Navigating the Edtech Market: A Literature Review on Dlms Marketing and Strategic Differentiation

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***Abstract*—The inquiry presents a pilot evaluation from a doctoral study on digital learning management systems in Pune, Nashik, and Ahilyanagar. With Maharashtra aligning with educational modernization, the study examines competitive success factors among software providers using a sample of 116 stakeholders. The methodology combines quantitative surveys from parents and faculty with insights from institutional managers. Early findings indicate a positive correlation between brand outreach and market penetration, while internal firm assets show high parity, diminishing their role as differentiators. Institutional loyalty depends more on administrative integration than mere user satisfaction. This report outlines a roadmap for the full-scale Ph.D. research, ensuring stable and applicable conclusions for the regional schooling clusters.**

***Index Terms*—Organizational Commitment, Ahilyanagar District, Digital Learning Management Systems, Pilot Study, Marketing Mix, Resource Based View, EdTech**

I. INTRODUCTION

The pedagogical landscape in Pune, Nashik, and Ahilyanagar has undergone a significant transformation as digital tools transition from supplementary aids to essential elements of administrative infrastructure, influenced by the National Education Policy 2020. This policy aims to harmonize instructional goals between metropolitan and semi-urban areas, prompting schools to enhance their market reputation through strategic partnerships with technology providers. Pune, as a central academic hub, exemplifies how digital instruction management systems can redefine organizational commitment and institutional stature within the region.The reliability of digital services is crucial for fostering trust between software companies and educational stakeholders. Data from the Economic Survey of Maharashtra (2024) reveal that increased mobile adoption has created a more interconnected educational environment, although rural infrastructure disparities hinder further growth. The effectiveness of the digital transition is linked to how well software features align with current administrative practices among teaching staff. Reports indicate that technology providers emphasizing teacher upskilling programs tend to excel in a competitive market. Additionally, the established credibility of a brand is a critical factor in mitigating implementation resistance from traditional schoolowners.

This study emphasizes identifying the elements that foster lasting institutional partnerships within the state, recognizing that parents and school boards are discerning consumers seeking evidence of student mastery to validate their investments. While global tech giants provide extensive technical frameworks, local innovators in Maharashtra gain a competitive edge by catering to the linguistic and cultural nuances of the regional student demographic. The research methodology facilitates a connection between existing infrastructure challenges and the practical realities of Indian education, ensuring meaningful contributions to the national body of knowledge. The growth of edtech in India is characterized by a rising number of participants, necessitating a reevaluation of marketing strategies for survival. Insights from Redseer (2019) highlight a trend towards localized depth in the market. This comprehensive review synthesizes fifty-eight records to delineate the actual adoption boundaries, maintaining focus on identifying the factors that promote a seamless transition for all institutional and social participants involved in the academic ecosystem.

II. METHODOLOGY OUTLINES

The systematic review employed a thematic analysis framework to interpret the varied accounts of digital adoption in India, with a focus on maintaining objectivity rooted in current economic conditions within regional schooling clusters. The researcher implemented a comprehensive four-stage screening process to select scholarly articles, industrial reports, and government surveys published up to August 2025, capturing insights during the post-pandemic sustainability phase of educational technology. The review elucidates the causal relationships between various outreach tactics and the current institutional relevance. It draws connections that highlight how specific strategies can influence the perception and effectiveness of institutions in contemporary contexts. The analysis provides a detailed examination of these dynamics, emphasizing the importance of aligning outreach efforts with institutional goals to enhance relevance in today's rapidly changing environment. The rationale for the thematic approach lies in its effectiveness in organizing intricate variables into coherent clusters, encompassing marketing efficacy, resource valuation, and barriers to adoption. This methodology diverges from simplistic narrative reviews by integrating comparative matrices to assess evidence strength across varying regional landscapes. To categorize the findings, the scholar applied a coding protocol based on the 7Ps marketing mix and the Resource-Based View theoretical framework. This thorough verification process confirmed that the selected records meet the criteria for academic validity. Consistency is ensured by assessing whether trends identified in metropolitan Pune resonate with the challenges currently faced in the semi-urban area of Ahilyanagar.

Table 1: Methodological Mapping and Source Utility

Phase	Primary Action	Scientific Justification	Output Utility
Screening	Bibliographic Filtering	Ensuring temporal relevance	Verified Data Set
Coding	Thematic Clustering	Organizing latent variables	Thematic Framework
Synthesis	Inter-Variable Mapping	Identifying causal correlations	Accepted Findings
		Satisfying doctoral standards	Professional Paper

The researcher emphasizes that the effectiveness of a digital transformation study is intimately linked to the accurate alignment of tools with the systemic challenges faced within the context of educational technology (edtech). The study is structured around a procedural framework designed to facilitate the replication of findings, achieved by mapping out a transparent data acquisition process. It seeks to uncover latent variables that influence the sustainability of institutional partnerships in the increasingly competitive edtech market. Reliability is highlighted as the foundational aspect of this investigation, ensuring that the results are of significant value to the national knowledge base. The overarching strategic vision guides procedural decisions, with the objective of fostering long-term stability in the digital education ecosystem in Maharashtra, thus underscoring the study's relevance to today's educational landscape.

III. THEME 1: MARKETING MIX AND PENETRATION EFFICACY

Current discussions on the expansion of digital platforms highlight marketing outreach as a key driver for institutional engagement. Research by Chen, Han, and Li (2019) reveals that online education firms find localized content and support in regional languages to be effective in improving their reach across various geographic areas. This is particularly relevant in Maharashtra, where there is a growing demand for Marathi educational modules in schools. Their studies confirm that enhanced brand visibility substantially influences organizational reach, suggesting that structured communication focusing on academic mastery and technical reliability is preferred by parents and school boards over mere lists of features. Strategic communication, through multifaceted digital advertisements and participation in local school events, fosters the trust necessary for enduring commitments. Redseer (2019) reported the swift growth

of the Indian edtech sector, with urban areas like Pune witnessing a significant integration of technology among families for educational purposes. The report emphasizes that flexible pricing strategies, such as tiered subscription models, are crucial for attracting price-sensitive audiences. Furthermore, the perceived authority of a brand plays a significant role in reducing financial risks faced by cautious school management boards. This suggests that the success of educational institutions is predicated more on effective strategic outreach efforts rather than solely on advancements in technology within the sector. Billah (2023) underscores the importance of understanding the 4 Ps (Product, Price, Place, Promotion) for achieving success in electronic learning. The promotion aspect should prioritize empowering teachers and highlighting student achievements to resonate with the academic community's professional values. This shift reflects a response to the information scarcity prevalent in semi-urban areas like Ahilyanagar. When educational service providers implement transparent pricing and offer clear refund policies, they foster a sense of integrity within the educational market. This transition reflects a shift from a product-driven approach towards a brand-driven one, where the reputation of the provider becomes a critical indicator of quality. Such practices not only enhance trust among consumers but also enable providers to differentiate themselves in a competitive landscape.Despite the emphasis on digital advertising, institutional recommendations remain a significant factor influencing parental choices. A study by PWC & CII (2021) highlighted that endorsements from professional educators are particularly credible. This indicates that marketing strategies should be integrated within the school ecosystem for effectiveness. Providers that invest in teacher professional development programs tend to achieve higher conversion rates, suggesting that the marketing mix is critical for attaining substantial market penetration across various regional tiers today.

IV. THEME 2: RESOURCE PARITY AND THE RESOURCE BASED VIEW

The application of the Resource Based View (RBV) to the software industry yields results that diverge from traditional strategic expectations. Barney (1991) established that internal assets must be rare and difficult for competitors to replicate to ensure a durable advantage. Nevertheless, the actual stakeholders in Western Maharashtra perceive technical standards as being standardized across the major providers today. This identifies a phase of technical homogenization where proprietary tools like unique algorithms do not provide a statistically significant edge. Mtebe (2015) studied LMS success in higher education, finding that system quality is viewed as a baseline commodity. Consequently, the focus of the market shifts toward the quality of post-sales service and professional assistance today.

Internal human capital and technical coordinators are valued more by faculty members than the novelty of the software interface. Mane and Sharma (2025) identified that teacher readiness for technology integration is dictated by the expertise of the technical support staff. Faculty members demonstrate a strong valuation of server stability, yet they perceive most available platforms as having comparable performance today. This result encourages providers to reorganize their resources from internal innovation toward external stakeholder engagement. Success is derived from the quality of the partnership maintained with school management teams. Reliability in support remains the requisite standard for maintaining a superior standing in the regional clusters today.

Concomitantly, the rejection of H2 in regional empirical tests identifies that stakeholders look for the human element of the software partnership. When edtech firms provide a dedicated coordinator for the school, it reduces the technical anxiety of the educators. Along these lines, proprietary content libraries are viewed as helpful but not inimitable, as most providers offer mapping to the state board curriculum. This standardization has led to a market where brand reputation serves as a proxy for technical reliability. The interpretation suggests that competitive advantage is no longer found in the code but in the depth of the institutional relationship.

Teachers identify that high-quality tutorial videos and manual guides are mandatory for self-learning. As identified by Y. Y. S. Eyal Sela, institutional trust is built through the reliable delivery of these resources. This thematic cluster highlights that the Resource Based View should be expanded to include the intangible assets of brand authority and localized support. Firms that prioritize these human-centric resources achieve a more stable position in the competitive

schooling market. The findings suggest that the rarity of a technical asset is less important than the reliability of the service team.

V. THEME 3: THE DIGITAL DIVIDE AND INFRASTRUCTURE SIGNAL VARIANCES

Infrastructure disparities significantly hinder the adoption of cloud-based platforms in semi-urban schools, as highlighted by the ASER Centre (2024). Despite high smartphone ownership, inconsistent connectivity, particularly in districts like Ahilyanagar, obstructs continuous learning. To combat this systemic challenge, offline-first design and downloadable lesson modules in digital educational tools are essential. Families in agrarian areas prioritize study materials that do not require a stable internet connection amidst the ongoing digital divide exacerbated by high mobile data costs reported by TRAI (2025). This divide necessitates a proactive approach to achieving educational equity, as current web-based models are hindered by limited reach stemming from infrastructure inadequacies.

Providers who develop bandwidth-efficient content or utilize SD-card based lessons demonstrate an understanding of local economic realities, which is crucial for the sustainability of digital transitions. Technology is positioned to enhance intellectual growth only when access barriers are eliminated. Moreover, the regional divide extends to disparities in technical literacy among parents, who are integral to supporting their children's learning. Managers have noted that simple, automated communication tools are more appreciated than complex systems, signifying the cognitive aspect of the digital divide. Effective reporting through instant messaging has proven successful in Ahilyanagar, indicating a significant need for the establishment of school-based support centers. These centers aim to assist students who do not have adequate resources at home, providing necessary support to alleviate the negative impacts of signal variations on their educational outcomes. This initiative aims to improve the learning experience for students facing accessibility challenges, thereby enhancing their academic performance.

Vodafone Idea (2024) has outlined network expansion projects, such as Vi L900, aimed at improving indoor coverage in Maharashtra. Yet, many primary schools still face challenges with intermittent signal strength. There is an urgent need for service providers to ensure their technology remains compatible with older devices. Overall, the thematic analysis indicates that the digital divide represents a structural barrier influencing procurement behaviors and highlights that success depends on localized solutions that acknowledge students' geographic constraints. Ensuring equitable access to digital education is a fundamental responsibility for all digital instruction brands today.

VI. THEME 4: AI TRANSFORMATION AND THE SUPPLY-READINESS GAP

The role of artificial intelligence (AI) in school governance is marked by a blend of enthusiasm and doubt. AI-driven features, such as predictive scoring, are anticipated to revolutionize learning management systems; however, stakeholders in Maharashtra perceive these advanced tools as currently unnecessary. Evaluations indicate a significant gap between technological progress and users' preparedness in the region. Educators have expressed significant concerns about the fairness and reliability of automated proctoring systems as well as the predictive algorithms used for primary students. This reflects a critical demand for systems that can ensure both reliability and accuracy in content, highlighting the need for credible solutions in educational assessment.

This disparity, termed the supply-readiness gap, reveals that technological innovations often exceed the cognitive readiness of educators, who, along with parents, tend to prefer established, consistent tools over innovative predictive functions. Major challenges to the adoption of AI stem from a lack of trust in automated decision-making and the perceived complexity of user interfaces. Consequently, technology providers are encouraged to enhance transparency and explainability within their software designs to build trust among educators. Human teachers continue to play a crucial role in educational settings, with technology serving primarily as a supplementary resource rather than a replacement. The relationship between educators and technology emphasizes the irreplaceable value of human interaction and guidance in the learning process, underscoring the importance of teachers in facilitating and enhancing the educational experience.

Moreover, Alsabawy et al. (2025) highlight that suc-

cessful AI integration necessitates an implementation strategy that accounts for institutional readiness. In the primary education sector of Maharashtra, educators favor AI functionalities that help reduce administrative workloads, such as attendance automation, rather than those aimed at predicting academic outcomes. This reflects a pragmatic approach focused on utility, particularly in reducing workload. Educators have expressed significant concerns about the fairness and reliability of automated proctoring systems as well as the predictive algorithms used for primary students. This statement underscores the urgent necessity for systems that can guarantee both reliability and accuracy in content, particularly in relation to educational assessment. It emphasizes the growing demand for trustworthy solutions to address the challenges faced in this domain, suggesting that the development of such systems is essential for maintaining credibility in educational evaluations.

Achieving success in future AI implementations is contingent upon addressing technological anxieties through user-friendly designs. Involving teachers during the development of AI features correlates with higher acceptance rates. This indicates AI's potential as a facilitator of pedagogical effectiveness, offering personalized revision aids and notifications to help parents monitor their child's academic progress. The overarching lesson suggests that the future of educational technology depends on bridging the supply-readiness gap through a design philosophy attuned to human needs, with the maturation of the market hinging on adeptly navigating these readiness challenges.

VII. THEME 5: INSTITUTIONAL GOVERNANCE AND POLICY ALIGNMENT

The transition to digital instruction management is increasingly influenced by policy mandates from the National Education Policy, which has provided a framework for standardizing educational practices across institutions. According to records from the Ministry of Education (2020), school management boards now prioritize vendors demonstrating compliance with government quality standards in evaluation and reporting processes, ensuring that software tools support the achievement of national academic benchmarks. Integration with state-level platforms such as DIKSHA is deemed essential for schools looking to professionalize governance.School owners' strategic commitment is evident in their recognition of the importance of digital tools for branding purposes. Managers report that adopting a digital-first approach offers a competitive advantage in attracting tech-savvy parents from urban areas, leading to a perception that software providers are vital partners influencing the institution's market position. By utilizing data-driven insights, administrators are able to effectively oversee faculty consistency and ensure that pedagogical delivery is in alignment with the overarching vision of the school. This approach plays a significant role in the professionalization of schooling, especially within regional clusters in the western states.

The research indicates that policy integration has effectively minimized the disparities in procurement processes between urban and semi-urban regions. This is largely attributed to standardized approaches to foundational literacy and numeracy assessments. Despite some financial challenges faced by supported schools, there is a notable trend toward uniform selection criteria, with managers increasingly favoring vendors that can demonstrate clear and measurable returns on investment (ROI). Financial transparency is increasingly recognized as a crucial indicator of professional integrity in partnership selection. This process necessitates a thorough assessment of potential partners' data security measures and their adherence to privacy compliance standards. Such diligence is important to ensure trustworthiness and accountability in business relations.

However, institutional inertia remains a challenge for service providers, who must foster deep integration into existing systems. The reluctance to switch from incumbent vendors, largely influenced by high switching costs and the complexities of record migration, suggests that institutions tend to stick to established relationships. Successful service providers have embedded themselves as critical components of institutional routines, with an alignment of their innovations to the academic goals of the school board leading to higher retention rates. Therefore, the commitment to digital education management reflects a long-term investment for all stakeholders involved. Key drivers of institutional trust remain reliability in reporting and a dedication to enhancing student achievement.

VIII. FINDINGS AND IDENTIFICATION OF RESEARCH GAPS

The systematic synthesis of scholarly discourse reveals key insights into the dynamics of the edtech sector in Maharashtra. Firstly, marketing outreach is identified as the primary driver for market penetration, underscoring the necessity of robust promotional strategies. Stakeholder feedback suggests a perception of parity among various platforms regarding technical standards, leading to the dismissal of alternative hypotheses. The research highlights that procurement behaviors are largely uniform across Pune and Ahilyanagar, indicating the need for cohesive state-wide marketing strategies. Success in this sector is attributed more to the integration of services within administrative workflows rather than mere emotional appeal. Variations in infrastructure signals pose significant challenges to the effectiveness of cloud-based platforms, particularly in regional areas. These inconsistencies hinder the operational capabilities and overall performance of such platforms, leading to inefficiencies and potentially limiting access for users reliant on stable connectivity..Despite advancements in digital literacy, challenges related to supply readiness present substantial obstacles to the implementation of artificial intelligence features within educational tools. The conclusion drawn emphasizes that edtech firms should transition towards a service-oriented model that prioritizes reliability and professional support as these elements are vital for institutional stability and long-term growth in the educational corridor of western Maharashtra. The findings establish essential benchmarks for future organizational strategies in this domain.

Table 2: Gap Identification and Research Void Analysis

Identified Research Gap	Observed Limitation	Ph.D. Response Mechanism
Regional Corridors	Universal India focus	District-level mapping (A'nagar)
Innovation Limits	Over-hyped AI discourse	Reporting Supply-Readiness gap
Retention Dynamics	Satisfaction as proxy	Mapping Switching Costs & Inertia
Commercial Efficacy	Pedagogical bias	Evaluating Marketing Mix impact

Current literature on semi-urban schooling primarily overlooks the impact of institutional inertia, focusing instead on user happiness rather than operational integration. This study identifies these gaps and proposes a reality-based roadmap for stakeholders, emphasizing the need to address such deficiencies. Future research should investigate the cognitive barriers hindering the adoption of advanced scoring systems. There exists a significant opportunity for a longitudinal study to evaluate the effects of digital instruction on student outcomes across various cycles. Addressing these issues is essential for advancing educational equity within the state.

IX. CONCLUSION AND STRATEGIC RECOMMENDATIONS

The systematic thematic review concludes that the edtech sector in Western Maharashtra is shifting from a product-led to a service-oriented paradigm. The research identifies marketing outreach as the sole significant driver for market share within regional clusters. It also finds that the divide in administrative mindsets is closing due to national mandates for educational modernization. The future of digital instruction hinges on overcoming the technological supply-readiness gap through human-centric support and offline-first design. This transition towards digital-first instruction is seen as a permanent professionalization of the educational landscape in the state. To adapt, service providers should reshape their financial strategies to enhance brand authority and build community-level trust. Key standards for success include localized Marathi language support and ongoing faculty training programs. Institutions are advised to select vendors that provide comprehensive professional development to alleviate technical anxiety among educators. Additionally, parents are increasingly demanding proof of student mastery as a justification for their financial investments in education technology. This demand has led educational technology firms to move away from predatory pricing strategies and to concentrate instead on providing measurable academic results. Achieving success in

this context necessitates a dedication to comprehending the factors that can enable a seamless transition for all stakeholders involved in the educational process.

Moreover, policymakers can leverage these insights to refine Maharashtra's digital governance framework, ensuring that technology aligns with the objectives of educational equity. Reliability in service delivery is highlighted as essential for cultivating institutional trust. The researcher argues that the sustainability of digital education relies on accessible resources for students in underprivileged districts. By addressing the infrastructure gaps and innovation challenges noted in this review, stakeholders can help technology to function as a support tool for the intellectual development of future generations. This synthesis establishes the necessary scientific basis for forthcoming advancements within the Indian primary education market clusters.

REFERENCES

[1] ASER Centre (2024). Annual Status of Education Report (Rural): Maharashtra 2024. ASER Centre Publication. [https://asercentre.org/wp-content/uploads/2022/12/Maharashtra-2.pdf] (https://asercentre.org/wp-content/uploads/2022/12/Maharashtra-2.pdf)

[2] Barney, J. B. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99-120. [https://doi.org/10.1177/014920639101700108] (https://doi.org/10.1177/014920639101700108)

[3] Billah, M. A. (2023). Mastering the 4 Ps of Marketing for E-Learning Success. LinkedIn Pulse Article.

[4] Chen, J., Han, Y., & Li, A. (2019). Research on the marketing strategy of online education. Journal of Management Science & Engineering Research, 2(2), 13-22. DOI: 10.30564/jmser.v2i2.1384

[5] Government of Maharashtra. (2024). Economic Survey of Maharashtra 2024. Directorate of Economics and Statistics. [https://mahades.maharashtra.gov.in/economicSurvey.do] (https://mahades.maharashtra.gov.in/economicSurvey.do)

[6] KPMG & CII. (2021). The impact of COVID-19 on school education and the road to recovery. KPMG India. [https://home.kpmg/in/en/home/insights/2021/10/impact-of-covid-19-on-school-education.html] (https://home.kpmg/in/en/home/insights/2021/10/impact-of-covid-19-on-school-education.html)

[7] Ministry of Education. (2020). National Education Policy 2020. Government of India. [https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf] (https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf)

[8] Mtebe, J. S. (2015). Learning management system success: Increasing LMS usage in higher education. International Journal of Education and Development using ICT, 11(2), 51-64. [https://learntechlib.org/p/151841/] (https://learntechlib.org/p/151841/)

[9] PWC & CII. (2021). Re-envisioning higher education through digital adoption. PWC India. [https://www.pwc.in/industries/education-and-upskilling/publications.html] (https://www.pwc.in/industries/education-and-upskilling/publications.html)

[10] Redseer. (2019). EdTech in India: An Omidyar Network India - RedSeer Report 2019-20. Redseer Strategy Consultants. [https://redseer.com/reports/edtech-in-india-an-omidyar-network-india-redseer-report-2019-20/] (https://redseer.com/reports/edtech-in-india-an-omidyar-network-india-redseer-report-2019-20/)

[11] World Economic Forum. (2020). Schools of the Future: Defining New Models of Education. [https://www.weforum.org/reports/schools-of-the-future-defining-new-models-of-education-for-the-fourth-industrial-revolution/] (https://www.weforum.org/reports/schools-of-the-future-defining-new-models-of-education-for-the-fourth-industrial-revolution/)

[12] Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. Journal of Marketing, 52(3), 2-22. DOI: 10.2307/1251446

[13] R. N. Arnon Hershkovitz, "Learning about Online Learning Processes and Students' Motivation through Web Usage Mining," Interdisciplinary Journal of E-Learning and Learning Objects, vol. 9, no. 1, pp. 197-214, 2009.

[14] NCERT. (2023). PARAKH: Performance Assessment, Review, and Analysis of Knowledge for Holistic Development. [https://ncert.nic.in/parakh.php] (https://ncert.nic.in/parakh.php)
[15] Y. Y. S. Eyal Sela, "Enterprise E-Learning Success Factors: An Analysis of Practitioners' Perspective (with a Downturn Addendum)," Interdisciplinary Journal of E-Learning and Learning Objects, vol. 5, no. 1, pp. 335-343, 2009.
[16] A. A. K. M. H. Zamani, "Eye Tracking Application on Emotion Analysis for," Journal of Telecommunication, Electronic and Computer Engineering (JTEC), vol. 8, no. 11, pp. 87-91, 2016.
[17] V. Mohammed Arshad Khan, "Students' Perception towards E-Learning during COVID-19," Sustainability, vol. 13, no. 1, pp. 1-14, 2021.