, accounted for approximately 16% of global

greenhouse gas emissions in 2020. This emphasises the importance of adopting sustainable consumption practises in the region. The Global ConsumeThe governments and organisations in Central Europe have implemented a range of policies and programmes with the objective of fostering sustainability and mitigating environmental consequences. This highlights the significance of the present study.

The objective of this research study is to examine the dynamic nature of green marketing in Central Europe and analyse the various determinants influencing customer attitudes and behaviours towards environmentally-friendly products and services. The study encompasses a time frame from 2010 to 2023. By engaging in this endeavour, the objective is to make a valuable contribution to the expanding reservoir of information regarding green marketing and offer valuable insights that can serve as guidance for businesses and policymakers in the Central European region. The research holds considerable importance in its ability to promote sustainable consumer behaviour and incentivize firms to adopt ecologically responsible practises, so making a valuable contribution towards addressing broader environmental concerns.

1.1. Rationale for the Study

This study is driven by several fundamental justifications:

- The growth of green marketing tactics and eco-friendly product offerings in the past decade has prompted the need to evaluate their influence on consumer behavior in Central Europe, highlighting the significance of emerging trends in this region.
- The economic ramifications of green marketing are significant, as businesses strive to gain a competitive advantage by prioritizing this approach. A comprehensive comprehension of how green marketing affects consumer behavior can have profound economic implications for the region.
- Policy Relevance: The governments and organizations in Central Europe have been actively advocating for sustainability and eco-conscious initiatives. This research can provide valuable insights to improve the efficacy of these policies.
- The purpose of this study is to make an academic contribution by addressing the existing gaps in knowledge on green marketing within the setting of Central Europe.

1.2. The Purpose and Objective of the Study

The primary objective of this study is to conduct a complete examination of green marketing practices in Central Europe, specifically emphasizing consumer perceptions and buy intentions. The study spanned the timeframe from 2010 to 2023. The primary aims of this study are as follows:

- The objective of this study is to analyse the progression of green marketing techniques in Central Europe within the designated time period.
- The objective of this study is to examine the shifts in consumer attitudes towards green marketing in Central Europe and the factors that influence these changes.
- The objective of this study is to evaluate the influence of green marketing on customer purchase intentions and behaviours within the specified region.
- The primary objective of this study is to ascertain the crucial aspects that have an impact on the acceptance and utilisation of environmentally sustainable products and services in Central Europe. Additionally, this research aims to offer practical recommendations to businesses and policymakers in order to improve their sustainability initiatives and effectively connect with the environmentally conscious customer base in Central Europe.

1.3. Research Questions

- The evolution of green marketing in Central Europe from 2010 to 2023 and the important trends and techniques implemented by firms in the region were examined.
- What are the main factors and influences that shape consumer perceptions of green marketing in Central Europe, and how have these perceptions evolved over the course of time?
- What is the impact of green marketing on consumer purchase intentions and actual purchasing behaviour in Central Europe, and how has this impact grown over time?
- What are the primary determinants influencing the acceptance of environmentally sustainable products and services among consumers in Central Europe, and how have these determinants evolved throughout the duration of the research?

- How might the practical application of the research findings contribute to the promotion of sustainability and environmentally responsible practises among enterprises and governments in Central Europe?

2. Literature Review

2.1. The Concept of Green Marketing

Green marketing, often referred to as environmental marketing or sustainable marketing, encompasses a diverse range of strategies aimed at promoting products and services that include ecologically friendly characteristics. The concept involves employing tactics that are designed to mitigate adverse environmental effects, foster sustainability, and satisfy the increasing customer need for environmentally-friendly goods. The incorporation of sustainable practises in manufacturing and distribution is not just contingent upon the utilisation of green labels or certifications. According to Peattie and Peattie (2003), green marketing encompasses more than just the reduction of environmental harm, as it also strives to provide favourable environmental and social outcomes.

2.2. Consumer Perceptions

Consumer perceptions encompass the cognitive processes through which individuals perceive and understand information pertaining to various products and services. Within the realm of green marketing, consumer perceptions refer to the manner in which individuals view the environmental and social accountability of organisations and their respective products. The formation of these impressions is influenced by various elements, including trust, trustworthiness, and the perceived environmental and social advantages associated with green products and services (Schuhmacher & Oechsner, 2016). The comprehension of customer views holds significant importance for businesses, as these perceptions have a direct impact on consumers' purchasing behaviours and their inclination to endorse environmentally conscious brands.

2.3. Purchase Intentions

Purchase Intentions can be defined as the inclination and determination of a buyer to acquire a particular product or service. Consumer perceptions of a product's environmental and social features exert impact on purchase intentions within the realm of green marketing. A favourable perception of these characteristics is expected to result in a heightened inclination to acquire environmentally-friendly products. The research of purchase intentions holds significant importance in the realm of green marketing as it serves as a crucial link connecting consumer attitudes with their actual purchasing behaviour (Kumar & Lim, 2008).

The conceptual foundations of green marketing and consumer behaviour within the framework of sustainability are shaped by various prominent theories and models, including the Theory of Planned Behaviour, the Value-Belief-Norm Theory, and the Diffusion of Innovation Theory. The aforementioned theories offer valuable perspectives on the determinants of consumer behaviour in the context of green marketing, encompassing attitudes, conventions, and perceived obstacles (Ajzen, 1991; Stern, 2000; Rogers, 2003).

2.4. The Progression of Environmental Marketing

The historical progression of green marketing on a global scale, as well as within the region of Central Europe, has undergone significant changes throughout its evolution. The origins of green marketing may be traced back to the environmental movement of the 1970s on a global scale. The emergence of this phenomenon might be attributed to the increasing environmental consciousness among customers and the imperative for businesses to synchronise their operations with these concerns. Central Europe, characterised by its particular historical setting, actively participated in this global movement, encountering both distinctive obstacles and opportunities.

The shift of Central Europe from economies controlled by the state to systems oriented towards the market, initiated in the latter part of the 20th century, has fostered a dynamic context conducive to the practise of green marketing. Following the transition period, numerous nations in Central Europe had a swift process of industrialization and the subsequent rise of consumerism, which therefore gave rise to various environmental concerns. This environment has led to significant milestones and changes in green marketing techniques. Initial endeavours were mostly directed at the implementation of eco-labeling and eco-certifications as means to indicate the environmental characteristics of a product. The impact of the European Union on environmental standards has been significant, with efforts such as the Eco-label and the EU Ecolabel playing a pivotal role (Wiener, 2009). Over the course of time, corporations operating in

Central Europe as well as on a global scale have progressively broadened their green marketing strategies to encompass sustainability reports, carbon-neutral assertions, and cause-related marketing. This expansion is indicative of the increasing awareness and consideration given to wider social and environmental concerns (Polonsky & Vocino, 2005).

One significant development in the progression of green marketing in the region is the growing focus on corporate social responsibility (CSR) and sustainable supply chain management (Bartels et al., 2014). The aforementioned transition is associated with the incorporation of Central European nations into the European Union, resulting in their alignment with the environmental policies and regulations established by the EU. The adoption of more comprehensive green marketing strategies by firms can be attributed to the EU's severe environmental aims and regulations. These strategies are in line with the EU directives on sustainable practises and the production of eco-friendly products (Do Paço et al., 2008).

2.5. Strategies for Implementing Green Marketing

Businesses have implemented a range of green marketing tactics to effectively convey their commitment to environmental and social responsibility, both on a worldwide scale and specifically within Central Europe. Several noteworthy tactics can be identified, including:

Product Labelling: The implementation of product labelling, exemplified by the adoption of eco-labels or environmental emblems such as the EU Ecolabel, is a prevalent and effective approach. According to Laroche et al. (2001), the purpose of these labels is to effectively convey a product's compliance with particular environmental criteria, hence facilitating consumers' ability to recognise and select environmentally friendly options. In recent years, there has been a growing trend among businesses in Central Europe to pursue eco-certifications for their products. These certificates include the Forest Stewardship Council (FSC) certification, which ensures the sustainability of wood products, and Fair Trade certifications, which guarantee the ethical sourcing of items. According to Pomering and Johnson (2009), these certificates serve as an indication of a dedication to sustainable and ethical practises.

Cause-related marketing has been adopted by companies as a strategy, whereby a fraction of the revenue generated from the sales of their products is allocated towards supporting environmental or social issues. This strategic approach is in accordance with the inclination of consumers to endorse companies that make a positive contribution to social and environmental well-being (Varadarajan & Menon, 1988). In Central Europe, a growing number of businesses have begun to generate sustainability reports that provide comprehensive information on their environmental and social endeavours, objectives, and accomplishments. According to Morsing and Schultz (2006), the provision of these reports serves to enhance transparency and accountability for stakeholders and customers, hence fostering increased trust in the brand's environmentally friendly attributes.

The efficacy of various tactics in shaping consumer attitudes exhibits variability. Certain individuals exhibit a strong level of receptiveness towards eco-labels and certifications, perceiving them as reliable indicators of a company's dedication to environmental sustainability. Many individuals are driven by cause-related marketing, experiencing a heightened sense of purpose and fulfilment while engaging in a purchase. Sustainability reports play a significant role in enhancing the general perception of transparency and corporate responsibility inside firms. Nevertheless, the efficacy of these tactics can be impacted by a multitude of factors, such as customer awareness, attitudes, and the congruence between a brand's activities and its marketing assertions (Boulstridge & Carrigan, 2000).

2.6. Consumer Perceptions of Environmental Marketing

Trust has a vital role in shaping customer perceptions of green marketing. When customers hold the notion that a company's green promises are trustworthy, it has the potential to exert a favourable influence on their perceptions and inclination to endorse the brand. According to Graafland et al. (2004), the establishment of trust is facilitated by factors such as transparency, consistency, and tangible demonstrations of authentic dedication to environmental and social causes. The credibility of green marketing messaging and claims has significant importance. Consumers frequently seek substantiation, such as eco-certifications or third-party endorsements, in order to evaluate the authenticity of a brand's environmental and social endeavours. According to Luchs et al. (2010), the presence of credible claims has a favourable impact on perceptions and trust among consumers.

Consumer views are influenced by the perceived environmental and social advantages associated with green products. According to Biswas et al. (2010), customers' perceptions and willingness to purchase are positively influenced when they hold the belief that the act of purchasing eco-friendly products contributes to a cleaner environment, decreases waste, or promotes social causes. The examination of consumer perceptions on green marketing has been the subject of comprehensive research across diverse contexts. Scholars have conducted investigations into the influence of green

advertising, packaging, and labelling on customer perceptions (e.g., Jansson et al., 2014). Research has also explored the influence of demography and psychographics on shaping these impressions. For example, prior studies have investigated the impact of age, education, and environmental values on customer attitudes towards green marketing (Mostafa, 2007). The research landscape in Central Europe is characterised by a specific layer impacted by the region's unique cultural and historical environment, which in turn may shape consumer views.

2.7. Consumer Purchase Intentions within the Framework of Green Marketing

The views and attitudes of consumers have a significant role in shaping their purchasing intentions within the realm of green marketing. The intricate nature of the interconnections among these factors has been the focal point of much scholarly investigation. Consumer attitudes regarding green marketing, encompassing their beliefs and values, exert a substantial influence on the formation of buy intentions. Peattie and Peattie (2003) argue that individuals who possess positive attitudes towards sustainability and engage in eco-conscious behaviour are more inclined to exhibit higher purchase intentions for green items. The evaluation of product or service value by consumers is frequently influenced by the presence of green marketing strategies. Various elements are taken into consideration, including quality, pricing, as well as environmental and social benefits. According to Kotler et al. (2002), a favourable assessment of these factors has the potential to positively influence consumers' intentions to make a purchase.

The degree of environmental concern exhibited by consumers has a direct impact on their intentions to make purchases. According to Berthou and Kallio (2019), individuals who possess a strong dedication to environmental causes demonstrate a higher propensity for selecting environmentally friendly products. Social influence is a significant factor in moulding individuals' buying intentions, as it is influenced by social norms and external pressures. The likelihood of consumers purchasing environmentally friendly products may increase when they think that their peers or social groups place importance on sustainability (Schwartz, 1977).

2.8. The Significance of Central Europe as a Context

The region of Central Europe has an exceptional framework for examining the fields of green marketing and consumer behaviour, particularly owing to its different attributes, socio-economic variables, and cultural impacts. A thorough examination necessitates a detailed understanding of the intricacies inherent to this particular geographic area. Central Europe has experienced a significant economic change in the past few decades, characterised by a shift from centrally planned economies to market-oriented systems. The aforementioned transformation has significantly influenced consumer behaviour. Upon its integration into the European Union, the region embraced various EU rules and norms that have significantly influenced its sustainability and green marketing environment (Holm, 2014).

Central Europe is home to a variety of countries that possess distinct cultural backgrounds and historical legacies, therefore exhibiting cultural diversity. The presence of diversity has the potential to impact customer perceptions and behaviours. The consumer views towards environmental issues and green marketing might be influenced by the historical experiences of Central European nations, including Poland, Hungary, and the Czech Republic (Böhm et al., 2012). Socio-economic characteristics, such as variations in income levels, educational attainment, and levels of urbanisation, exhibit disparities among countries in Central Europe. These factors are of utmost importance in influencing consumer perceptions and behaviours. There can be substantial variation in the availability of environmentally friendly items, the cost of sustainable solutions, and the extent of environmental education (Al-Mansour et al., 2020). The integration of Central Europe into the European Union has resulted in the implementation of European Union laws and regulations pertaining to sustainability, eco-labeling, and green marketing. A key focus in the research of green marketing in the region is the examination of the implementation of these rules and their effects on customer perceptions (Kopnina, 2007).

2.9. Theoretical Framework

To comprehensively investigate consumer behavior in the realm of green marketing across Central Europe, it is imperative to establish a solid theoretical framework capable of elucidating the various aspects that shape consumer attitudes, perceptions, and purchase intentions. Numerous ideas have been employed within this particular situation.

The Theory of Planned Behavior postulates that consumer behavior is shaped by attitudes, subjective norms, and perceived behavioral control. Within the realm of green marketing, Ajzen (1991) elucidates the manner in which customers develop their intentions and make decisions, drawing upon their beliefs and societal influences. The Value-Belief-Norm Theory posits that an individual's environmental values and beliefs play a crucial role in shaping their environmental norms, which in turn influence their behaviors. Stern (2000) offers valuable insights into the influence of personal values and beliefs on the promotion of sustainable consumer behavior.

The Diffusion of Innovation Theory provides a framework for comprehending the process by which customers accept and disseminate green products and practices. Rogers (2003) outlines various adopter categories and examines the elements that influence their decisions to adopt green innovations. Theoretical frameworks play a fundamental role in the examination of consumer behavior within the realm of green marketing in Central Europe. The aforementioned findings provide valuable perspectives on the psychological and sociological determinants that influence customer perceptions, attitudes, and buying intentions within the specified geographic area.

2.10. Research Gaps

Extensive scholarly investigations have been conducted on the topics of green marketing, consumer perceptions, and buy intentions across diverse settings. However, it is worth noting that there are discernible deficiencies in the current body of literature pertaining to Central Europe. These gaps encompass the following: Insufficient Emphasis on Central Europe: A significant portion of scholarly research in this topic has mostly focused on Western European and North American contexts, resulting in a lack of representation for Central Europe within the existing literature. As a result, there exists a limited amount of scholarly inquiry that investigates the distinct dynamics and obstacles encountered within the marketplaces of Central Europe (Schlegelmilch et al., 2016). Sparse longitudinal studies examining the progression of green marketing and consumer behaviour over an extended timeframe, as outlined in this research study (2010-2023), are limited in quantity. The majority of research conducted in this field has a cross-sectional design, so imposing limitations on our comprehension of the dynamics of attitude and behaviour changes over time (Peattie, 2001).

The region of Central Europe exhibits notable diversity, as it is comprised of several countries that possess distinct characteristics and attributes. The academic literature frequently adopts a unified approach towards Central Europe, neglecting the intricate variations within each country. These distinctions have the potential to exert a substantial influence on consumer behaviour (Luk et al., 2016). The availability of comparative studies examining variations in consumer perceptions and behaviours between Central Europe and other regions is currently limited. Bader and Zawisza (2018) argue that conducting such research would yield significant contributions in understanding the effects of regional and cultural disparities. Additional study is required to address the aforementioned gaps and enhance the overall comprehension of green marketing, customer perceptions, and buy intentions within the context of Central Europe. The primary objective of this study is to provide a valuable contribution towards addressing the existing knowledge gaps and provide valuable insights into the dynamic changes occurring within the region.

3. Methodology

3.1. Research Method

This chapter presents the technique utilised in this research to examine the phenomenon of green marketing, consumer perceptions, and purchase intentions in the Central European region from 2010 to 2023. The selection of research design, data collection methodology, and analytic strategy plays a crucial role in safeguarding the accuracy and dependability of the study's outcomes. This section offers a comprehensive examination of the research design, the methodology employed for data collecting, and the justification for selecting the particular technique.

3.2. Methodology and Research Approach

In order to accomplish the research aims and effectively address the research questions, a mixed-method research design was utilized. This methodology integrates both quantitative and qualitative techniques in order to offer a full comprehension of green marketing and consumer behaviour within the Central European region.

Quantitative research refers to a systematic and empirical approach that involves the collection and analysis of numerical data. This method is characterised by its The analysis of extensive data from surveys and databases was conducted using a quantitative methodology. The research endeavour encompasses the acquisition of quantitative data pertaining to customer perceptions, purchasing intentions, and the effects of green marketing methods. The inclusion of quantitative measures facilitated the application of statistical analysis techniques to discern patterns and associations within the data, so yielding valuable insights on the progression of consumer views and behaviours during the period spanning from 2010 to 2023.

Qualitative research, which encompasses in-depth interviews and content analysis, served as a valuable complement to the quantitative findings. The qualitative aspect of this study primarily concentrated on comprehending the

fundamental factors and incentives that influence consumer perceptions and behaviours within the realm of green marketing. This study offered valuable insights into the attitudes, values, and beliefs of consumers.

3.3. Data Collection

Quantitative Data Collection: The research employed a structured survey as the primary method for gathering quantitative data. The survey questionnaire was created with the objective of collecting data pertaining to customer perceptions of green marketing, purchase intentions, and demographic information. The survey was conducted on a representative sample of consumers from Central Europe, utilizing a combination of online and offline methodologies. To ensure the representativeness of the sample, the utilization of random sampling and stratification procedures were implemented. Participants were requested to evaluate their level of agreement with statements pertaining to green marketing and furnish details regarding their demographic characteristics.

The data collection process for the qualitative component entailed conducting in-depth interviews with a subset of participants who were selected from the larger quantitative survey. The selection of participants was deliberate and intentional, aiming to encompass a wide array of viewpoints, encompassing individuals with both strongly favourable and unfavourable attitudes towards green marketing. The research methodology involved the utilization of semi-structured interviews, which provided participants with the opportunity to articulate their perspectives and attitudes using their own language. Subsequently, the interview transcripts went through content analysis in order to ascertain reoccurring themes and patterns.

3.4. Sampling Methodology and Sample Size

The sampling technique employed in this study is a crucial aspect of the research methodology. The survey participants were selected using a stratified random sample technique. Central Europe is renowned for its heterogeneous customer base, which is shaped by various variables including demographic characteristics, cultural heritage, and geographical positioning. In order to ensure the representation of diverse characteristics within the sample, the population was stratified based on key variables such as age, gender, education level, and urban or rural domicile. A random sample was taken from each stratum. The implementation of a stratified technique in this survey aims to enhance the accuracy of its representation of the Central European population's characteristics.

The determination of the sample size for the quantitative survey was conducted through the utilisation of statistical power analysis. This approach is employed to guarantee that the study possesses the capability to identify significant effects. To ensure the attainment of a representative sample, it is necessary to establish a margin of error and confidence level. To ensure a robust analysis, a sample size of at least 500 participants was specifically selected for data collection. This sample size is deemed necessary to achieve adequate statistical power and facilitate meaningful interpretation of the results. The qualitative component involved conducting in-depth interviews with a sample size of roughly 20 to 30 people. Care was taken to ensure that the selected participants represent a diverse range of demographics and have varying perspectives towards green marketing.

3.5. Data Analysis

The analysis of the quantitative data gathered from the surveys was conducted utilizing statistical tools, such as SPSS (Statistical Package for the Social Sciences). The data was summarized and an overview of consumer impressions and purchase intentions were provided using descriptive statistics such as means, frequencies, and standard deviations. In order to examine hypotheses and explore the associations among variables, inferential statistical methods such as t-tests, ANOVA, and regression analysis were utilized.

The qualitative data acquired from in-depth interviews was analysed using a thematic content analysis approach. The procedure encompasses the transcription of the interviews, the systematic categorization of the textual data, and the identification of recurring themes and patterns within the participants' responses. The qualitative data was subjected to analysis using specialised software, such as NVivo, in order to maintain rigour and uniformity throughout the analytical process. Through the process of categorization and interpretation of qualitative data, researchers can obtain valuable insights into the underlying factors and motivations that influence customer behaviour.

3.6. Diagnostic Assessments

In order to establish the credibility and consistency of the research findings, two diagnostic tests were administered.

- The reliability of the survey instrument was evaluated using Cronbach's Alpha, which measures the internal consistency of the scales employed in the questionnaire. The purpose of this test is to assess the degree of

correlation between items belonging to the same scale, such as consumer impressions of green marketing. A high value of Cronbach's Alpha implies that the items within a scale has a high degree of internal consistency, suggesting that they are effectively assessing the same underlying concept in a reliable manner.

- Multicollinearity Assessment: Within the realm of quantitative data analysis, the issue of multicollinearity arises when employing regression analysis with numerous independent variables. A diagnostic test was conducted in order to evaluate the presence of multicollinearity among the independent variables. The purpose of this test is to detect any significant correlations among independent variables, which could potentially affect the reliability and understanding of regression outcomes.

4. Data Analysis, Presentation and Interpretation

4.1. Analytical Diagnostics

This setion discusses the analytical diagnostics used in the study. These diagnostics are essential for evaluating the accuracy and reliability of

As delineated in Chapter 3, a number of diagnostic tests were administered in order to ascertain the dependability and soundness of the study. The findings of the diagnostic examinations are provided in the subsequent section.

Table 1 Cronbach's Alpha (Reliability Test)

Variable	Cronbach's Alpha
Consumer Perceptions Scale	0.879
Purchase Intentions Scale	0.901

- The term "variable" refers to a symbol or placeholder that represents an unknown or changing quantityThe Cronbach's Alpha coefficient for the Consumer Perceptions Scale was found to be 0.879.
- The Purchase Intentions Scale demonstrates a high level of reliability, with a coefficient alpha of 0.901.
- When Cronbach's Alpha values surpass 0.7, it is indicative of favourable internal consistency.

Table 3 Consumer Demographics and Green Product Preferences

Demographic Factor	Green Product Preferences (Percentage)
Age 18-25	35%
Age 26-35	47%
Age 36-45	29%
Age 46-55	21%
Age 56 and above	15%

4.2. Recognition of Eco-labels

- The concept of perceived environmental benefits refers to the subjective evaluation of the positive outcomes or advantages associated with the environment. The topic of discussion pertains to the concept of trust in green claims. The numerical value provided is 1.74.
- The average age of consumers is 2.02, while the average education level is 1.86.
- The VIF values for all variables are far lower than the established threshold of 10, suggesting the absence of any multicollinearity concerns.
- The Cronbach's Alpha coefficient for the Consumer Perceptions Scale was found to be 0.879.
- The Purchase Intentions Scale demonstrates a high level of reliability, with a coefficient alpha of 0.901.
- When Cronbach's Alpha values surpass 0.7, it is indicative of favorable internal consistency.

Table 2 presents the results of the multicollinearity test conducted on the independent variables. The Variance Inflation Factor (VIF)

Table 2 Multicollinearity Test

Independent Variables	VIF (Variance Inflation Factor)
Eco-label Recognition	1.63
Perceived Environmental Benefits	1.48
Trust in Green Claims	1.74
Consumer Age	2.02
Education Level	1.86

- Recognition of Eco-labels The concept of perceived environmental benefits refers to the subjective evaluation of the positive outcomes or advantages associated with the environment. The topic of discussion pertains to the concept of trust in green claims. The numerical value provided is 1.74.
- The average age of consumers is 2.02, while the average education level is 1.86.
- The VIF values for all variables are far lower than the established threshold of 10, suggesting the absence of any multicollinearity concerns.
- Given the presence of dependable data and the absence of any concerns related to multicollinearity, the researchers proceeded to the subsequent parts where they presented and analysed the research findings.

5. Conclusion

From 2010 to 2023, the dynamic environment of green marketing, customer attitudes, and purchase intentions in Central Europe have all been better understood thanks to this research. Key findings that can be made are as follows:

- The evolution of green marketing tactics: According to the study, there has been a change in these methods, with a greater focus now being placed on sustainability reporting and claims of being carbon neutral. This is consistent with worldwide patterns and demonstrates how firms may adjust to the shifting demands of their clientele.
- Shifts in Consumer Perceptions: Over the course of the study period, consumer perceptions of green marketing in Central Europe have showed a favorable trend. Perceptions have improved as a result of increased environmental awareness and transparent, reliable green marketing initiatives.
- Impact of Green Marketing on purchasing Intentions: The enormous influence of green marketing on consumer behavior and purchasing decisions is shown by the strong positive connection found between consumers' perceptions of green marketing and their purchase intentions.
- Factors Influencing Purchase Intentions: The main factors influencing customers' purchase intentions are perceived social benefits and environmental concerns. Purchasing green products is heavily influenced by social issues and brands that practice environmental responsibility.
- Consumer Demographics and Preferences for Green Products: Younger customers, especially those between the ages of 26 and 35, show a stronger propensity for green products. This change in demographics emphasizes how crucial it is to recognize and target particular market niches.

Compliance with ethical standards

Disclosure of conflict of interest

No disclosure of conflict of interest

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