

Impact of Digital Infrastructure and Emerging Market Strategies on Online Purchase Intention Among Generation Z: A Study on Innovation, Infrastructure, and Industry Development (SDG 9)

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Abstract—This study explores Generation Z's perceptions and responses to emerging market challenges, their social and environmental values, and the evolving gig economy, with a focus on the role of digital technologies, social media, and online platforms. Utilizing an online survey of 200 respondents aged 18-25, the research employs SPSS, reliability testing, t-tests, and Structural Equation Modeling (SEM) to analyze the data. The findings reveal that digital social media platforms significantly influence Generation Z's online purchasing behavior, highlighting the importance of these platforms in driving innovation and sustainable economic growth, in alignment with Sustainable Development Goal 9 (SDG-9). However, the influence of traditional media is waning, with newspapers showing particularly weak engagement metrics, underscoring the need for these platforms to innovate. While social media does not significantly impact purchase intentions, the stress associated with digital engagement is a notable factor, with implications for the design of resilient and inclusive digital infrastructures. This study offers recommendations for businesses, policymakers, and individuals to foster sustainable industrial practices that resonate with Generation Z's digital habits and values.

Keywords: *Generation Z, social media, Digital Engagement, Traditional Media, SDG-9, Sustainable Industrialization.*

Introduction

Today, half of the global population is under 25, and "Gen Z" refers to individuals born between mid-1990s and 2010, who are pragmatic, early to mature, and cautious in career choices. To begin with, by leveraging digital channels to reach a larger audience, Generation Z has completely transformed worldwide marketing and communication. As the first generation to have grown up primarily using digital technology and social media for communication, Generation Z is a unique force in the globe. Businesses utilize various social media platforms like Facebook, Snapchat, and Twitter for marketing, deciding on the platform based on target audiences and marketing strategy. Generation Z is influenced by emerging market tactics and challenges in many ways, influencing their opportunities, attitudes, and behaviours, among other aspects of their lives. Generation Z has transformed global marketing and communication by leveraging digital channels and social media. Businesses use platforms like Facebook, Snapchat, and Twitter, influenced by emerging market tactics and challenges. This rapidly evolving generation navigates a rapidly changing world.

Generation Z, born in a digital age, has early access to social media and the internet, enabling global

connectivity. They value independence and may be drawn to gig economy and entrepreneurship opportunities. Emerging economies promote globalization, promoting cultural diversity and a global perspective. They prioritize environmental and social responsibility, seek education in high-demand industries, and are more likely to have access to digital payment methods and financial inclusion.

Information overload, mental health problems, and difficulties making genuine connections may be caused by excessive screen usage, social media pressures, and the continuous flow of information. Some people may find it difficult to deal with job uncertainty and the absence of typical employment benefits, and juggling the complexity of freelance work may call for extra skills and flexibility. Young professionals may experience uncertainty in the employment market due to volatility brought on by economic inequality and geopolitical risks in emerging economies. It can be difficult to strike a balance between the demands of sustainability and economic growth, and Generation Z may run into problems when interacting with sectors of the economy that raise moral or ethical questions. Fast technological change has the potential to soon make some abilities outdated, therefore in order to remain competitive in the job market, one must constantly adapt and upskill. Financial inclusion is a serious issue since economic disparities in emerging nations may still limit prospects for some sectors of Generation Z.

In a world where half of the global population is under 25, Generation Z—individuals born between the mid-1990s and 2010—emerges as a formidable force, driving significant shifts in global marketing, communication, and economic strategies. As the first generation to be raised in a digital environment, Gen Z is uniquely positioned at the intersection of technological innovation and market development. Businesses now harness digital channels and social media platforms like Facebook, Snapchat, and Twitter to reach and engage this demographic, who are pragmatic, early to mature, and cautious in their career choices. However, this digital transformation is not without challenges. Generation Z faces the dual impact of emerging market opportunities—such as the gig economy and global connectivity—and the challenges of information overload, mental health issues, and economic volatility. This study insights into these dynamics, exploring how digital infrastructure and emerging market strategies shape Gen Z's online purchase intentions, their social and environmental values, and their approach to the evolving job market. By analyzing the positive influences and the inherent challenges of these market strategies, the study offers insights and recommendations for individuals, businesses, and policymakers, contributing to the broader goals of innovation, infrastructure, and industry development under SDG 9.

I. OBJECTIVES OF THE RESEARCH

This study explores Generation Z's perceptions and responses to emerging market challenges, their social and environmental values, job opportunities, and the gig economy, while examining digital technologies, social media, and online platforms. It provides recommendations for individuals, businesses, and policymakers.

II. REVIEW OF LITERATURE

It should be noted that gamification strategies appeal to the Z generation and evoke drivers that are both hedonistic and socially encouraging. Chen (2018) suggests that companies can utilize gaming features in non-game environments to induce behavioural transformation through captivating and engaging experiences. According to Bruhn et. al. (2012), suggest that consumer-generated content enhances a brand's hedonic image, while company-focused engagement influences its functional image, influenced by buyer and organizational content on social media.

The most recent classification of Generation Z's usage of social media platforms was offered by Baccarella et al. (2018). Prakash Yadav and Rai (2017) claim that Gen Z like working with others to create content and developing it. Like Generation Y, they also favour visual communication over text messaging when communicating. According to Erkan and Evans (2018), online customers' expectations for what they will buy are greatly influenced by E-WOM, it refers to the use of electronic communication to spread information and opinions about a product or service. which is more effective when it is generated by perceived personalities.

According to Adobe (2018), the majority of time spent by Generation Z consumers is spent scrolling, enjoying, and sharing content. The advertising that appears on digital media is heavily viewed by this generation (Chen, 2018). As per Prakash Yadav and Rai (2017), Generation Z is less inclined towards textual communication and is more comfortable with visual media like images and videos. The endorsement and images from real customers are the most persuasive aspects of their behaviour (Mayrhofer et. al., 2019). Young consumers heavily rely on information from friends and social media for making purchasing decisions (Chen, 2018).

Traditional marketing has significantly altered the world's perspective, shifting market share power from providers to customers. Suppliers now make numerous promises to customers, prompting them to weigh their

options before making a purchase (Tarhini. B and Hayek. D, (2021).

Social media platforms like Facebook, Instagram, and Twitter enable organisations and marketers to engage with their target audience, boost brand recognition, and increase visibility (M. Suiter, 2014). Influencer marketing leverages the popularity of influential individuals or groups. Other marketing tactics include search engine optimization (Derbani. A, W. R. Adawiyah, and S. Z. Wulandari, (2022).

III. RESEARCH METHODOLOGY

The researcher used an online survey questionnaire to gather general information from 200 Generation Z respondents aged 18-25. The questionnaire included 20 variables and included information on digital social media platforms and non-social media. The data was analyzed using SPSS, reliability testing, t testing, and SEM modelling.

IV. DATA ANALYSIS AND EXPLICATION

The table presents a detailed demographic profile of the respondents, highlighting key aspects such as age, gender, education, employment status, monthly income, and their usage of social media and online purchasing habits. This data offers insights into the characteristics of Generation Z and their interactions with digital platforms.

TABLE I. FREQUENCY ANALYSIS OF THE RESPONDENTS

Respondents Details		Frequency	Percentage
Age	18 to 20 years	78	39.0
	21 to 22 years	55	27.5
	23 to 25 years	67	33.5
Gender	Male	110	55.0
	Female	90	45.0
Education	Higher Secondary	28	14.0
	Diploma	10	5.0
	Bachelor	123	61.5
	Master	30	15.0
	Other	9	4.5
Employment Status	Employment	75	37.5
	Self-Employed	33	16.5
	Student	84	42.0
	Other	8	4.0
Monthly Income	50,000-75000	112	56.0
	75001-100000	48	24.0
	100001-125000	22	11.0
	125001-150000	2	1.0
	More than 150000	16	8.0
Usage of social media and online purchase	Yes	142	71.0
	No	58	29.0

SOURCE: (PRIMARY DATA)

The responder profile can be shown in Table No. 1. The majority of respondents (39.0%) are between the ages of 18 and 20. Of those men predominate with a frequency of 110, as well 55.0%, while female participants make up 45% of the sample. According to the results of the survey on usage of social media and frequency of online purchasing, 142 respondents are engaging the service, while 58 do not use the online purchase by means of social media platforms.

The table presents the reliability and validity statistics for factors related to engagement and influence by various social media platforms. It includes Cronbach's Alpha, Composite Reliability, Average Variance Extracted (AVE), and Fornell-Larcker Criterion, all of which are critical for assessing the consistency and validity of the measurement model.

TABLE II. VALIDITY AND RELIABILITY MEASUREMENT – (DIGITAL SOCIAL MEDIA PLATFORMS)

Factors	Cronbach Alpha Reliability	Complex Reliability	AVE (Average Variance	Fornell and Larcker Criterion
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			Extractions)	
Engaged and influence by YouTube	0.891	0.925	0.755	0.869
Engaged and influence by Facebook	0.768	0.849	0.586	0.765
Engaged and influence by "X" (Twitter)	0.902	0.92	0.561	0.749
Engaged and influence by Snap Chat	0.707	0.828	0.618	0.786
Engaged and influence by Instagram	0.9	0.93	0.768	0.877
Engaged and influence by Telegram	0.672	0.82	0.604	0.777
Engaged and influence by Whats App	0.922	0.928	0.949	0.892
Engaged and influence by other social media sites	0.653	0.811	0.542	0.753

SOURCE: (PRIMARY DATA)

The reliability of the factors associated with engagement and influence by social media platforms is generally high, with Cronbach's Alpha values ranging from 0.653 to 0.922, indicating acceptable to excellent internal consistency. Composite Reliability values are also strong, ranging from 0.811 to 0.928, further supporting the reliability of the constructs. The Average Variance Extracted (AVE) values for all factors meet the acceptable threshold of 0.50, suggesting that the majority of the variance is captured by the constructs. Additionally, the Fornell-Larcker Criterion values, such as 0.869 for YouTube and 0.877 for Instagram, indicate good discriminant validity, confirming that each construct is distinct from the others. Overall, the metrics demonstrate that the measurement model is reliable and valid for evaluating how Generation Z engages with and is influenced by different social media platforms.

The table provides reliability and validity statistics for factors related to engagement and influence by traditional media outlets such as television, newspapers, and billboards. It includes Cronbach's Alpha, Composite Reliability, Average Variance Extracted (AVE), and Fornell-Larcker Criterion.

TABLE III. VALIDITY AND RELIABILITY MEASUREMENT (NON - DIGITAL SOCIAL MEDIA PLATFORMS)

Factors	Cronbach Alpha	Complex Reliability	AVE	Fornell and Larcker Criterion
Engaged and influence by Television	0.891	0.811	0.557	0.689
Engaged and influence Newspaper	0.668	0.549	0.689	0.675
Engaged and influence by Bill Boards	0.672	0.837	0.661	0.879

SOURCE: (PRIMARY DATA)

The reliability and validity of the factors associated with traditional media engagement show mixed results. The factor "Engaged and influenced by Television" exhibits strong internal consistency with a Cronbach's Alpha of 0.891 and satisfactory Composite Reliability of 0.811. The AVE of 0.557 indicates that the construct captures

more than half of the variance in the data, and a Fornell-Larcker Criterion value of 0.689 suggests acceptable discriminant validity. On the other hand, the factor "Engaged and influenced by Newspaper" has lower reliability, with a Cronbach's Alpha of 0.668 and Composite Reliability of 0.549, though it meets the AVE threshold at 0.689, indicating good variance capture. The factor "Engaged and influenced by Billboards" shows decent reliability with a Cronbach's Alpha of 0.672 and strong Composite Reliability of 0.837, with an AVE of 0.661 and excellent discriminant validity (0.879). Overall, while television and billboards demonstrate reliable and valid engagement metrics, newspapers show comparatively weaker reliability.

The table presents the results of an independent samples t-test, evaluating whether Generation Z's purchase intention is influenced by social media. The hypotheses tested are: Ho (null hypothesis) stating that social media does not influence Generation Z's purchase intention, and H1 (alternative hypothesis) suggesting that it does.

TABLE IV. INDEPENDENT SAMPLES TEST

		Levene's test for equality of variances		t-test for equality of means		
		F	sig.	t	df	sig. (2-tailed)
Generation Z's purchase intention is not influenced by social media	Equal variances assumed	5.045	0.029	1.647	48	0.106
	Equal variances not assumed			1.478	21.31	0.154
Generation Z's purchase intention is influenced by social media	Equal variances assumed	3.718	0.06	1.533	48	0.132
	Equal variances not assumed			1.376	21.337	0.183

SOURCE: (PRIMARY DATA)

The independent samples t-test results indicate that there is no statistically significant difference in Generation Z's purchase intention based on social media influence. For the null hypothesis, the Levene's test for equality of variances shows a significant value of 0.029, indicating that the assumption of equal variances is violated. However, the t-test for equality of means shows a t-value of 1.647 with a p-value of 0.106 when equal variances are assumed, and a t-value of 1.478 with a p-value of 0.154 when equal variances are not assumed. Both p-values are greater than the significance level of 0.05, leading to the failure to reject the null hypothesis. Similarly, the alternative hypothesis also shows no significant influence, with p-values of 0.132 and 0.183 for equal and unequal variances, respectively. Thus, the analysis suggests that there is no sufficient evidence to conclude that Generation Z's purchase intention is influenced by social media.

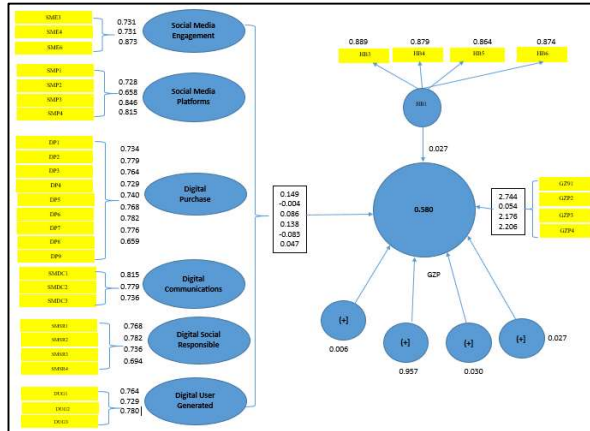
The table summarizes the results from a Structural Equation Modeling (SEM) analysis, focusing on various stress factors affecting Generation Z due to digital social media engagement. The hypotheses are tested using B-values, T-values, and P-values to determine their acceptance or rejection.

TABLE V. (SEM) STRUCTURAL EQUATION MODEL

Hypothesis	B-Value	T-Value	P-Values	Decision
H1: Generation Z more stress on digital social media engagement.	0.149	2.744	0.006	Accepted
H2: Generation Z stress by using digital social media platforms	-0.004	0.054	0.957	Accepted
H3: Generation Z stress by digital purchase intention	0.086	2.176	0.030	Accepted
H4: Generation Z stress by digital communications	0.138	1.828	0.068	Rejected
H5: Generation Z considered stress by digital as socially responsible.	-0.083	2.206	0.027	Accepted
H6: Generation Z considered digital as user generated stress.	0.047	1.287	0.198	Rejected

SOURCE: (PRIMARY DATA)

FIGURE I. STRUCTURAL EQUATION MODEL (SEM)



The SEM analysis reveals that Generation Z experiences significant stress from digital social media engagement, as indicated by the acceptance of hypothesis H1 ($B = 0.149$, $T = 2.744$, $P = 0.006$). Similarly, H3, which links stress to digital purchase intention, is also accepted ($B = 0.086$, $T = 2.176$, $P = 0.030$). Interestingly, H5, suggesting that Generation Z views digital stress as socially responsible, is accepted despite a negative B-value (-0.083 , $T = 2.206$, $P = 0.027$). On the other hand, H2, which associates stress with using digital social media platforms, is accepted but with minimal significance ($B = -0.004$, $T = 0.054$, $P = 0.957$), indicating a weak relationship. However, hypotheses H4 and H6, concerning stress from digital communications and user-generated stress, respectively, are rejected due to non-significant P-values, suggesting that these factors do not significantly contribute to Generation Z's stress. These findings underscore the complex nature of digital engagement for Generation Z, highlighting significant stressors while also pointing to areas where the relationship is less clear.

V. Findings

The study's respondent profile highlights that the majority of participants (39%) are between the ages of 18 and 20. Male respondents dominate the sample, accounting for 55%, while females represent 45%. A significant portion of the respondents (71%) are engaged in using social media for online purchases, indicating a strong inclination toward digital platforms within this demographic.

The analysis of engagement and influence by digital social media platforms demonstrates robust reliability and validity across various constructs. The Cronbach's Alpha values, ranging from 0.653 to 0.922, indicate acceptable to excellent internal consistency. Composite Reliability values between 0.811 and 0.928 further confirm the reliability of these measures. Additionally, the AVE values exceed the 0.50 threshold, suggesting that the constructs effectively capture the underlying variance. The Fornell-Larcker Criterion values, such as 0.869 for YouTube and 0.877 for Instagram, support the discriminant validity of the constructs. These results affirm that the measurement model is well-suited for evaluating how Generation Z engages with and is influenced by different social media platforms.

The reliability and validity analysis of traditional media platforms yields mixed outcomes. Television engagement demonstrates strong internal consistency (Cronbach's Alpha = 0.891) and acceptable Composite Reliability (0.811), with an AVE of 0.557. The Fornell-Larcker Criterion value of 0.689 indicates satisfactory discriminant validity. Billboards also show decent reliability and validity metrics, with a Cronbach's Alpha of 0.672 and Composite Reliability of 0.837, alongside an AVE of 0.661 and excellent discriminant validity (0.879). However, newspapers display weaker reliability, with lower Cronbach's Alpha (0.668) and Composite Reliability (0.549), although they meet the AVE threshold at 0.689. These findings suggest that while television and billboards are reliable for assessing engagement, newspapers may require further refinement.

The independent samples t-test reveals no statistically significant difference in Generation Z's purchase intention based on social media influence. The Levene's test indicates a violation of the equal variance assumption ($p = 0.029$), but the t-test for equality of means shows no significant effect, with p-values above 0.05 for both equal and unequal variances. Consequently, the null hypothesis that social media does not influence Generation Z's purchase intention is not rejected. Similarly, the alternative hypothesis is also unsupported, indicating insufficient evidence to conclude that social media significantly impacts purchase intentions within this demographic.

The SEM analysis highlights that Generation Z experiences notable stress from digital social media engagement, particularly in relation to social media interaction (H1) and digital purchase intention (H3). Both hypotheses are accepted with significant p-values. Additionally, the idea that Generation Z perceives digital stress as socially responsible (H5) is also supported, despite a negative B-value. However, stress related to general use of digital social media platforms (H2) is accepted with minimal significance, suggesting a weaker relationship. Conversely, stress linked to digital communications (H4) and user-generated stress (H6) is not significant, leading to the rejection of these hypotheses. These findings underscore the complex and multifaceted nature of digital engagement for Generation Z, with certain aspects contributing more significantly to stress than others.

VI. Discussion

The findings emphasize the significant influence of digital social media platforms on Generation Z, particularly regarding their online purchasing behaviors. With 71% of respondents using social media for online purchases, it's evident that these platforms are not only pivotal in communication but also in driving consumer behavior. This trend aligns with SDG-9, which advocates for building resilient infrastructure, promoting inclusive and sustainable industrialization, and fostering innovation. The robust reliability and validity of the digital engagement constructs highlight how social media serves as a critical infrastructure in the digital economy, driving innovation in consumer markets. Businesses targeting Generation Z must therefore prioritize digital strategies that align with sustainable practices, ensuring that their innovations contribute to resilient and inclusive economic growth.

Traditional media, such as television, newspapers, and billboards, show varying degrees of effectiveness in engaging Generation Z, with newspapers, in particular, displaying weaker reliability metrics. This suggests a declining influence of traditional media, which could hinder the achievement of SDG-9 if these platforms do not innovate to remain relevant in a digital-first world. The mixed outcomes for traditional media underscore the need for these industries to adapt by incorporating sustainable digital strategies that resonate with younger audiences. By doing so, traditional media can contribute to the goal of sustainable industrialization, ensuring that they continue to play a role in an inclusive and innovative media landscape.

The independent samples t-test reveals that social media does not significantly influence Generation Z's purchase intentions, challenging the assumption that digital platforms are the primary drivers of consumer behavior among this demographic. This finding suggests that while social media is a critical tool for engagement, its role in promoting sustainable consumption patterns—an essential aspect of SDG-9—might be limited. Businesses aiming to foster sustainable industrial practices should consider a holistic approach that integrates both digital and traditional channels, ensuring that their strategies not only engage consumers but also promote sustainable purchasing behaviors.

The SEM analysis sheds light on the psychological complexities associated with Generation Z's digital engagement, particularly the stress linked to social media interaction and digital purchase intentions. Interestingly, while this stress is acknowledged, it is also perceived as socially responsible—a reflection of the broader societal expectations tied to digital engagement. This perception aligns with the principles of SDG-9, which emphasizes innovation and infrastructure that are not only resilient but also considerate of social well-being. However, the rejection of stress related to digital communications and user-generated content suggests that not all digital activities are equally burdensome, pointing to the need for balanced and sustainable digital practices. By fostering environments that minimize stress and promote healthy digital engagement, businesses can contribute to more inclusive and sustainable industrial growth, in line with the goals of SDG-9.

VII. Conclusion

This study provides critical insights into the digital engagement of Generation Z, particularly how social media platforms influence their purchasing behaviors and contribute to sustainable industrialization, as outlined in SDG-9. The research highlights the robust reliability and validity of digital engagement constructs, emphasizing the need for businesses to prioritize digital strategies that align with sustainable practices. The decline in the influence of traditional media, especially newspapers, suggests an urgent need for these platforms to innovate to stay relevant in a rapidly digitalizing world.

Despite the significant role of social media in engagement, the findings reveal no substantial impact on Generation Z's purchase intentions, indicating that businesses should adopt a more holistic approach, integrating both digital and traditional channels to promote sustainable consumption patterns. The study also uncovers the complex relationship between digital engagement and stress among Generation Z, with certain digital activities

contributing more to stress than others. This underscores the importance of creating balanced and sustainable digital environments that not only drive economic growth but also support the well-being of younger generations.

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