

The Role of Digital Literacy, Web Reputation, and Online Reviews in Shaping Online Green Purchase Intention: A Study of Libyan E-Consumers

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Abstract

This study investigates the role of digital literacy, online reviews, e-service quality, and web reputation in shaping online green purchase intention among Libyan consumers. As Libya's digital market develops within fragile economic and institutional conditions, understanding the drivers of sustainable online behavior becomes essential. Using a quantitative research design, data were collected from Libyan consumers with online shopping experience and analyzed through structural equation modeling. The results show that digital literacy and e-service quality significantly influence online green purchase intention, while online reviews and web reputation do not exert direct effects. These findings suggest that in fragile digital environments, consumers rely more on their own evaluative skills and perceptions of service reliability than on social proof or reputational cues. The study contributes to theory by refining stimulus–organism–response and planned behavior frameworks, emphasizing the dominance of cognitive and service-related drivers in transitional contexts. Practical implications highlight the importance of fostering consumer digital competence, improving service quality, and developing transparent digital environments to encourage sustainable purchasing. The research provides timely insights for platform developers, marketers, and policymakers seeking to promote environmentally responsible consumption in emerging and fragile digital economies.

Keywords: digital literacy, online reviews, e-service quality, web reputation, online green purchase intention, libyan consumers

1. Introduction

The rapid development of digital technologies has transformed consumer behavior, especially in online green purchasing. In this digital environment, digital literacy, web reputation, and online reviews have become key factors influencing consumers' intentions to buy eco-friendly products. Digital literacy, which is the ability to navigate and critically evaluate digital information, is vital in how consumers interact with online content about sustainable goods. As consumers become more digitally literate, their capacity to judge the credibility of online information, including the trustworthiness of web reputations and the authenticity of reviews, significantly affects their purchasing choices. This is particularly important in green purchasing, where environmental concerns often guide decision-making.

Recent studies highlight the important role digital literacy has in shaping how consumers engage with green products. For instance, Tran and Uehara (2023) focus on the role of trust in green products, primarily through online marketing strategies such as Key Opinion Leaders (KOLs), which can boost the intention to purchase sustainable fashion. Similarly, online reviews are now essential for purchase decisions, as positive feedback can increase a product's perceived credibility, while negative reviews may discourage potential buyers (Li & Nan, 2023; Dwilestari & Erdiansyah, 2023). The number and freshness of online reviews also influence consumer behavior, with more reviews often building greater confidence in buying decisions (Ramadhan et al., 2022).

The credibility of online reviews, whether generated by users or influencers, plays a significant role in shaping purchase intentions. Consumers often perceive influencer-generated reviews as more credible, which, in turn, strengthens their influence on purchasing behavior (Puspitasari & Aruan, 2023). Moreover, the impact of online reviews is mediated by the consumer's level of engagement and familiarity with the product (Hwang & Yoo, 2021), suggesting that a consumer's trust in the platform and its reputation are critical factors in influencing their purchase decisions. In the context of green purchases, a strong environmental responsibility reputation among brands can further encourage consumers to make sustainable purchasing decisions (Qalati et al., 2021).

As Libya's e-commerce sector continues to develop amidst challenges of governance instability and limited digital infrastructure, it is essential to understand how digital literacy, web reputation, and online reviews influence green purchase intentions in this context. Unlike other digitally advancing markets, Libya faces distinct barriers in digital trust and competence. With internet penetration at only 24% in 2023 and the e-commerce sector valued at below USD 50 million annually, the challenges of cultivating digital trust and consumer engagement are particularly pronounced. This research addresses these gaps by exploring how digital literacy, web reputation, and online reviews shape online green purchase intention among Libyan e-consumers.

This study is underpinned by the Stimulus–Organism–Response (S–O–R) framework, which explores how external stimuli, such as digital literacy, web reputation, and online reviews,

influence internal psychological states, including trust and attitudes, which ultimately guide consumers' purchase intentions.

Additionally, the Theory of Planned Behavior (TPB) supports the research by explaining how attitudes and perceived behavioral control influence decision-making in the digital realm. By examining these relationships, this research aims to develop a Libya-specific framework to enrich the existing literature on digital literacy, online reviews, web reputation, and sustainable online behavior. The findings offer practical insights for digital marketers, platform developers, and sustainability advocates aiming to promote trust and encourage green purchase intentions in emerging markets. Ultimately, this study not only advances theoretical understanding but also provides actionable insights for fostering sustainable online purchasing behaviors in fragile digital environments like Libya, paving the way for more informed and responsible consumer engagement.

2. Literature Review

2.1 Theoretical Foundation: Stimulus-Organism-Response (S-O-R) Model and TPB

In developing the conceptual model, this study is grounded in the Stimulus-Organism-Response (S-O-R) model, which posits that environmental stimuli (S) influence internal cognitive or affective states (O), which in turn shape behavioral responses (R). In the context of online green purchasing, stimuli such as digital literacy, e-service quality, web reputation, and online reviews act as external triggers; the organism component is represented by consumers' trust and attitudes; and the response is the online green purchase intention. The TPB complements the S-O-R model by explaining how attitudes toward green products, subjective norms, and perceived behavioral control within the organism stage determine the likelihood of engaging in green purchasing behavior. Integrating these theories enables a more coherent explanation of how digital and psychological factors jointly influence green purchase intentions in the Libyan e-commerce context.

2.2 Online Green Purchase Intention

The evolution of digital technologies and the concurrent rise in environmental consciousness have reshaped consumer behavior, particularly in green purchasing on digital marketplaces. OGPI, defined as a consumer's willingness to purchase environmentally friendly products through digital platforms, is increasingly recognized as a multifaceted behavioral outcome shaped by cognitive processing, affective evaluations, and external digital stimuli. Rather than being a spontaneous response, OGPI emerges from a deliberative process influenced by individual values, digital competencies, and the perceived credibility of online platforms (Hidayatullah & Sutarso, 2023; Fu et al., 2023). The literature suggests that when consumers perceive green products as authentic, ethically produced, and consistent with their environmental values, their intention to purchase strengthens. Xu et al. (2021) underscore that green brand authenticity, particularly when mediated by trust, amplifies electronic word-of-mouth (eWOM) behavior, suggesting that trust operates as a foundational mechanism in transforming attitudes into actionable intentions.

2.3 Digital Literacy

Digital literacy, “the ability to navigate digital platforms effectively, critically assess online content, and engage in secure online transactions” (Audrin & Audrin, 2022), functions as a pivotal stimulus in the Stimulus–Organism–Response (S-O-R) framework (Mehrabian & Russell, 1974). In green e-commerce settings, higher literacy equips consumers to search, verify, and interpret sustainability claims, evaluate eco-labels, and use secure payment systems, thereby reducing information asymmetry and perceived risk and fostering organism states such as trust, perceived value, and favorable attitudes that culminate in online green purchase intention (OGPI), the likelihood of buying eco-friendly products via digital platforms (Alhamad et al., 2024; Alsarraf et al., 2023). Empirical work substantiates these pathways: digital literacy strengthens green consumption through self-efficacy and affective mechanisms (Hu & Meng, 2023), raises general online purchase intention across demographics (Sianipar & Djamaluddin, 2023), and enhances the perceived usefulness of platforms for eco-products, with e-trust frequently mediating effects on intention (Nazzal et al., 2022; Kim & Park, 2024). In digitally fragile markets, literate consumers are more adept at distinguishing authentic sustainability efforts from greenwashing and in leveraging protective behaviors (e.g., privacy checks, gateway verification), which consolidates trust and pro-environmental evaluations (Alsarraf et al., 2023). Collectively, these findings align with S-O-R by showing that digital literacy operates as a capability-based stimulus that reliably activates trust- and attitude-based organism responses conducive to OGPI. In view of the explanatory power of the S-O-R lens and the convergent empirical record, the following hypothesis is advanced:

H1: There is a significant relationship between digital literacy and online green purchase intention

2.4 Online Reviews

Online reviews, defined as electronic word-of-mouth shared by consumers on digital platforms, have become a pivotal stimulus shaping online purchasing behavior (Zheng et al., 2023). By providing detailed information about product quality, credibility, and usability, reviews help reduce information asymmetry and uncertainty issues that are especially critical when evaluating green products with credence attributes. Online green purchase intention (OGPI), understood as the likelihood that consumers will choose environmentally friendly products through digital platforms (Alhamad et al., 2024), is particularly sensitive to such social and informational cues. Within the Stimulus–Organism–Response (S-O-R) framework (Mehrabian & Russell, 1974), online reviews operate as external stimuli (S) that trigger internal cognitive and affective processes (O), such as trust, perceived value, and attitudes toward green products, which ultimately manifest in the behavioral response (R) of purchase intention. Empirical research provides strong support for this pathway. Hoang Yen and Hoang (2023) demonstrate that reviews amplify health and environmental concerns, thereby strengthening pro-environmental attitudes. Thanh and Trang (2023) show that positive and credible reviews reduce uncertainty, increasing consumers’ intention to adopt

energy-efficient appliances. Ikhsan et al. (2024) further reveal that reviews enhance trust and perceived value, which mediate their effect on green purchasing decisions. Similarly, Hidayatullah and Sutarso (2023) emphasize that online reviews shape subjective norms and peer influence, which play a vital role in encouraging sustainable choices. Taken together, these findings indicate that credible and informative online reviews serve as powerful external stimuli that significantly enhance OGPI. In light of the explanatory power of the S-O-R model and the consistent support from empirical evidence, it is reasonable to posit the following hypothesis:

H2: There is a significant relationship between Online Reviews and online green purchase intention

2.5 E-Service Quality

E-service quality (E-SQ) the overall evaluation of an online service's efficiency, ease of use, reliability, and security (Al Hamli & Sobaih, 2023) acts as a salient digital stimulus in the Stimulus–Organism–Response (S-O-R) framework, shaping internal states that culminate in online green purchase intention (OGPI), the likelihood of buying eco-friendly products via digital platforms (Alhamad et al., 2024; Mehrabian & Russell, 1974). In green e-commerce, the E-SQ dimensions of website functionality, security & privacy, and customer service reduce information asymmetry and perceived risk surrounding credence attributes (e.g., eco-claims), thereby enhancing trust, perceived value, and attitudes the organism which translate into the response of stronger OGPI (Han et al., 2022; Hameed et al., 2022). Evidence from online retail consistently links ES-QUAL facets (efficiency, privacy, fulfillment, system availability) to higher purchase intentions, with customer satisfaction often mediating these effects (Baqai et al., 2021; Mtotywa & Kekana, 2023). In fragile digital markets, inadequate E-SQ depresses trust and attitudes, whereas robust usability, secure payments, and responsive support elevate favorable evaluations of green offerings (Alsarraf et al., 2023; Audrin & Audrin, 2022). Empirically, E-SQ shows a direct, meaningful contribution to purchase intention (e.g., ~19.8%), and its effect is frequently transmitted through e-trust rather than e-satisfaction (Habibah & Fikriyah, 2023; Sunyoto et al., 2025; Kamila et al., 2024). Moreover, credible, efficient platforms mitigate greenwashing concerns and reinforce pro-environmental attitudes central to intention formation (Chanda et al., 2023; Alhamad et al., 2024). Collectively, these findings align with S-O-R by demonstrating that high E-SQ functions as a potent stimulus that cultivates trust- and attitude-based organism states conducive to green purchasing. Therefore, based on the robust foundation provided by the S-O-R model and the convergent evidence from empirical studies in recent years, the following hypothesis is proposed:

H3: There is a significant relationship between E-service quality and online green purchase intention

2.6 Web Reputation

Web reputation, defined as the perception of an online platform's credibility and trustworthiness based on user feedback, security measures, and brand recognition (Alsarraf et

al., 2023), plays a pivotal role in shaping consumer evaluations of digital marketplaces. In the context of green consumption, reputation functions as a critical stimulus within the Stimulus–Organism–Response (S-O-R) model (Mehrabian & Russell, 1974), signaling to consumers whether a platform is credible, reliable, and aligned with sustainability values. When consumers perceive a platform as reputable, they are more likely to experience positive internal responses (organism), such as heightened trust, reduced skepticism, and favorable attitudes toward eco-friendly offerings, which in turn increase the likelihood of engaging in online green purchase intention (OGPI) (Alhamad et al., 2024). Empirical studies confirm this pathway. Hidayatullah and Sutarso (2023) show that strong reputational cues, often mediated through online reviews, enhance trust and drive sustainable purchasing behavior. Hoang Yen and Hoang (2023) demonstrate that web reputation interacts with internal factors such as environmental concern and health consciousness, reinforcing pro-environmental attitudes. Similarly, research highlights that platforms with transparent practices and authentic sustainability commitments are more likely to generate trust and encourage green consumption, whereas poor reputational signals or perceived greenwashing deter purchases (Ahamed & Pham, 2021; Srisathan et al., 2024). In fragile digital markets such as Libya, where skepticism toward online transactions is high, reputation serves as a powerful assurance mechanism that mitigates uncertainty and strengthens consumer confidence. Building on the explanatory logic of the S-O-R model and reinforced by consistent empirical evidence, the following hypothesis is advanced:

H4: There is a significant relationship between web reputation and online green purchase intention

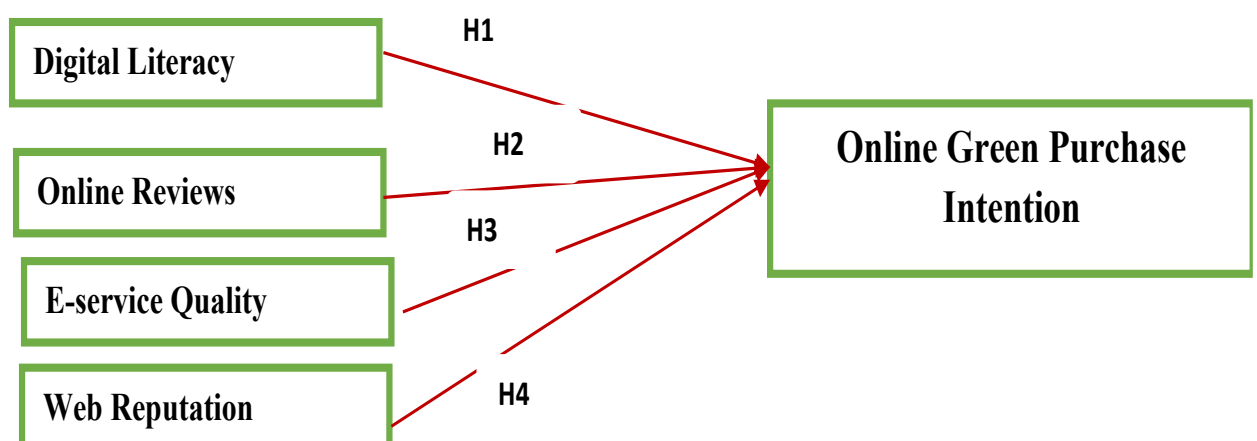


Figure 1. Conceptual Framework

3. Methodology

3.1 Research Design

This study employed a quantitative, cross-sectional research design to examine the factors influencing online green purchase intention among Libyan consumers. Anchored in the positivist paradigm, which assumes that objective reality can be measured through observable and structured means, the research followed a deductive reasoning approach. The conceptual model was developed based on established behavioral theories, including the Stimulus–Organism–Response (S-O-R) model (Mehrabian & Russell, 1974), the Theory of Planned Behavior (Ajzen, 1991), Social Influence Theory (Kelman, 1958), and the Value-Belief-Norm Theory (Stern et al., 1999). These frameworks provided the theoretical foundation for investigating the relationships among digital stimuli, internal psychological mechanisms, and consumer behavioral responses.

3.2 Measurement and Instrument Development

The data were collected using a structured online questionnaire, with all items measured on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The constructs measured in the study included digital literacy, online reviews, e-service quality, web reputation, and online green purchase intention. Measurement items were adapted from previously validated scales in the peer-reviewed literature to ensure contextual relevance and construct validity (See Appendix 1). To enhance content validity, the instrument was reviewed by four academic and industry experts and then pilot-tested with 50 Libyan online shoppers. The scales' reliability was confirmed, with all Cronbach's alphas exceeding 0.80. Furthermore, the survey items were translated and back-translated into Arabic to ensure linguistic accuracy and cultural appropriateness. Demographic items were also included to capture respondent characteristics and assess any potential covariate effects.

3.3 Sampling and Data Collection

A purposive sampling method was used to recruit Libyan consumers aged 18 and older who had previous experience with online shopping. This criterion ensured that participants were digitally competent and able to provide informed responses related to online green purchasing behavior. A total of 360 valid responses were gathered, exceeding the minimum recommended threshold for structural equation modeling (SEM) as determined by G*Power software. The final sample size was considered sufficient for analyzing the complex relationships among the latent constructs in the proposed model.

3.4 Measurement Scales

To ensure theoretical rigor and reliability, measurement items were adapted from well-established sources in recent literature. The digital literacy was measured using frameworks from Son et al., (2017), online review constructs were developed using scales from Sparks & Browning (2011), Items for e-service quality were based on the works of Parasuraman et al., (2005), Web reputation measures were drawn from Li (2014),. Online green purchase intention was assessed using items adapted from Chauhan et al. (2021).

3.5 Data Analysis Procedures

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) through SmartPLS version 4. This method was selected for its suitability in handling complex models, its robustness against violations of normality assumptions, and its predictive capabilities. Prior to conducting SEM, preliminary data screening and cleaning were carried out in SPSS to identify missing values and to perform an exploratory factor analysis. The measurement model was evaluated through assessments of indicator reliability and internal consistency, convergent validity using Average Variance Extracted (AVE), and discriminant validity using the Fornell–Larcker criterion and Heterotrait-Monotrait (HTMT) ratios. The structural model was tested to evaluate the significance of the hypothesized relationships among constructs, and the moderating effects of government initiatives and green advertisements were examined using interaction terms. Model quality was assessed through coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2) statistics.

4. Results

Measurement model

Table 1 presents the demographic and behavioral characteristics of the 360 respondents who participated in the study. The gender distribution shows that males constituted a slight majority (56.4%), while females accounted for 43.6% of the sample. In terms of age, the largest group of respondents was in the 25–34 age range (45%), followed by those aged 35–45 (28.9%), while younger participants aged 18–24 accounted for 13.6%, and those aged 46 or older accounted for 12.5%. Regarding income, 38.6% of respondents reported earning below 2,000 LYD, 29.2% earned between 2,001 and 4,000 LYD, and 22.8% earned between 4,001 and 6,000 LYD, with only 9.4% earning above 6,001 LYD. Educational attainment varied, with the highest proportion holding a master's degree (22.8%), followed closely by diploma holders (20.6%), bachelor's degree holders (17.5%), and high school graduates (17.2%), while PhD holders represented 18.9% and other qualifications accounted for 3.1%.

The respondents' online engagement patterns indicate that a majority accessed the internet daily (71.4%), with smaller proportions using it weekly (17.5%), monthly (6.7%), rarely (2.5%), or never (1.9%). A similar pattern was observed in online shopping behavior, where 36.4% shopped online daily, 19.2% shopped monthly, 15% shopped weekly, and another 15% rarely made online purchases, while 8.9% shopped quarterly and 5.6% never shopped online. Green product awareness levels were varied, with 27.2% being somewhat familiar, 23.3% very familiar, and 20.6% somewhat unfamiliar, while 18.3% were very unfamiliar and 10.6% were neutral. In terms of generational representation, Generation Y formed the largest segment at 53.3%, followed by Generation X (29.4%), Generation Z (13.6%), and Generation Alpha (3.6%).

Table 1. Respondent profiles

Gender	Frequency	Percent	Education	Frequency	Percent
Male	203	56.4	High School	62	17.2
Female	157	43.6	Diploma	74	20.6
Total	360	100	Degree	63	17.5
Age	Frequency	Percent	Master	Frequency	Percent
18- 24	49	13.6	PhD	68	18.9
25-34	162	45	Other	11	3.1
35-45	104	28.9	Total	360	100
46 or older	45	12.5	Internet Usage	Frequency	Percent
Total	360	100	Daily	257	71.4
Income level	Frequency	Percent	Weekly	63	17.5
Below 2,000 LYD	139	38.6	Monthly	24	6.7
LYD, 2,001 - 4,000	105	29.2	Rarely	9	2.5
LYD, 4,001 - 6,000	82	22.8	Never	7	1.9
6,001 LYD or more	34	9.4	Total	360	100
Total	360	100	Green Product Awareness	Frequency	Percent
Online Shopping Frequency	Frequency	Percent	Very Familiar	84	23.3
Daily	131	36.4	Somewhat Familiar	98	27.2
Weekly	54	15	Neutral	38	10.6
Monthly	69	19.2	Somewhat Unfamiliar	74	20.6
Quarterly	32	8.9	Very Unfamiliar	66	18.3
Rarely	54	15	Total	360	100
Never	20	5.6	Generation	Frequency	Percent
Total	360	100	Generation X	106	29.4
			Generation Y	192	53.3
			Generation Z	49	13.6
			Generation Alpha	13	3.6
			Total	360	100

The measurement results demonstrate robust psychometric properties that underpin the theoretical model by confirming that the constructs were operationalized with high reliability and validity. Digital Literacy shows very strong internal consistency ($\alpha = .967$; CR = .968; AVE = .860), reinforcing its conceptualization as a core cognitive resource that enables consumers to process information critically in line with S–O–R and TPB assumptions. Online reviews also exhibit excellent reliability ($\alpha = .970$; CR = .973; AVE = .923), providing confidence that social cues are reliably captured, which is crucial for examining their theorized normative influence on purchase intentions. E-Service Quality demonstrates acceptable reliability ($\alpha = .900$; CR = .920; AVE = .794), even though several items loaded below .70, suggesting that while service quality is sufficiently captured, future refinement could enhance its discriminant strength. Web Reputation shows satisfactory consistency ($\alpha = .806$; CR = .860; AVE = .632), confirming its suitability as a reputational signaling

construct. OGPI achieves solid measurement adequacy ($\alpha = .796$; $CR = .820$; $AVE = .621$), supporting its role as the central behavioral outcome.

Table 2. Construct validity

First-order Construct	Second Order	Items	Loading	CR	AVE
Digital Literacy		DL1	0.920	0.968	0.860
		DL2	0.932		
		DL3	0.925		
		DL4	0.940		
		DL5	0.942		
		DL6	0.905		
Responsiveness	E-service Quality	ESQ1	0.815	0.920	0.794
		ESQ3	0.865		
		ESQ4	0.760		
		ESQ5	0.884		
Compensation		ESQ6	0.748		
		ESQ7	0.792		
		ESQ8	0.879		
contact		ESQ9	0.537		
		ESQ10	0.850		
	ESQ11	0.830			
Perceived Information	Online Reviews	RO1	0.895	0.973	0.923
		RO2	0.954		
RO3		0.947			
RO4		0.927			
RO5		0.860			
Perceived persuasiveness		RO6	0.925		
		RO7	0.929		
Source Credibility		RO8	0.921		
		RO9	0.915		
		RO10	0.836		
	RO11	0.933			
Online Green Purchase Intention		OGPI1	0.658	0.820	0.621
		OGPI2	0.868		
		OGPI3	0.834		
		OGPI4	0.775		
Web Reputation		WR1	0.892	0.860	0.632
		WR2	0.618		
		WR3	0.777		
		WR4	0.864		

Table 3 demonstrates that the constructs exhibit satisfactory discriminant validity overall, providing confidence in the structural interpretation of the model. The square roots of the AVE values along the diagonal generally exceed the inter-construct correlations, affirming that each construct captures distinct theoretical variance. Digital Literacy is highly discriminant with respect to E-Service Quality, Web Reputation, and OGPI, as indicated by its substantial diagonal value (.927) relative to inter-construct correlations (.715–.815). However, the correlation between Digital Literacy and Online Reviews (.894) slightly exceeds the square root of Online Reviews' AVE (.877), suggesting potential conceptual overlap between individual cognitive capacity and reliance on social information. Theoretically, this overlap suggests that in fragile digital contexts, the boundary between evaluative competence and social influence may be blurred, raising important implications for how stimulus and organism constructs are operationalized.

Table 3. Discriminant validity fornell-larcker criterion

Constructs	DL	OR	ESQ	WR	OGPI
DL	0.927				
OR	0.894	0.877			
ESQ	0.715	0.747	0.750		
WR	0.746	0.765	0.715	0.795	
OGPI	0.815	0.720	0.671	0.724	0.789

Figure 2 illustrates the structural model results and highlights the differential influence of cognitive, service, reputational, and social factors on online green purchase intention. The model explains a substantial 73.6% of the variance in intention, underscoring its theoretical robustness. Digital Literacy emerges as the most powerful predictor, with high construct reliability (0.967) and strong path loading, reinforcing the argument that individual cognitive competence is central to sustainable decision-making in fragile digital markets. E-Service Quality also demonstrates significant explanatory power (0.900), showing that operational trust and service efficiency are critical enablers of pro-environmental purchasing. In contrast, Online Reviews, despite strong measurement reliability (0.970), exert limited direct influence on intention, indicating that normative cues require trust-based mediation to shape behavior. Similarly, Web Reputation (0.806) contributes minimally, suggesting that reputational signals lack sufficient force absent cognitive and service scaffolding.

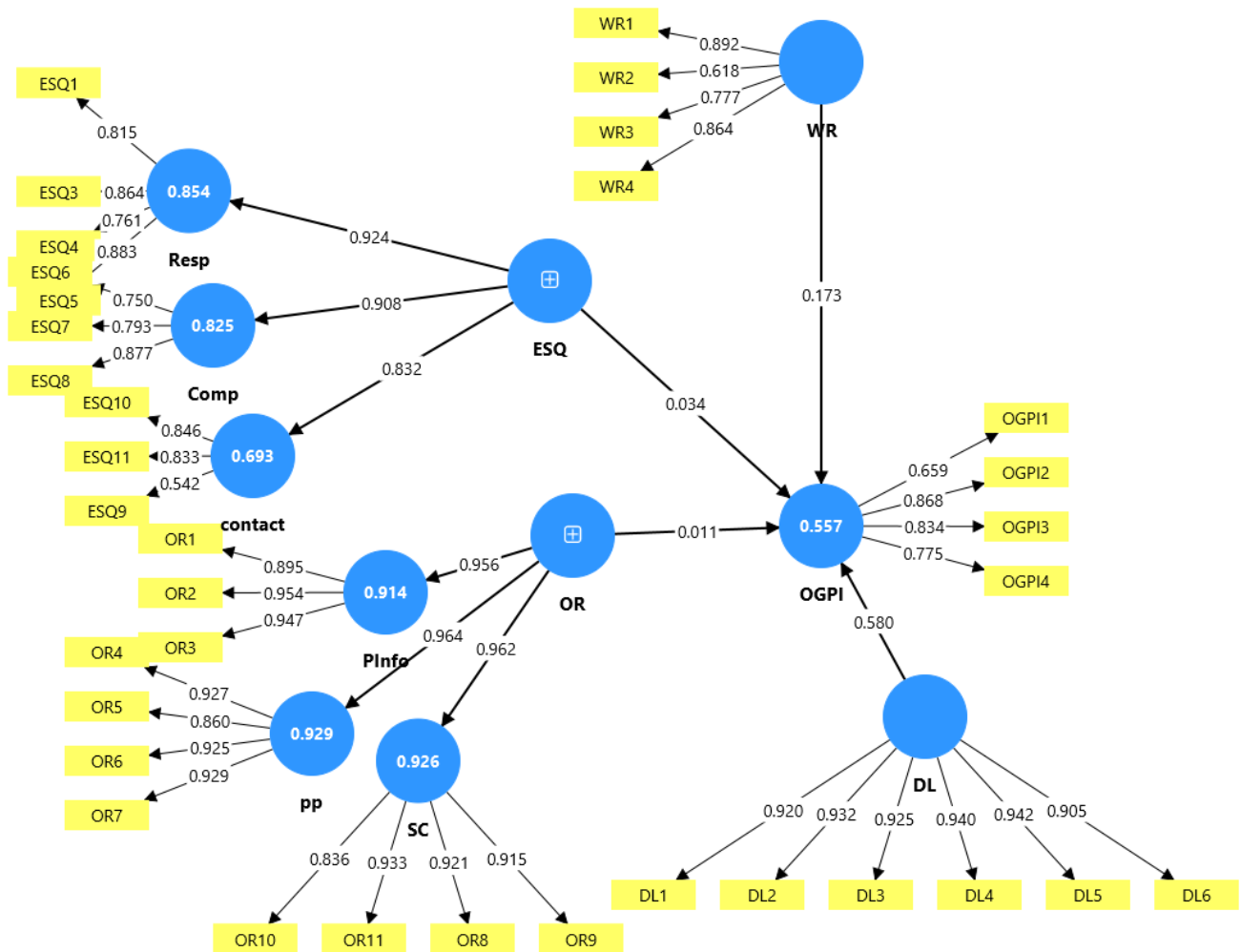


Figure 2. Struc Dtural model

Table 4 provides critical insights into the structural relationships underpinning online green purchase intention and demonstrates that cognitive and service-related factors outweigh reputational and social cues in shaping consumer behavior in fragile digital markets. Digital Literacy exerts the strongest influence on intention ($\beta = .383$, $t = 3.588$, $p < .001$), confirming that the capacity to critically evaluate online content is a decisive driver of environmentally responsible consumption, consistent with theories that emphasize cognitive processing in the stimulus–organism–response chain. E-Service Quality also significantly predicts intention ($\beta = .205$, $t = 4.377$, $p < .001$), highlighting that operational efficiency and reliability serve as foundational conditions for consumer trust and behavioral control. In contrast, Online Reviews ($\beta = -.010$, $p = .907$) and Web Reputation ($\beta = .129$, $p = .093$) fail to achieve significance, suggesting that in low-trust, transitional environments, social proof and reputational signals alone are insufficient without strong cognitive and service scaffolds. Importantly, the model explains 58.1% of variance in intention ($R^2 = .581$), underscoring its explanatory robustness. Theoretically, these findings refine the integration of S–O–R and TPB by demonstrating that individual-level digital competence and perceived service quality

act as dominant stimuli shaping pro-environmental purchasing, whereas normative and reputational mechanisms play secondary or contingent roles in contexts of digital fragility.

Table 4. Hypotheses testing

Relationships	Beta	Standard deviation	T statistics	P values	Decision
DL -> OGPI	0.383	0.107	3.588	0.000	Accepted
OR -> OGPI	-0.010	0.088	0.116	0.907	Rejected
ESQ -> OGT	0.205	0.047	4.377	0.000	Accepted
WR -> OGPI	0.129	0.077	1.681	0.093	Rejected
		R-square	R-square adjusted		
OGPI		0.581	0.573		

5. Discussion

5.1 Theoretical Implications

The findings of this study highlight that cognitive capability and service performance emerge as the dominant antecedents of online green purchase intention (OGPI) in Libya's transitional e-commerce sector. Digital Literacy appears to be a foundational driver, as consumers who can critically evaluate online content may be better positioned to discern authentic sustainability claims and avoid greenwashing. Similarly, E-Service Quality seems to provide the necessary assurance for consumers to perceive online green transactions as both feasible and reliable, thereby strengthening their intentions to purchase. In contrast, Online Reviews and Web Reputation did not demonstrate direct influence, which could suggest that in fragile digital environments, consumers may prioritize their own evaluative competence and direct service experiences over reputational or peer-driven cues. This outcome underscores the importance of focusing on capability-based and operational enablers rather than assuming that social proof alone can shape sustainable consumption behavior.

5.2 Managerial Implications

The results are broadly consistent with prior studies that highlight the critical role of digital competence and service quality in shaping sustainable online consumption. Previous research has shown that digital literacy enables consumers to evaluate claims, reduce uncertainty, and build trust, thereby fostering stronger purchase intentions (Radovanović et al., 2020; Nazzal et al., 2022). Similarly, the significance of E-Service Quality resonates with studies that emphasize efficiency, reliability, and security as essential conditions for strengthening consumer trust and satisfaction in green transactions (Parasuraman et al., 2005; Baqai et al., 2021; Han et al., 2022). These consistencies suggest that, even in fragile digital contexts like Libya, capability-based and infrastructural factors may remain universally important stimuli in the S-O-R chain. The findings therefore reinforce the argument that investments in literacy and service performance can be seen as non-negotiable prerequisites for enabling consumers to act on pro-environmental intentions. For practitioners, this means platforms might prioritize literacy-supportive interfaces, verified eco-labels, and secure service processes to build both competence and confidence among consumers.

5.3 Limitations and Future Research Directions

While these findings provide meaningful insights, several limitations arose during the course of the research. The study relied on purposive sampling of Libyan consumers with online shopping experience, which was necessary to ensure informed responses but may have been logistically challenging given the country's relatively low internet penetration. Collecting responses required overcoming infrastructural barriers such as inconsistent connectivity and limited e-commerce activity in rural areas, which could have constrained the diversity of respondents. Additionally, conducting an online survey in a context where trust in digital transactions remains underdeveloped might have introduced hesitancy among participants, and this may have affected their willingness to provide nuanced responses. These challenges highlight the difficulties of conducting digital consumption research in fragile markets and suggest that future investigations should carefully consider strategies for reaching less digitally engaged populations.

At the same time, the nonsignificant results for Online Reviews and Web Reputation stand in contrast to studies conducted in more stable digital markets, which often report strong effects of social proof and reputational signals (Hoang Yen & Hoang, 2023; Hidayatullah & Sutarso, 2023; Ikhsan et al., 2024). One possible explanation might be that Libyan consumers remain skeptical about the authenticity of online reviews and reputational claims, given the prevalence of misinformation and weak regulatory enforcement. Another explanation could be that reviews and reputation require trust as a mediator before they can influence behavioral outcomes, and in contexts where institutional trust is low, these mechanisms might fail to operate directly. It should also be considered that digitally literate consumers may rely more on their own judgment than on external cues, thereby diminishing the relative importance of reviews and reputation. These divergences suggest that social and reputational signals cannot be assumed to function uniformly across markets; rather, they may depend on contextual factors such as digital maturity, trust infrastructure, and consumer experience.

6. Conclusion

This research examined the influence of digital literacy, online reviews, e-service quality, and web reputation on online green purchase intention within the Libyan digital market. The findings highlight that digital literacy and e-service quality are the most powerful drivers of consumer decisions, while online reviews and web reputation do not directly affect purchasing intentions. This suggests that in fragile digital environments where infrastructure and institutional trust are underdeveloped, consumers may rely more heavily on their own ability to process information and on tangible service performance than on reputational signals or peer-generated content. By demonstrating the dominance of cognitive and service-related factors, the study offers a nuanced understanding of how sustainable purchasing behavior emerges in markets where digital trust is still forming. The study also provides important practical insights. Businesses and policymakers should prioritize initiatives that strengthen consumer digital competence and enhance online service quality as foundational strategies for promoting environmentally responsible consumption. Educational

campaigns, clear sustainability communication, and transparent service practices could empower consumers to make informed decisions and resist misleading claims. At the same time, investments in review verification systems and trustworthy reputation mechanisms should not be ignored, as these elements may gain importance as consumer confidence in digital transactions develops over time. Taken together, these findings underline the importance of context-specific approaches to digital sustainability, showing that strategies effective in stable markets cannot be applied wholesale to fragile economies.

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Authors contributions

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Competing interests

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