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Article

DATA-DRIVEN MARKETING IN HIGHER EDUCATION: ASSESSING THE EFFECTIVENESS AND RETURN ON INVESTMENT OF DIGITAL CAMPAIGNS ACROSS EDUCATIONAL INSTITUTIONS

Marketing orientado por dados no ensino superior: avaliação da efetividade e do retorno sobre o investimento de campanhas de marketing digital

Marketing orientado por datos en la educación superior: evaluación de la efectividad y del retorno de la inversión de las campañas de marketing digital

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Histórico do artigo
Recebido em: 12 de junho de 2026
Aceito em: 17 de agosto de 2026
Revisado em: 20 de agosto de 2026
Publicado em: 3 de setembro de 2026

Editor responsável: Dr. Tarsis Barreto Oliveira
Editor assistente: Dr. Leonardo de Andrade Carneiro

ABSTRACT

The growing competition among higher education institutions has increased the need for measurable and data-driven student recruitment strategies. This study examines the effectiveness and return on investment (ROI) of digital marketing campaigns using campaign-level secondary data and campaign-linked recruitment outcomes. The study analysed 80 digital advertising

[1] Doctoral student in Business Administration, with research interests in data-driven marketing, digital marketing, marketing analytics, consumer behaviour, and higher education marketing. No research group or funding agency is declared for this study.

| ISSN eletrônico: 2447-9896 | ISSN impresso: 2177-0360

campaigns conducted between 1 April and 30 June 2025. Total digital marketing expenditure was ₹160,902.79, generating 19,614,062 impressions and a reach of 10,152,903 users. The associated recruitment outcomes comprised 6,889 leads, 987 applications, and 402 enrolled students, with reported admission and fee revenue of ₹28,140,000. Descriptive analysis was used to calculate cost efficiency, conversion rates, revenue per enrolment, revenue-to-spend ratio, and financial ROI. The results show a lead-to-application conversion rate of 14.33%, an application-to-enrolment conversion rate of 40.73%, and an overall lead-to-enrolment conversion rate of 5.84%. The cost per lead was ₹23.36, cost per application was ₹163.02, and cost per enrolled student was ₹400.26. Based on the reported campaign-attributed revenue, the campaigns generated ₹174.89 in revenue for every ₹1 spent, corresponding to a digital advertising ROI of 17,388.82%. The study demonstrates the value of integrating campaign metrics with recruitment and financial outcomes while highlighting the importance of transparent revenue attribution.

***Keywords*:** Data-driven marketing. Digital marketing. Higher education marketing. Marketing analytics.

RESUMO

A crescente concorrência entre as instituições de ensino superior aumentou a necessidade de estratégias de captação de estudantes mensuráveis e orientadas por dados. Este estudo examina a eficácia e o retorno sobre o investimento (ROI) de campanhas de marketing digital utilizando dados secundários em nível de campanha e resultados de captação vinculados às campanhas. O estudo analisou 80 campanhas de publicidade digital realizadas entre 1º de abril e 30 de junho de 2025. O gasto total com marketing digital foi de ₹160.902,79, gerando 19.614.062 impressões e um alcance de 10.152.903 usuários. Os resultados de captação associados compreenderam 6.889 leads, 987 inscrições e 402 estudantes matriculados, com receita declarada proveniente de admissões e mensalidades de ₹28.140.000. Utilizou-se análise descritiva para calcular a eficiência de custos, as taxas de conversão, a receita por matrícula, a relação entre receita e gasto e o ROI financeiro. Os resultados mostram uma taxa de conversão de leads em inscrições de 14,33%, uma taxa de conversão de inscrições em matrículas de 40,73% e uma taxa geral de conversão de leads em matrículas de 5,84%. O custo por lead foi de ₹23,36, o custo por inscrição foi de ₹163,02 e o custo por estudante matriculado foi de ₹400,26. Com base na receita declarada atribuída às campanhas, estas geraram ₹174,89 em receita para cada ₹1 gasto, correspondendo a um ROI da publicidade digital de 17.388,82%. O estudo demonstra o valor da integração das métricas das campanhas com os resultados de captação e financeiros, ao mesmo tempo que destaca a importância da atribuição transparente da receita.

Palavras-chave: Marketing orientado por dados. Marketing digital. Ensino superior. Análise de marketing. Captação de estudantes.

| ISSN eletrônico: 2447-9896 | ISSN impresso: 2177-0360

1 INTRODUCTION

Higher education institutions operate in an increasingly competitive environment in which student recruitment is closely connected with institutional visibility, digital engagement, reputation, and effective communication of academic programmes. The expansion of social media, search engines, digital advertising, institutional websites, and online communication platforms has changed how prospective students discover, compare, and evaluate educational institutions.

Digital transformation has consequently changed the role of marketing within higher education. Institutions increasingly use digital platforms to reach prospective students, communicate programme information, generate enquiries, collect leads, and support application and enrolment processes. Digital platforms enable marketers to observe expenditure, impressions, reach, responses, leads, applications, and other measurable outcomes.

This development has created opportunities for higher education institutions to adopt data-driven marketing. However, the availability of data does not automatically produce effective decision-making. Institutions may generate large volumes of digital data while still experiencing difficulty in determining which indicators represent meaningful recruitment outcomes. A campaign that generates millions of impressions may be successful from an awareness perspective but may not produce a substantial number of leads.

The present study addresses this issue by linking digital advertising expenditure with measurable recruitment outcomes. The study uses actual campaign-level data and combines advertising performance with leads, applications, enrolments, and reported admission/fee revenue. It aims to examine campaign effectiveness, cost efficiency, recruitment-funnel conversion, and financial return.

The research contributes by integrating campaign performance indicators with downstream recruitment and financial outcomes. The article presents the theoretical foundation, methodology, results and discussion, and final considerations.

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2 DEVELOPMENT

2.1 Theoretical Foundation

Data-driven marketing refers to the systematic use of data and analytics to guide marketing decisions. The development of digital technologies has expanded marketers' ability to collect information about audience behaviour, campaign performance, and customer journeys. Wedel and Kannan (2016) emphasise the importance of marketing analytics in data-rich environments, while Kannan and Li (2017) describe digital marketing as an area requiring integrated analysis of technology, customer behaviour, and marketing outcomes.

In higher education, these capabilities can be applied to student recruitment by tracking interactions from initial exposure through lead generation and enrolment. Social media and digital communication have become important components of university recruitment strategies because institutions can communicate programme information while simultaneously monitoring audience responses.

Recent research has reinforced the relevance of digital communication to student acquisition. Tran et al. (2026) examined university social media communication and student acquisition, while Cingillioğlu, Gal, and Prokhorov (2024) identified social media marketing for student recruitment as an expanding research area.

Digital marketing effectiveness should be understood through multiple stages. Impressions and reach primarily represent exposure; interactions and messaging represent response; leads represent a more active expression of interest; applications represent progression in the recruitment journey; and enrolments represent a deeper institutional outcome. Financial outcomes provide an additional level of evaluation.

Return on investment is particularly relevant to marketing accountability. The conventional financial ROI formula is ROI = [(Revenue − Marketing Investment) / Marketing Investment] × 100. In higher education, financial attribution is complex because prospective students may interact with multiple channels before enrolling. Therefore, any reported ROI should clearly identify the revenue attribution basis and the costs included in the calculation.

| ISSN eletrônico: 2447-9896 | ISSN impresso: 2177-0360

The literature indicates a need to move beyond descriptive measures of digital engagement. The present study responds by integrating campaign expenditure, leads, applications, enrolments, and reported admission/fee revenue.

2.2 Methodology

The study adopts a quantitative empirical research design based on secondary digital campaign-performance data and campaign-linked recruitment outcomes. The principal campaign dataset covers 1 April 2025 to 30 June 2025 and contains 80 digital advertising campaign records.

Two categories of data were used. The first consisted of digital campaign data, including campaign identification, campaign objective, results, cost per result, expenditure, impressions, reach, and attribution information. The second consisted of aggregate recruitment and financial outcomes associated with the campaign activity: 6,889 leads, 987 applications, 402 enrolled students, and reported admission/fee revenue of ₹28,140,000.

All 80 available campaign records for the defined study period were included. The analysis therefore represents a census of the available campaign records for the specified observation period rather than a random sample. Principal variables were marketing expenditure, impressions, reach, leads, applications, enrolments, revenue, cost per lead, cost per application, cost per enrolment, conversion rates, revenue-to-spend ratio, and financial ROI.

Descriptive analysis was used to calculate campaign and recruitment performance. Cost per lead was calculated by dividing total marketing expenditure by total leads; cost per application by expenditure divided by applications; and cost per enrolment by expenditure divided by enrolled students. Conversion rates were calculated by dividing each downstream outcome by the preceding stage and multiplying by 100.

Revenue per enrolled student was calculated by dividing reported revenue by enrolled students. Revenue per rupee spent was calculated by dividing reported revenue by digital

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marketing expenditure. Financial ROI was calculated as [(Revenue − Marketing Expenditure) / Marketing Expenditure] × 100.

The study uses aggregate secondary data and does not involve direct intervention with human participants. The financial ROI is treated as digital advertising ROI based on the reported campaign-attributed revenue; it is not presented as total institutional recruitment ROI.

2.3 Discussion of Results

The results demonstrate that digital campaign effectiveness can be evaluated through a multi-stage recruitment funnel. The 80 campaigns generated 19,614,062 impressions and reached 10,152,903 users, while total digital marketing expenditure was ₹160,902.79. The associated recruitment outcomes were 6,889 leads, 987 applications, and 402 enrolments.

Table 1 – Overall Campaign and Recruitment Performance

Indicator	Value
Study period	1 April–30 June 2025
Campaigns	80
Digital marketing expenditure	₹160,902.79
Impressions	19,614,062
Reach	10,152,903
Leads	6,889
Applications	987
Enrolled students	402
Reported admission/fee revenue	₹28,140,000

Source*: Research data supplied for the study.*

The recruitment funnel shows that 987 of 6,889 leads progressed to applications, producing a lead-to-application conversion rate of 14.33%. Of the 987 applications, 402 resulted in enrolment, producing an application-to-enrolment conversion rate of 40.73%. Overall, 402 of the 6,889 leads resulted in enrolment, corresponding to a lead-to-enrolment conversion rate of 5.84%.

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Table 2 – Recruitment Funnel

Stage	Number	Conversion from Previous Stage
Leads	6,889	—
Applications	987	14.33%
Enrolments	402	40.73%
Overall lead-to-enrolment	402	5.84%

Source: Research data supplied for the study.

The cost-efficiency analysis provides further evidence of campaign performance. Total expenditure of ₹160,902.79 divided by 6,889 leads produces a cost per lead of ₹23.36. The corresponding cost per application is ₹163.02, and the cost per enrolled student is ₹400.26.

Table 3 – Marketing Cost Efficiency

Indicator	Result
Cost per lead	₹23.36
Cost per application	₹163.02
Cost per enrolled student	₹400.26

Source: Author's calculations based on research data.

The reported admission/fee revenue associated with the 402 enrolled students was ₹28,140,000. Dividing this amount by the number of enrolled students produces average reported revenue of ₹70,000 per enrolled student. The ratio of reported revenue to digital marketing expenditure is approximately 174.89, meaning that ₹174.89 in reported revenue was associated with every ₹1 of digital advertising expenditure.

Table 4 – Financial Return on Digital Marketing Investment

Financial Indicator	Result
Marketing expenditure	₹160,902.79
Reported admission/fee revenue	₹28,140,000
Net return after marketing expenditure	₹27,979,097.21
Revenue per enrolled student	₹70,000
Revenue per ₹1 spent	₹174.89

| ISSN eletrônico: 2447-9896 | ISSN impresso: 2177-0360

Financial ROI	17,388.82%

Source: Author's calculations based on research data.

The financial ROI is high because the reported revenue is substantially larger than the digital advertising expenditure. However, the figure must be interpreted carefully. The calculation includes digital advertising expenditure in the denominator but does not include all possible costs of student acquisition, such as admissions personnel, creative production, technology, agency fees, institutional overheads, scholarships, or other recruitment expenses. It therefore represents digital advertising ROI rather than total institutional recruitment ROI.

Table 5 – Campaign Objective Performance

Campaign Objective	Campaigns	Reported Results	Spend
Messaging conversations	44	560	₹104,413.44
Lead generation	12	103	₹25,937.94
Lead	1	1	₹310.22
Reach	8	7,298,106	₹28,341.14
Result indicator unavailable	15	—	₹1,900.05

Source: Research campaign dataset.

Taken together, the findings indicate that campaign-level analytics can connect digital exposure to measurable recruitment and financial outcomes. The evidence is useful for higher education marketing managers because campaign efficiency can be assessed at the levels of lead generation, application, enrolment, and revenue.

3 CONSIDERATIONS AND CONCLUSION

This study examined the effectiveness and financial return of data-driven digital marketing campaigns in higher education using actual campaign-level data and campaign-linked recruitment outcomes. The analysis of 80 campaigns conducted between April and June 2025

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showed digital advertising expenditure of ₹160,902.79, 19,614,062 impressions, and reach of 10,152,903 users.

The campaigns generated 6,889 leads, 987 applications, and 402 enrolled students. The lead-to-application conversion rate was 14.33%, the application-to-enrolment conversion rate was 40.73%, and the overall lead-to-enrolment conversion rate was 5.84%. The cost per lead was ₹23.36, cost per application was ₹163.02, and cost per enrolled student was ₹400.26.

Reported admission/fee revenue was ₹28.14 million. Based on this reported campaign attribution, the campaigns generated approximately ₹174.89 in revenue for every ₹1 of digital advertising expenditure and a calculated digital advertising ROI of 17,388.82%.

The principal contribution is the integration of campaign performance, recruitment-funnel metrics, and financial outcomes within a single analytical framework. The study demonstrates that higher education marketing evaluation should progress beyond impressions and engagement toward measurable outcomes such as leads, applications, enrolments, revenue, and ROI.

The study has limitations. The observation period covers only three months; the analysis is based on the available institutional campaign dataset; and the revenue attribution methodology was not independently verified. The ROI should therefore not be interpreted as proof that digital advertising alone caused all reported enrolments or revenue. Future research should use longer periods, multiple institutions, CRM-linked student journeys, and comprehensive acquisition costs. Overall, a transparent funnel-based approach can support more accountable budget allocation and more evidence-based marketing decisions in higher education.

| ISSN eletrônico: 2447-9896 | ISSN impresso: 2177-0360

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| ISSN eletrônico: 2447-9896 | ISSN impresso: 2177-0360