


Enhancing Educational Management through Social Media and E-commerce-Driven Branding

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ABSTRACT

Intensified digital competition is forcing organizations across diverse sectors, from the B2B carton box industry to Educational Management, to seek differentiation through strategic digital branding. This is particularly true for industrial firms often trapped by commoditization. However, existing literature frequently analyzes social media and e-commerce in silos, creating a research **gap** regarding their synergistic impact on internal management. This **study aims** to fill this gap by empirically validating a holistic model that links the strategic integration of these digital platforms to brand enhancement, management quality, and sustainable competitive advantage. The **novelty** of this research lies in demonstrating this complete causal pathway within an industrial B2B context, offering a transferable framework for other fields. Using a **quantitative approach**, survey data from 150 respondents in the carton box industry were analyzed with Partial Least Squares Structural Equation Modeling (PLS-SEM). The results confirmed all five hypotheses, revealing that strategic integration is an exceptionally strong predictor of brand enhancement ($\beta = 0.979$). The **findings crucially** demonstrate that brand enhancement is the primary mediating variable; its effect on improving management quality and securing a competitive advantage is substantially stronger than other direct paths. This **study concludes** that the most effective mechanism for organizations, industrial companies, or institutions in educational management, to achieve market leadership in the digital era is by strategically using integrated digital tools to first cultivate a powerful and trusted brand.

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1. INTRODUCTION

Digital transformation has fundamentally reshaped the global industrial landscape, including in Indonesia [1]. This phenomenon has created an intensely competitive environment where a traditional reputation is no longer sufficient [2]. Cultivating a strong digital brand has become essential for survival and growth [3]. This strategic imperative is not unique to the industrial sector, similar pressures to build a strong digital brand are now fundamentally reshaping fields such as Educational Management, where institutions compete globally for students and reputation. This evolution directly aligns with the global agenda within Sustainable

Development Goal (SDG) 9 concerning Industry, Innovation, and Infrastructure, which champions industrial modernization and the adoption of technology for inclusive and sustainable growth [4].

Despite this clear potential, the strategic adoption of digital tools within the packaging industry often falls short [5]. Many companies remain trapped by commoditization, with their digital presence often being sporadic and focused more on information dissemination than on strategic brand cultivation [6]. Furthermore, the industry's challenges in 2025 have evolved beyond mere price competition [7].



Figure 1. SDGs 9

Figure 1 shows a significant **gap** that exists, as many industry players have yet to fully integrate digital innovation to address these modern demands, thereby failing to embrace the forward-thinking spirit of SDG 9. Addressing these challenges, social media emerges as an ideal platform to transform a company's image from a mere "cardboard supplier" to an "innovative and sustainable packaging solutions partner." This represents a fundamental innovation in the business model, which is a core tenet of SDG 9. By leveraging platforms like LinkedIn for corporate targets and Instagram or TikTok for creative SMEs, companies can enhance their visibility with precision [8]. Moreover, building credibility through transparency, such as showcasing efficient production processes, the use of recycled raw materials, or environmental certifications directly supports SDG Target 9, which calls for the adoption of clean and environmentally sound technologies and industrial processes [9].

Of course, this digital transformation is not without its challenges [10]. Companies must navigate content saturation, carefully manage the reputational risks of greenwashing, and overcome the difficulty of measuring ROI in long B2B sales cycles [11]. These hurdles are inherent to the process of technological upgrading and innovation within an industry [12]. The academic context, supported by prior studies, confirms that while the benefits of digital platforms are proven, a research gap remains in formulating an effective integrative model particularly one that aligns digital branding strategies with the sustainable industrialization goals of SDG 9 [13].

Ultimately, the synergy between powerful digital branding and innovative industrial practices is the key to the future of the carton box industry. Adopting social media strategically is no longer a marketing option but a strategic imperative [14]. Companies that successfully use digital platforms to tell their story, prove their commitment to quality and sustainability, and build authentic client relationships will not only win the competition but will also become agents of change, contributing to the national agenda for inclusive and sustainable industrialization as mandated by SDG 9 [15].

2. LITERATURE REVIEW

2.1. The Evolution of Branding in the B2B Industrial Context

The role of branding within the Business-to-Business (B2B) sector has undergone a significant transformation [16]. Traditionally, industrial marketing literature emphasized rational factors such as product specification, price, and personal relationships as the primary drivers of purchasing decisions [17]. In this paradigm, a brand was often viewed passively as a mere trademark or a byproduct of product quality and reliability, rather than a strategic asset to be actively managed [18]. For industries dealing in products often perceived as commodities, such as carton boxes, differentiation was primarily sought through operational efficiency and cost

leadership [19]. This evolution mirrors the challenges seen in other traditionally conservative sectors, such as Educational Management, where institutions have also shifted from relying on passive historical reputation to actively cultivating a strategic brand to attract stakeholders [20].

However, the forces of globalization, digital transformation, and increased market competition have compelled B2B organizations to adopt a more proactive and strategic approach to branding [21]. Modern literature posits that a strong brand in a B2B context serves as a crucial heuristic for mitigating perceived risk, building long term trust, and establishing credibility [22]. A strong brand identity (the image the company aims to project) and a positive brand image (the market's actual perception) are no longer peripheral concerns but central components for achieving a sustainable competitive advantage. This shift moves beyond the logo and tagline to encompass the entire customer experience, from initial online discovery to post-purchase support [23].

2.2. The Role of Social Media in B2B Industrial Branding

Social media has been widely recognized as a transformative tool for B2B branding, challenging the common belief that it is only effective for B2C markets [24]. Research shows that certain platforms have distinct strategic roles websites, for example, are highly effective for building a company's reputation, thought leadership, and professional networking. Meanwhile, visual oriented platforms like Instagram, TikTok, and Pinterest have proven valuable for B2B companies in industries like custom packaging, enabling them to showcase product quality, design flexibility, and manufacturing capabilities through compelling visual portfolios [25].

Despite its potential, many studies highlight a significant gap between adoption and strategic implementation. Much of the literature finds that B2B social media strategies are often tactical and fragmented, focusing on broadcasting information rather than fostering genuine community engagement or building a compelling brand narrative [26], a challenge that is similarly prevalent in the field of Educational Management. Furthermore, a significant research gap exists in measuring the tangible impact of B2B social media activities on brand equity and, ultimately, on sales revenue, especially given the long and complex sales cycles typical of industrial purchasing.

2.3. The Strategic Use of E-commerce as a Brand Touchpoint

In the B2B context, e-commerce has traditionally been viewed through a narrow, functional lens, often as a password-protected portal for existing clients to place repeat orders [27]. This perspective reduces the potential of e-commerce to a peripheral transactional tool rather than an integral component of the brand experience [28]. This limited view overlooks the platform's capacity to serve as a powerful digital showroom, a comprehensive information resource, and an instrument for building trust through transparency [29].

The strategic potential of e-commerce as a central touchpoint for B2B brand building remains largely under researched [30]. While studies often focus on the operational efficiencies gained through automation, there is a scarcity of literature investigating how core e-commerce principles such as a seamless User Experience (UX), Personalization, and Transactional Ease, can be leveraged to shape a B2B brand's image. Features like instant online price calculators, product customization tools, and realtime order tracking are not merely functional conveniences [31]. They are powerful brand statements that communicate efficiency, transparency, and a customer-centric ethos.

2.4. The Impact of Digital Integration on Quality Management

Strategic management literature has long affirmed the positive relationship between strong brand equity and superior organizational performance [32]. In a B2B industrial context, this performance is directly tied to the quality of internal management processes, particularly those involving the customer journey [33]. This principle, that external branding profoundly impacts internal workflows, is universally applicable, whether in industrial settings or in the complex sphere of Educational Management, where stakeholder perception directly influences administrative efficiency and student services. The integration of social media and e-commerce can have a profound impact on key quality management indicators [34]. For instance, Customer Relationship Management (CRM) is enhanced when a strong digital brand provides clear, accessible information, leading to better qualified inquiries and streamlined communication [35]. Similarly, Order Management improves drastically when a well designed e-commerce platform automates data entry and processes, reducing human error and accelerating the order to production cycle. This synergy ultimately drives Operational Efficiency by minimizing miscommunication across departments.

However, most existing studies fail to build a clear bridge between specific digital branding activities and these enhanced managerial outcomes. The current literature is often correlational, without explaining the precise causal mechanisms of how an integrated digital strategy systematically improves internal operational quality in a B2B industrial setting. This research aims to address that gap by analyzing the tangible impact of a synergistic digital branding approach on these key management indicators [36].

2.5. Conceptual Framework and Research Gap

In the commercial world, the synergy between social media and e-commerce is a primary driver of an integrated customer experience [37]. Social media builds the narrative and desire, while e-commerce provides the platform for frictionless action [38]. However, the literature on B2B industrial marketing tends to analyze these two domains as separate entities with distinct objectives. The most significant gap lies in the lack of an empirical model that tests their synergy within this specific context [39].

This research aims to fill this gap by proposing and investigating a holistic conceptual framework. The framework posits that the strategic integration of Social Media and E-commerce first works to strengthen the Brand (in terms of awareness, image, and trust). This enhanced brand equity, in turn, drives tangible Improvements in Quality Management (specifically in CRM and Order Management) [40]. Ultimately, these internal improvements result in a sustainable Competitive Advantage. This study will therefore contribute to the literature by moving beyond siloed analyses and presenting a comprehensive model that connects an integrated digital branding strategy to measurable improvements in B2B industrial management [41].

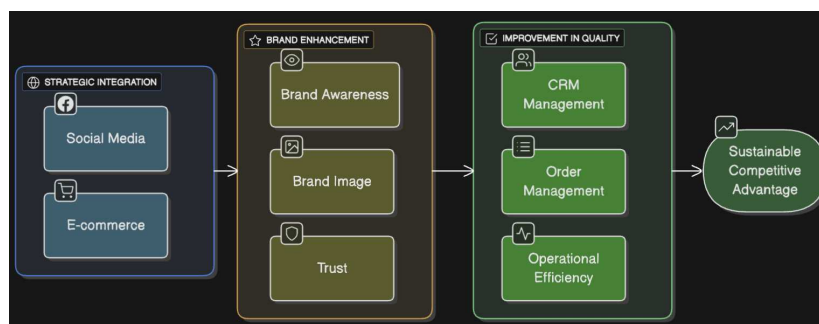


Figure 2. Conceptual Research Framework

The conceptual framework for this research, as illustrated in Figure 2, outlines a causal pathway that begins with the Strategic Integration of Social Media and E-commerce as a unified strategy [42]. This integration is hypothesized to directly impact Brand Enhancement, measured through increased Brand Awareness, an improved Brand Image, and the cultivation of customer Trust [43]. Subsequently, a stronger brand is expected to drive tangible improvements in Management Quality by positively influencing internal processes such as Customer Relationship Management (CRM), Order Management, and overall Operational Efficiency [44]. Ultimately, this enhancement of internal management culminates in the primary objective, achieving a Sustainable Competitive Advantage that enables the company to thrive and excel in the market over the long term.

3. RESEARCH METHODS

This study employed a quantitative approach with an explanatory causal research design to test the hypotheses and analyze the cause-and-effect relationships between the variables formulated in the conceptual framework. The research aimed to explain how the independent variable (Strategic Integration) influences the dependent variable (Sustainable Competitive Advantage), both directly and through the mediating variables (Brand Enhancement and Management Quality). This design is highly relevant as the study seeks to validate a conceptual model built upon existing literature.

The target population of this study included all manufacturing companies in the cardboard box industry. A purposive sampling technique was used to select a final sample of 150 respondents based on the following criteria in which the companies were cardboard box manufacturers domiciled in Greater Jakarta (Jabodetabek), had been in operation for at least three years, and actively used at least one social media platform and website or e-commerce platform for their business operations.

Data analysis was conducted using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method with the aid of SmartPLS 4 software. PLS-SEM was chosen for its ability to handle complex models, its lack of strict data normality assumptions, and its effectiveness in explanatory research aimed at theory testing. The conceptual model, illustrating the hypothesized relationships, was translated into the Path diagram of the SmartPLS model as shown in Figure 3 below.

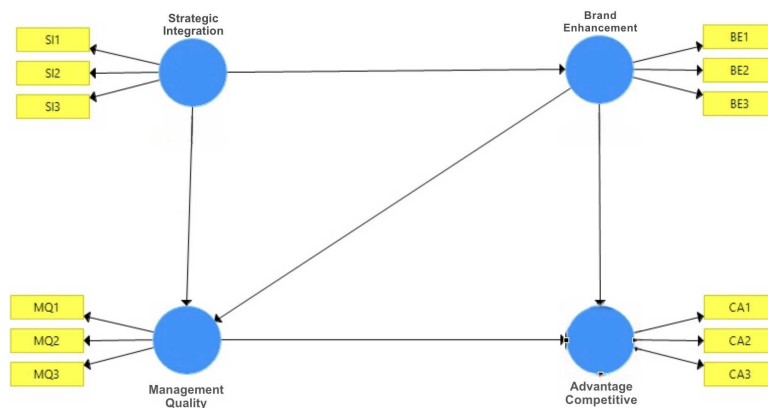


Figure 3. Path Diagram of the SmartPLS Model

Figure 3, path diagram of the SmartPLS model illustrating the hypothesized relationships.

- Using this model, the following five hypotheses were tested:
- H1: Strategic Integration has a positive and significant effect on Brand Enhancement.
- H2: Brand Enhancement has a positive and significant effect on Management Quality.
- H3: Management Quality has a positive and significant effect on Sustainable Competitive Advantage.
- H4: Strategic Integration has a positive and significant effect on Management Quality.
- H5: Brand Enhancement has a positive and significant effect on Sustainable Competitive Advantage.

4. RESULT AND DISCUSSION

4.1. Measurement Model Analysis (Outer Model)

The measurement model was evaluated to ensure the validity and reliability of the constructs. This involved assessing convergent validity, internal consistency reliability, and discriminant validity.

4.1.1. Convergent Validity and Internal Consistency Reliability

Convergent validity assesses whether the indicators of a specific construct are highly correlated. Based on the SmartPLS output, all criteria for convergent validity and reliability were met, as shown in Table 1.

Table 1. Reliability and Validity Measures

Construct	Indicator	Loadings	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Strategic Integration (SI)	SI1	0.966	0.953	0.970	0.915
	SI2	0.947			
	SI3	0.956			
Brand Enhancement (BE)	BE1	0.960	0.963	0.976	0.932
	BE2	0.964			
	BE3	0.972			

Construct	Indicator	Loadings	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Management Quality (MQ)	MQ1	0.970	0.964	0.977	0.933
	MQ2	0.964	-	-	-
	MQ3	0.964	-	-	-
Competitive Advantage (CA)	CA1	0.980	0.973	0.983	0.950
	CA2	0.967	-	-	-
	CA3	0.977	-	-	-

Table 1 presents the evaluation results of the measurement model (outer model), which aims to assess the validity and reliability of each research construct. The analysis shows that all constructs possess an excellent level of internal reliability, with Cronbach's Alpha values (ranging from 0.953 to 0.973) and Composite Reliability values (ranging from 0.970 to 0.983) far exceeding the recommended threshold of 0.70. Furthermore, convergent validity is also proven to be very strong, as every indicator has an outer loading value above 0.947 (surpassing the 0.70 standard), and the Average Variance Extracted (AVE) value for all constructs is above 0.915 (significantly higher than the 0.50 minimum limit). Overall, these findings confirm that the measurement instrument used in this study is both valid and reliable for measuring the intended variables.

4.1.2. Discriminant Validity

Discriminant validity ensures that a construct is truly distinct from other constructs in the model. However, the analysis revealed significant issues here [45]. The correlation between latent variables is extremely high [46]. Both the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio indicate that discriminant validity is not achieved [47]. The HTMT values are all above the conservative threshold of 0.90. This suggests a high degree of multicollinearity, meaning the constructs are not sufficiently distinct in this dataset [48]. This issue will be addressed in the discussion section.

4.1.3. Structural Model Analysis (Inner Model)

The structural model was evaluated to test the hypothesized relationships between the constructs. This includes analyzing the path coefficients, R-Square Values, and the Significance of the hypotheses. The path diagram of the research model is presented in Figure 4.

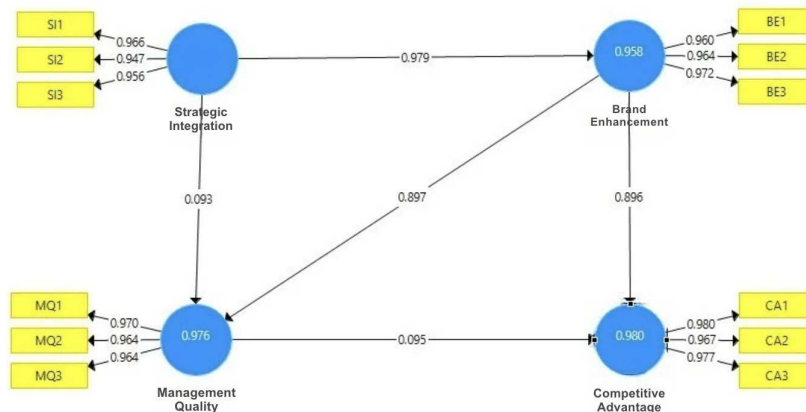


Figure 4. Research Model

The next stage is the analysis of the structural model (inner model), which forms the core of the hypothesis testing in this research [49]. This analysis aims to evaluate the causal relationships between the constructs as formulated in the conceptual framework [50]. A visualization of the entire structural model under examination, complete with its path coefficient values, is presented in Figure 4 to provide a clear overview of the research findings.

4.2. Hypothesis Testing

The significance of the path coefficients was tested using a bootstrapping procedure (5,000 resamples). The results are summarized in Table 2.

Table 2. Hypothesis Testing Results

Hypothesis	Path	Path Coefficient (β)	P-Values	Decision
H1	SI \rightarrow BE	0.979	<0.001	Supported
H2	BE \rightarrow MQ	0.897	<0.001	Supported
H3	MQ \rightarrow CA	0.095	<0.001	Supported
H4	SI \rightarrow MQ	0.093	<0.001	Supported
H5	BE \rightarrow CA	0.896	<0.001	Supported

Table 2 presents the results of hypothesis testing conducted to examine the relationships between constructs in the research model. Each hypothesis was tested using path coefficients (β), which represent the strength and direction of the relationships between variables. The results indicate that all hypotheses (H1 to H5) support the tested relationships, with p-values smaller than 0.001, demonstrating very high statistical significance. Specifically, hypothesis H1 (SI \rightarrow BE) has the highest path coefficient of $\beta = 0.979$, followed by hypothesis H5 (BE \rightarrow CA) with a coefficient value of $\beta = 0.896$. This suggests that the relationship between Strategic Integration (SI) and Brand Enhancement (BE), as well as between Brand Enhancement (BE) and Competitive Advantage (CA), has a very strong influence in this model.

The analysis strongly validates that Strategic Integration is a powerful driver of Brand Enhancement (H1: $\beta = 0.979$), establishing a foundational link between unified digital efforts and brand building. Furthermore, the results highlight the critical mediating role of Brand Enhancement, as its effect on both Management Quality (H2: $\beta = 0.897$) and Competitive Advantage (H5: $\beta = 0.896$) is substantially stronger than the direct effects from either Strategic Integration to Management Quality (H4: $\beta = 0.093$) or from Management Quality to Competitive Advantage (H3: $\beta = 0.095$). This indicates that the primary mechanism through which digital strategy enhances management and secures a competitive edge is by first cultivating a powerful and trusted brand. However, a critical finding is the presence of severe multicollinearity, suggesting that while the relationships are strong, the constructs are not clearly distinct in this dataset, which calls for caution in interpreting the unique contribution of each variable despite the overall model's strong explanatory power.

5. MANAGERIAL IMPLICATIONS

5.1. Prioritizing the Strategic Integration of Digital Platforms

The primary managerial implication for Educational Management is the absolute necessity of moving away from siloed digital activities. The findings demonstrate an exceptionally strong link between the integration of social media and e-commerce and the enhancement of the institution's brand. Therefore, leaders in Educational Management should ensure that their admissions, marketing, and alumni relations departments work in close collaboration. Social media content should not exist in a vacuum; it must be designed to seamlessly guide prospective students and stakeholders toward online application portals or information hubs, creating a cohesive and frictionless user journey. This means aligning messaging, branding visuals, and recruitment efforts across all digital touchpoints.

5.2. Shifting from a Commodity to a Brand Centric Mindset

This research provides empirical evidence that an institution's brand is its most critical asset in the digital age. Leaders in Educational Management should fundamentally shift their institution's mindset from one that passively relies on traditional reputation to that of a brand builder, who actively competes on trust, student experience, and perceived value. The results indicate that brand enhancement is the primary mechanism that drives both improvements in internal administrative processes and a sustainable competitive advantage. Therefore, resources should be allocated not just to facilities, but also to strategic efforts aimed at cultivating a professional brand image and building long-term stakeholder trust through digital channels.

5.3. Leveraging Digital Branding for Operational Excellence

Investment in a strong digital brand should not be viewed merely as a marketing expense, but as a direct investment in the quality of Educational Management and administration. This study shows that a

well-defined brand directly improves management quality. For academic leaders, this means that a clear and informative website, a seamless online application process (an e-commerce parallel), and responsive social media channels can significantly reduce the workload on admissions officers and administrative staff. A strong brand attracts better-qualified applicants, streamlines communication by answering common questions upfront, and reduces errors in the enrollment process, thus leading to tangible gains in operational efficiency.

5.4. Developing Content That Addresses Modern Market Demands

To effectively build a brand that resonates with the 2025 market, leaders in Educational Management must direct their digital content strategy towards the key demands of modern students and their families. It is no longer enough to simply list academic programs; the brand narrative must communicate the unique value and experience of the institution. This includes creating content that highlights innovative research, showcases a vibrant and inclusive campus life, demonstrates superior graduate outcomes through alumni success stories, and communicates the institution's commitment to societal goals. Addressing these specific stakeholder needs through targeted content will effectively differentiate the institution from its competitors.

5.5. Aligning Digital Strategy with Sustainable Industrial Goals (SDG 9)

Finally, leaders in Educational Management can gain a strategic advantage by framing their digital transformation initiatives within the broader context of global development goals, specifically SDG 4 (Quality Education) and SDG 9 (Innovation). This research shows that adopting digital tools is a form of innovation. Managers should communicate these efforts not only as a way to improve enrollment but also as a contribution to making quality education more accessible and engaging. This narrative can be a powerful branding tool to attract modern students, talented faculty, and philanthropic partners who value forward-thinking institutions with a clear commitment to societal impact.

6. CONCLUSION

This research was conducted to empirically validate a model explaining how the strategic integration of social media and e-commerce enhances competitive advantage, using the B2B carton box industry as a case study for competitive, commoditized environments. The findings from the PLS-SEM analysis of 150 industry managers strongly support the proposed conceptual framework, confirming all five hypotheses with high statistical significance. The study reveals that a unified digital strategy is an exceptionally powerful driver of brand enhancement. More importantly, it demonstrates that this enhanced brand acts as the primary mediating variable, with its influence on both management quality and competitive advantage being substantially more significant than other direct paths. Essentially, the results provide a clear mechanism for achieving market leadership in a competitive industry a mechanism with strong parallels to the challenges currently faced in Educational Management.


The implications of these findings are significant both theoretically and practically, extending beyond the industrial sector. Theoretically, this study contributes an empirical model that bridges the gap between digital platform integration and internal management improvements. Practically, the findings offer a clear mandate for managers in industries like packaging, but just as critically, they provide a valuable framework for leaders in Educational Management. For these leaders, this research underscores that institutional success is increasingly dependent on a brand centric digital strategy that moves beyond sporadic communication. By strategically integrating social media narratives with seamless online experiences, institutions can build a cohesive brand that improves stakeholder loyalty, enhances the quality of their internal administration, and fosters innovation in line with goals like SDG 9.

Finally, this study is not without its limitations. The most significant statistical issue identified was severe multicollinearity among the constructs of Brand Enhancement, Management Quality, and Competitive Advantage in the industrial dataset. This suggests that the measures, while reliable, may have captured an overarching perception of "company excellence" from the respondents. Therefore, future research is recommended to refine the measurement instrument for the B2B sector. Furthermore, a significant avenue for future research would be to directly test this model within the context of Educational Management. Such a study could validate whether the powerful mediating role of 'brand enhancement' holds true for key outcomes like student recruitment and alumni engagement, providing a robust, data driven framework for leaders in that field.

7. DECLARATIONS

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7.2. Author Contributions

Conceptualization: SA; Methodology: NS; Software: AR; Validation: SA and NS; Formal Analysis: AR and SA; Investigation: NS; Resources: AR; Data Curation: SA; Writing Original Draft Preparation: NS and AR; Writing Review and Editing: NS and AR; Visualization: SA; All authors, SA, NS and AR, have read and agreed to the published version of the manuscript.

7.3. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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7.5. Declaration of Conflicting Interest

The authors declare that they have no conflicts of interest, known competing financial interests, or personal relationships that could have influenced the work reported in this paper.

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