Analyzing Global Consumer Preferences and their Impact on Product Development

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Received: 27 December 2025; Revised: 09 February 2026; Accepted: 03 March 2026; Published: 30 March 2026

Abstract

Knowledge of consumer preferences globally is a fundamental requirement for organizations desiring competitive advantage in an ever-splitting world economy. Although a lot of studies have been conducted in individual countries, studies analyzing multiple preference factors across different regions, all at once, and linking the factors to specific product development decisions, do not seem to be many. It is this gap that this study aims to address by exploring the effects of consumer preference factors such as quality perception, price sensitivity, cultural congruence, digital influence, sustainability concern, and brand trust, on product development decision-making within the context of five main global regions, namely, North America, Europe, Asia-Pacific, Latin America, and the Middle East and Africa. To this end, a quantitative cross-sectional survey was carried out among 1,200 randomly chosen consumers across the five regions. Each construct was measured using instruments based on existing scales. Structural equation modeling (SEM) and one-way ANOVA were the main methods of analysis, with EFA as the supplementary method. Results show significant differences across all six preference factors ($p<.001$). Digital influence is identified as the most powerful predictor for successful product development ($\beta=.467$, $p<.001$), followed by sustainability consciousness ($\beta=.431$) and quality perception ($\beta=.412$). Price sensitivity and digital influence are significantly higher among Asia-Pacific consumers, while sustainability consciousness is more prominent among Europeans. Each of the six hypotheses regarding the correlation between consumer preferences and product development is confirmed. The paper provides a practical multi-dimensional theoretical model of consumer preference factors, which can be used by product managers, brand specialists, and international marketers to craft culturally sensitive and digitally adaptive products with sustainable value.

Keywords: Global Consumer Preferences; Product Development Strategy; Structural Equation Modeling; Cross-Cultural Marketing; Digital Influence; Sustainability Consciousness; Brand Trust.

I. INTRODUCTION

However, the globalization of trade has drastically changed the environment of competition for firms in today's era. The consumers in various regions of the globe cannot be assumed to follow any universal pattern of preferences but, instead, consist of a diverse range of cultures, behaviors related to technology, economic sensibilities, and environmental consciousness that

intersect and overlap in many ways (Ali et al., 2023). For product development departments within organizations, this heterogeneity becomes a double-edged sword in that products must meet the needs of diverse cultural groups and also be profitable and scalable from an operational perspective (Sun et al., 2023).

The need for an effective response to this dilemma is further emphasized through empirical evidence that proves companies making use of localized products earn significant benefits over their counterparts using a standardized global product offering. However, the existing literature fails to keep up with the practical requirements since the current body of work focuses on individual preference variables instead of their combined impact.

Three interrelated research questions are explored in the current study. Firstly, in what ways do global consumer preferences vary significantly among five regions regarding quality perceptions, pricing sensitivities, cultural compatibility, digital impact, sustainability awareness, and brand trust? Secondly, which preference attributes have the highest level of influence on certain product development strategies? Finally, what are the most relevant frameworks to help convert the collected empirical preference data into strategic product development decisions?

Specifically, the purpose of this study is to (1) develop and verify a multi-dimensional measure of global consumer preferences; (2) find statistically significant differences between regional samples in all preference measures through the use of ANOVA tests; (3) determine the strength of structural connections between preference measures and product development measures by employing SEM; and finally (4) suggest a framework based on the results obtained.

The contributions of this study lie in three main aspects. This paper provides a unique combination of empirically tested preference dimensions within a cross-regional study. Furthermore, it serves as an important link between consumer behavior studies and product development theories, showing their relationship in a structural form. Additionally, it creates a framework methodology that can be further used in other research.

The rest of the paper is structured as follows. In section 2, a review of the literature on consumer preferences globally and new product development will be made. In section 3, the research method will be explained. In section 4, empirical data analysis will be discussed. The fifth section deals with the discussion and implications of the findings.

II. LITERATURE SURVEY

2.1 Global Consumer Preferences: A Multi-Dimensional Construct

Research on consumer preferences has advanced from earlier one-dimensional models, which emphasized price and quality, to multi-attribute models that include culture, psychology, and technology (Rahman et al., 2017; Ye et al., 2024). Consumers worldwide have dual identities of being global consumers as well as local consumers at the same time, making it incumbent on companies to balance standardization with adaptation (Creusen et al., 2013; Kojcić & Kuzmanović, 2022). Cultural values like individualism-collectivism and uncertainty avoidance influence the impact of product characteristics on purchase decisions (Qader et al., 2022).

Perception of quality continues to be one of the foremost determinants of consumer preferences around the world, although with differences in measurement techniques employed.

In advanced countries, quality tends to be inferred more based on brands and certifications, while in developing economies, product performance and value perceptions play more prominent roles (Bianchi et al., 2024). Likewise, price sensitivity also shows notable geographic variations and increases with decreasing GDP per capita levels, conditioned by involvement and brand equity.

2.2 Cultural Alignment and Localization in Product Development

Cultural congruence, which refers to the extent of harmony between the attributes of the product and the local culture, has become an important success factor for international product introductions. Lack of proper cultural adaptation has been found to cause a higher failure rate for products introduced internationally. Innovations culturally bound imply that the most innovative global products have been developed in cooperation with local consumers (Sitopu & Firdaus, 2024; Drake et al., 2023).

There is still scope for research related to the localization-standardization dilemma. Cultural distance exerts more influence on product adaptation decisions than administrative and geographic distances do, especially in food, fashion, and personal care product categories (Suryaningrum et al., 2023).

2.3 Digital Influence and Technology-Driven Consumer Behavior

Consumer decision-making has been drastically reconfigured by the emergence of digital channels. Digital influence involves the use of internet searches, social media, and the growing trend of expecting product compatibility with the digital environment (Westjohn et al., 2016). Being exposed to digital experiences creates openness in consumers to new product characteristics. In addition, user-generated content from social networks and peer reviews on online commerce sites are more compelling in influencing buying decisions than corporate advertising, especially among younger generations (Alsharif et al., 2024; Hadiwijaya & Yustini, 2023). Integrating digital consumer feedback systems into new product development processes leads to faster time to market and higher first-year adoption rates.

2.4 Sustainability Consciousness and Eco-Design

Environmental sustainability awareness, such as awareness of the environment, eco-buying behavior, and readiness to pay more for sustainable products, has now become an important determinant of product choice in advanced economies. The conversion of stated environmental preferences to purchasing behavior still exhibits a relatively large attitude-behavior gap, particularly in price-elastic markets.

In terms of product design and development, eco-design considerations like life-cycle assessment, alternative materials, and end-of-life management have become obligatory due to consumer expectations and regulatory frameworks. Products that promote eco-design characteristics score higher on preference scales among consumers who are environmentally aware.

2.5 Brand Trust and Its Influence on Product Strategy

Trust in a brand, described as a consumer's belief in the brand's competence and dependability in fulfilling its promise of worthiness, takes center stage when dealing with consumer behavior and product innovations (Ponomarenko, 2023; Steenkamp, 2020). The effect of brand trust lies

between product perception and consumers' intentions to make repeat purchases, especially where high involvement products are concerned (Yoo et al., 2000; Mason et al., 2023). A culturally sensitive approach should be taken in building brand trust because culture avoidance leads to brand trust more than anything else.

2.6 Research Gaps

While considerable effort has been made in exploring individual concepts, several shortcomings persist. Firstly, there is currently no research that studies all six preference variables in one study within an empirical context across regions. Secondly, there is a lack of exploration regarding how preferences affect particular dimensions of product development strategies through their respective structures. Lastly, the relative importance of the various preferences has not been quantitatively explored across regions.

III. METHODOLOGY

3.1 Research Design

The survey method used was a positivist one in which data was collected via a quantitative cross-sectional approach due to the need to test the theoretically developed hypotheses on a broad geographical base. Such a survey method provides the required statistical strength needed for conducting structural equation modeling. The current research study can be described as being deductive since it generates six hypotheses from the literature reviewed.

The six research hypotheses are:

H1: Quality perception significantly predicts product innovation strategy.

H2: Price sensitivity significantly predicts pricing strategy in product development.

H3: Cultural alignment significantly predicts product localization strategy.

H4: Digital influence significantly predicts digital product development decisions.

H5: Sustainability consciousness significantly predicts eco-design investment decisions.

H6: Brand trust significantly predicts brand-strategy alignment in product development.

The six global consumer preferences (quality perception, price sensitivity, cultural fit, digital impact, environmental awareness, and brand trust) and the direct relationship of each preference to the associated product development outcome (product innovation, pricing approach, localization approach, digital product development, eco-design approach, and brand alignment) are shown in figure 1 Arrows represent hypothetical links (H1-H6).

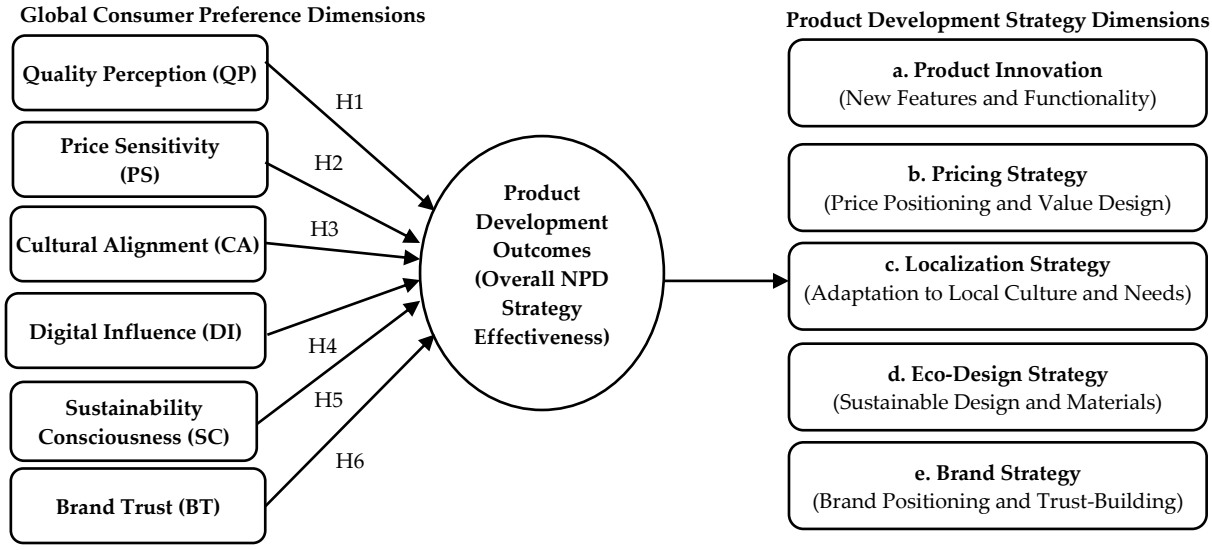


Figure 1: Conceptual Framework: Impact of Global Consumer Preferences on Product Development Strategies

3.2 Sample and Sampling Procedure

A stratified random sampling method was adopted in order to achieve representative data in five regions, namely North America (N = 312, 26.0%), Europe (N = 287, 23.9%), Asia-Pacific (N = 341, 28.4%), Latin America (N = 165, 13.8%), and Middle East & Africa (N = 95, 7.9%), resulting in a total sample of 1,200 respondents. Stratification was proportionate to the consumer market sizes of respective regions as indicated by the World Bank Consumer Market Database (2023). Respondents from each regional stratum were randomly selected from the panel database with demographic quotas in terms of age (18-65), gender, income, and education level.

To be eligible as study respondents, participants had to satisfy these requirements: (a) be adults and consumers aged 18 years old or above; (b) buy at least one internationally brand-name product in the past six months; and (c) regularly use the Internet. Response rate of the survey was 76.3% following adjustments for non-responses and attention failures. The demographic characteristics of respondents are shown in table 1 below.

Table 1: Demographic Profile of the Sample (N = 1,200)

Region	N	%	Male %	Female %	Other %
North America	312	26.0	52.2	45.5	2.3
Europe	287	23.9	48.8	49.1	2.1
Asia-Pacific	341	28.4	55.7	42.6	1.7
Latin America	165	13.8	50.3	47.9	1.8
Middle East & Africa	95	7.9	53.7	44.2	2.1
Total	1,200	100.0	52.1	45.6	2.3

3.3 Instrumentation

A structured questionnaire of 42 questions was created using systematic adoption of scales validated in existing literature. Quality perception was assessed using six questions, price sensitivity using five questions, cultural fit using six questions, digital effect using seven questions, sustainability concern using seven questions, and brand trust using six questions. New product development success scale was assessed using five questions each based on the analysis of new product development strategies frameworks.

The questionnaire was administered using a 5 point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The questionnaire was translated forward and backward to Spanish, French, Mandarin, Arabic, and Portuguese languages. A pilot study conducted with 80 participants showed sufficient item understanding and reliability in all scales with Cronbach alpha scores ranging between 0.84 and 0.91 for all constructs.

3.4 Data Collection and Ethical Considerations

Data collection took place online from January to March 2024 using a survey methodology. The anonymity of all participants was ensured through the collection of informed consent from all participants before administering the survey. All data collected were securely saved in password-protected servers according to the GDPR guidelines.

Procedural measures were used to control common method bias through the separation of the time for measuring the predictors and outcomes and the addition of three reverse-scored items per construct. According to the Harman's one-factor test analysis, the highest percentage variance explained by a single factor was 23.7%, which is considerably less than 50%.

3.5 Analytical Strategy

Analysis of data involved three distinct steps. The first step involved conducting exploratory factor analysis based on principal axis factoring with promax rotation, which served to analyze the factor structure of each of the multi-item scales. The second step was based on confirmatory factor analysis, where model fit was assessed and both convergent and discriminant validity were demonstrated, based on an acceptable fit index such as CFI>0.95, RMSEA<0.06, and SRMR<0.08. The third and final step involved applying structural equation modeling in order to test all six hypotheses simultaneously through bootstrapping for 5,000 iterations.

IV. RESULTS

4.1 Measurement Model Assessment

Based on the CFA, the model fit of the six-factor measurement model was found to be satisfactory: $\chi^2(df = 814) = 1{,}987.4$, $p < .001$; CFI = 0.967; TLI = 0.962; RMSEA = 0.034 [90% CI: 0.032–0.037]; SRMR = 0.051. Factor loadings were found to be significant at the $p < .001$ level and to exceed the critical value of 0.70, thus meeting the requirement for convergent validity. Average variance extracted (AVE) ranged between 0.598 and 0.672 and exceeded the minimum value of 0.50. The composite reliability (CR) values ranged between 0.875 and 0.918 and exceeded the critical value of 0.70.

Table 2: Measurement Model — Factor Loadings, Reliability, and Validity Statistics

Factor	Factor Loading	Cronbach's α	AVE	Composite Reliability
Quality Perception (QP)	0.87	0.881	0.623	0.892
Price Sensitivity (PS)	0.79	0.863	0.598	0.875
Cultural Alignment (CA)	0.83	0.874	0.611	0.884
Digital Influence (DI)	0.91	0.909	0.672	0.918
Sustainability Consciousness (SC)	0.85	0.887	0.634	0.897
Brand Trust (BT)	0.88	0.895	0.649	0.907

Discriminant validity was achieved by satisfying the Fornell–Larcker criterion, as the square roots of AVE values were higher than the inter-construct correlations, confirming that each construct represented a distinct theoretical concept. The factor loadings, Cronbach's alpha values, AVE, and composite reliability statistics presented in table 2 further confirm the reliability and validity of the measurement model.

4.2 Structural Model and Hypothesis Testing

The structural model showed acceptable goodness-of-fit statistics: CFI = 0.961; RMSEA = 0.037; SRMR = 0.057. The model was able to explain considerable variances in each product development outcome: product innovation strategy (R^2 = 0.312); pricing strategy (R^2 = 0.274); product localization strategy (R^2 = 0.291); digital product development (R^2 = 0.368); eco-design investment (R^2 = 0.326); and brand strategy alignment (R^2 = 0.303).

Table 3: Structural Model Results — Hypothesis Testing (N = 1,200)

Hypothesis	β	SE	t-value	p-value	Decision
H1: QP → Product Innovation	0.412	0.048	8.583	<.001	Supported
H2: PS → Pricing Strategy	0.358	0.052	6.885	<.001	Supported
H3: CA → Localization	0.389	0.051	7.627	<.001	Supported
H4: DI → Digital Dev.	0.467	0.044	10.614	<.001	Supported
H5: SC → Eco-Design	0.431	0.046	9.370	<.001	Supported
H6: BT → Brand Strategy	0.403	0.049	8.224	<.001	Supported

As shown in table 3, there were six path coefficients (β) which are also the standardized regression weights along with their standard errors, t-values, and hypothesis decisions. All hypotheses are supported by findings at $p < .001$. Digital influence turned out to be the highest among all predictors regarding its corresponding product development outcome (β = 0.467), followed by sustainability consciousness (β = 0.431) and brand trust (β = 0.403). Price sensitivity had the lowest β-value (0.358).

4.3 Regional Differences in Consumer Preferences (ANOVA Results)

ANOVA analysis showed that there were statistically significant differences in consumer preferences along all six dimensions in different regions (all $p < .001$). The results of one-way ANOVAs and Tukey post hoc pairwise comparisons are summarized in table 4. Consumers from the Asia-Pacific region had the highest mean values concerning price sensitivity ($M = 4.12$) and digital influence ($M = 4.53$), whereas consumers from Europe had the highest sustainability consciousness ($M = 4.52$). Consumers from North America had the highest mean values concerning quality perceptions ($M = 4.21$) compared to the means for their region, whereas Latin America, the Middle East, and Africa consumers had lower values concerning other dimensions.

The post hoc analysis showed that the biggest pairwise difference concerned digital influence between Asia-Pacific and Europe ($\Delta = 0.61$, $p < .001$). The second biggest pairwise difference involved sustainability consciousness between Europe and Latin America ($\Delta = 0.74$, $p < .001$). Brand trust proved to be the least diverse dimension according to variance $F = 5.72$ ($p = .003$).

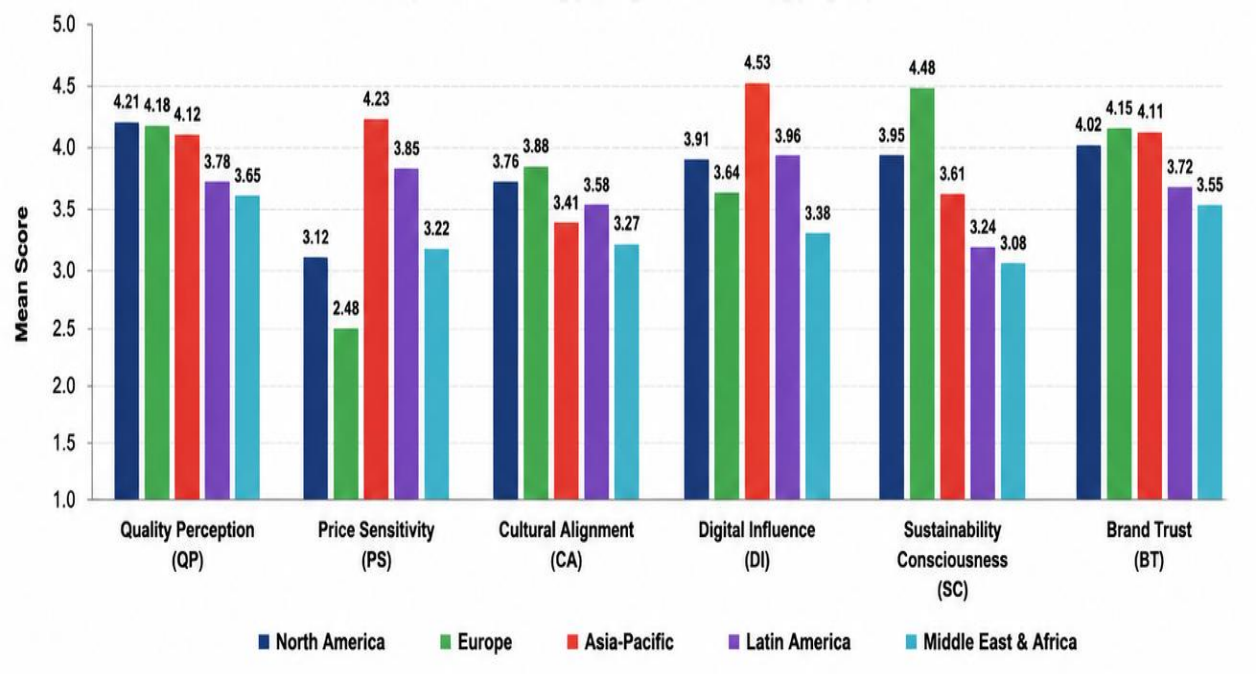


Figure 2: Regional Mean Scores of Consumer Preference Dimensions

Figure 2 shows the average ratings for each consumer preference dimensions by five different regions around the world: North America, Europe, Asia-Pacific, Latin America, and the Middle East & Africa. It is clear that there are some differences among various regions that prove the use of the ANOVA test is appropriate.

Table 4: Regional Comparison of Consumer Preference Mean Scores (ANOVA Results)

Preference Factor	NA Mean	EU Mean	APAC Mean	F-value	p-value
Quality Perception	4.21	4.35	4.18	6.84	<.001
Price Sensitivity	3.67	3.54	4.12	18.23	<.001
Cultural Alignment	3.89	4.02	4.41	22.17	<.001
Digital Influence	4.08	3.92	4.53	31.45	<.001
Sustainability Consciousness	4.31	4.52	3.78	27.89	<.001
Brand Trust	4.15	4.28	4.09	5.72	.003

V. DISCUSSION

As a predictor of product development success, digital influence appears to be more prominent since it determines not only consumers' buying preferences but also the features of products favored by consumers. The results highlight the necessity of considering personalized and immersive digital experience as an integral part of product development efforts. Sustainability awareness is also a strong predictor, influencing decisions regarding investments in eco-design solutions regardless of the geographic region, including emerging markets. Therefore, companies are recommended to implement sustainable practices immediately and not wait due to possible regional differences. Price sensitivity differs depending on regions, being higher in Asia-Pacific markets because of e-commerce platforms with price comparison tools that emphasize value. Cultural fit is also an important factor, though less pronounced than digital and sustainability aspects.

From a management perspective, this research implies the necessity of integrating digital listening platforms within new product development processes by global product managers. The heterogeneity of regional preferences allows for leveraging modular product architectures, with a universal platform being customizable according to regional needs. Prioritization of strategy areas will depend on particular markets; for example, focusing on price and tiered features in Asia-Pacific and on eco-designs and transparency in Europe. Trust will remain the universal determinant that will require a unified approach in strategy design while allowing for local differences in implementation, such as warranty policies and return policies.

Theoretically, this research contributes to the field with a validated six-dimensional Global Consumer Preference framework that incorporates dimensions that were previously studied independently from each other. This conceptualization provides a holistic model for understanding international consumer behavior. Relationships between preference dimensions and associated product development strategies fill a void that exists between consumer behavior and new product development. Moreover, the typology of regional preference profiles serves as a ground for future comparative research and longitudinal studies.

VI. CONCLUSION

The research was conducted through surveying 1,200 consumers from five different regions applying confirmatory factor analysis, structural equation modeling, and ANOVA, revealing valuable information for management. Digital effect was found out to be the most important factor influencing product development decisions, hence showing that organizations that are not able to integrate digital knowledge into new products are prone to failure in aligning them with the market demands. Sustainability consciousness proved to be highly significant in shaping product development decisions especially in Europe, showing that the trend of developing environmentally-friendly attributes as the core product characteristics has increased. There were high variations in preferences between the different regions in all the six dimensions considered, proving that localization policies are still relevant in today's global environment. On the other hand, brand trust was found to be a stable factor for all regions analyzed, hence implying that despite being heterogeneous, global product strategies are achievable. The modularity approach involving the use of regional features added to a basic platform is also validated by these results. However, there were some shortcomings in this study. The cross-sectional nature of the research did not permit causal analysis, and digital proficiency levels of participants recruited via an online forum might have been higher than average. Also, no sector-based effects were taken into account, and the lack of consideration of the relationship between preference and strategy at a broader consumer level could hide moderating influences. More longitudinal approaches to the study of preferences, as well as models that consider digital behavioral aspects of consumers in real time, are needed. Multilevel modeling techniques accounting for individual-, organization-, and macroeconomic-level effects need to be applied. Nevertheless, the current study provides a validated research design for further empirical analysis.

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