Growth, Emergence and Assessing Quality of Open Online Courses in Higher Education with Special Reference to "SWAYAM"

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Abstract:

The proliferation (a rapid and sudden increase, spread, or multiplication) of Massive Open Online Courses (MOOCs) has fundamentally disrupted the conventional architecture of higher education across the globe. India's SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) platform, launched in 2017 under the aegis of the Ministry of Education, Government of India, represents one of the most ambitious state-led digital learning initiatives in the developing world. This paper undertakes a comprehensive analytical and evaluative inquiry into three interrelated dimensions: (i) the quantitative growth trajectory of SWAYAM since its inception, (ii) its emergence as a legitimate pedagogical instrument within the formal higher education ecosystem, and (iii) a systematic quality assessment of courses hosted on the platform using established theoretical frameworks—specifically the Quality Matters (QM) framework and the European Quality Reference Framework for MOOCs (EQRiM). Drawing upon secondary data, policy documents, and a critical synthesis of extant literature, the study reveals that while SWAYAM has achieved remarkable scale in enrolment and course diversity, significant gaps persist in learner retention, instructional interactivity, and robust quality assurance mechanisms. The paper concludes with policy implications aligned with the National Education Policy (NEP) 2020, advocating for a structured quality assurance architecture that balances scale with pedagogical depth. The findings are intended to inform educators, policymakers, and curriculum designers engaged in the digital transformation of higher education in India and analogous developing nation contexts.

Keywords: SWAYAM, MOOCs, Open Online Courses, Quality Assessment, Higher Education, NEP 2020, Digital Learning, Instructional Design

INTRODUCTION:

The twenty-first century has witnessed an unprecedented democratization of knowledge facilitated by advances in information and communication technology. The emergence of Massive Open Online Courses (MOOCs) represents a paradigm shift in the delivery, access, and conceptualization of higher education—transcending geographical, socioeconomic, and

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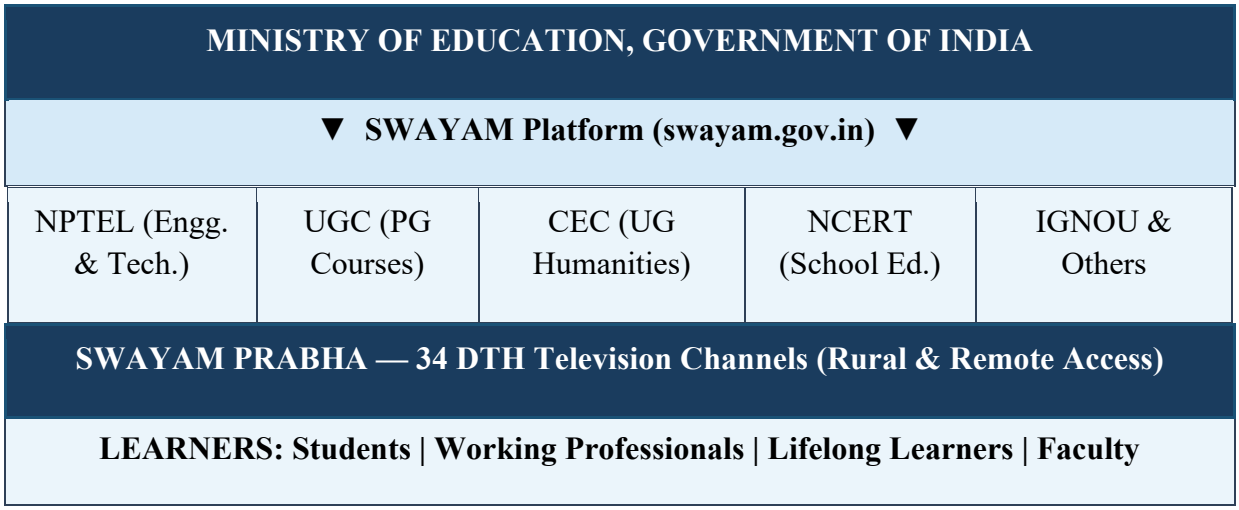
institutional boundaries (Siemens, 2013). Platforms such as Coursera, edX, and FutureLearn have catalyzed a global discourse on open access to quality education, prompting national governments to develop indigenized alternatives capable of addressing unique socio-educational contexts.

In India, a nation characterized by stark regional disparities in educational infrastructure, the SWAYAM platform was launched in July 2017 as a flagship initiative under the National Mission on Education through Information and Communication Technology (NMEICT). SWAYAM—an acronym for Study Webs of Active Learning for Young Aspiring Minds—is premised on the philosophy that high-quality education must reach every Indian learner regardless of socioeconomic status, geographic location, or institutional affiliation. Operationally, SWAYAM is hosted by the Ministry of Education (MoE) in collaboration with nine National Coordinators, including NPTEL (for engineering and technology), UGC (for post-graduate courses), CEC (for under-graduate humanities and social sciences), and NCERT (for school education), among others (Ministry of Education, 2022).

Despite the remarkable quantitative milestones achieved by SWAYAM—boasting over 4,000 courses and more than 4.5 crore cumulative enrolments by 2023—a rigorous interrogation of the platform's qualitative dimensions remains conspicuously underexplored in academic literature. This paper addresses this lacuna by situating SWAYAM within a broader theoretical discourse on MOOC quality and by applying internationally recognized quality assessment frameworks to evaluate course design, content integrity, pedagogical alignment, and learner support structures.

Furthermore, with the National Education Policy 2020 explicitly advocating for a substantial integration of online and digital learning within formal higher education curricula—including a mandate that up to 25% of course credits may be earned through SWAYAM-recognized MOOCs—the stakes for quality assurance have never been higher (MoE, 2020). This paper, therefore, contributes to the growing body of scholarship on MOOC quality in the Global South and offers evidence-based policy recommendations for strengthening SWAYAM as a credible pillar of India's higher education architecture.

Figure 1: The SWAYAM Ecosystem — Architecture and Key Stakeholders



REVIEW OF RELATED LITERATURE:

The academic discourse on MOOCs has evolved through several identifiable phases. The initial euphoric phase (2008–2013), characterized by connectivist MOOCs (cMOOCs) championed by Siemens (2005) and Downes (2012), emphasized networked, self-organized learning communities. The subsequent xMOOC wave—driven by Stanford's AI course and the emergence of Coursera in 2012—privileged content delivery and scalability over pedagogical innovation (Pappano, 2012). The critical phase (2014 onwards) surfaced concerns around alarming dropout rates (typically exceeding 90%), digital divide issues, credential validity, and the commodification of higher education (Liyanagunawardena et al., 2014).

In the Indian context, Sharma and Bhattacharya (2019) conducted a foundational analysis of SWAYAM's early growth, documenting the platform's rapid expansion in course offerings across disciplines. They noted the platform's adherence to a 4V model of learning: Video lectures, Various learning resources, self-assessment tests (Validation), and proctored exams for Verification. Garg and Sharma (2020) further examined the integration of SWAYAM with formal degree programmes and identified that while policy frameworks were in place, institutional implementation remained inconsistent across universities.

Quality assessment in MOOCs has attracted growing scholarly attention. Ossiannilsson and Creelman (2012) proposed that MOOC quality cannot be assessed through traditional e-learning quality models alone, given the open-access, large-scale nature of these platforms. The Quality Matters (QM) framework—originally developed by MarylandOnline in 2003—provides a rubric-based approach that evaluates course design across eight general standards including course overview, learning objectives, instructional materials, learner engagement, course technology, learner support, accessibility, and assessment (Legon & Garrett, 2018). The European Quality Reference Framework for MOOCs (EQRiM), developed by Creelman et al. (2014), extends this framework by incorporating dimensions of openness, scalability, and learner autonomy—dimensions particularly relevant to SWAYAM's mandate.

Research on the National Education Policy 2020 and its digital learning provisions has emerged as a nascent but rapidly expanding area of inquiry. Banerjee and Mukherjee (2021) observed that NEP 2020's vision of multidisciplinary, flexible curriculum design creates both opportunities and imperatives for platforms like SWAYAM to serve as genuine academic partners rather than supplementary repositories. Mishra (2022) critically evaluated the credit transfer mechanisms, noting that while UGC has issued guidelines, their operationalization varies significantly across Higher Educational Institutions (HEIs).

Globally, studies on MOOC quality in developing nations resonate with SWAYAM's context. Ally and Christiansen (2020) found that learner retention in MOOCs in the Global South was significantly influenced by internet connectivity, device access, and mother-tongue language availability—factors directly pertinent to SWAYAM's accessibility agenda. The platform's SWAYAM PRABHA initiative—32 dedicated DTH television channels broadcasting educational content—represents a unique infrastructural response to India's digital divide (Ministry of Education, 2022).

Synthesizing the extant literature, this review identifies three salient gaps: (a) the absence of a comprehensive, framework-driven quality audit of SWAYAM courses in published scholarship; (b) limited examination of learner retention and completion rates on SWAYAM relative to global MOOC benchmarks; and (c) an insufficient engagement with the policy-practice interface between NEP 2020's credit mandates and the actual quality of SWAYAM course offerings. The present paper addresses these gaps directly.

OBJECTIVES OF THE STUDY:

The present study is guided by the following specific objectives:

- To trace and analyse the growth trajectory of SWAYAM from its inception in 2017 to the present, encompassing course proliferation, enrolment trends, and structural evolution.
- To examine the emergence of SWAYAM as an institutionally recognized platform within India's formal higher education framework, with particular reference to credit transfer mechanisms under NEP 2020.
- To assess the quality of open online courses hosted on SWAYAM using established international quality frameworks—namely the Quality Matters (QM) framework and the European Quality Reference Framework for MOOCs (EQRiM).
- To identify the key strengths, limitations, and areas for improvement in SWAYAM's operational and pedagogical design.
- To propose policy recommendations for enhancing the quality assurance mechanism of SWAYAM in alignment with the imperatives of NEP 2020.

METHODOLOGY:

The study is based on a wholly qualitative strategy related to the content analysis. For the purpose of the study data have been collected only from the secondary sources. The data from secondary sources includes eminent workers like Ally and Christiansen's Technology - enabled learning in developing countries: Challenges and opportunities (2020), Arora's The next billion users: Digital life beyond the West (2019), Banerjee and Mukherjee's NEP 2020 and the SWAYAM ecosystem: Institutional readiness and faculty perceptions (2021). Also thesis, books, published journals, and periodicals are example of the secondary sources.

GROWTH AND EMERGENCE OF SWAYAM: A QUANTITATIVE AND STRUCTURAL ANALYSIS:

Quantitative Growth Trajectory

Since its formal launch in July 2017 with approximately 350 courses and two lakh enrolments, SWAYAM has undergone a period of rapid, sustained quantitative expansion that few national MOOC platforms globally have paralleled. The platform's trajectory can be demarcated into three distinct phases as illustrated in Table 1 below.

Year	Courses Offered	Enrolment (Approx.)	Key Milestone
2017	350	2 Lakh	Platform officially launched
2018	700	20 Lakh	Credit transfer policy introduced
2019	1,200	80 Lakh	Integration with UG/PG curricula
2020	1,900	1.5 Crore	Surge during COVID-19 pandemic
2021	2,400	2.8 Crore	SWAYAM PRABHA TV expansion
2022	3,000+	3.5 Crore	NEP 2020 alignment initiatives
2023	4,000+	4.5 Crore	AI-based recommendation launched

Table 1: Growth Trajectory of SWAYAM (2017–2023)

Source: Ministry of Education Annual Reports (2018–2023); SWAYAM Portal Data

The data in **Table 1** reveal a pronounced acceleration in enrolment growth during 2020–2021, coinciding with the COVID-19 pandemic and the attendant nationwide suspension of in-person instruction. This crisis-driven surge—often described in MOOC literature as a 'forced adoption' phenomenon (Hodges et al., 2020)—propelled SWAYAM from a supplementary learning resource to a primary instructional medium for millions of Indian learners.

The platform's disciplinary coverage has also expanded substantially. While the initial course portfolio was dominated by engineering and technology courses offered through NPTEL, subsequent cohorts have incorporated arts, humanities, social sciences, management, teacher education, and vocational training courses, reflecting a more holistic vision of open higher education (Ministry of Education, 2022).

Structural and Institutional Emergence

The emergence of SWAYAM as a structurally embedded component of India's higher education system is perhaps best evidenced by a series of policy and regulatory developments. The University Grants Commission (UGC) issued guidelines in 2016—even prior to the platform's launch—mandating that HEIs credit SWAYAM courses equivalent to those earned through conventional modes. The UGC (Credit Framework for Online Learning Courses through SWAYAM) Regulations, 2016, stipulated that up to 20% (subsequently revised to 25% under NEP 2020) of total credits for an academic programme may be earned through SWAYAM-certified courses, subject to institutional approval (UGC, 2021).

The National Education Policy 2020 represents the most consequential policy milestone in SWAYAM's institutional trajectory. By articulating a vision of flexible, multidisciplinary higher education with digital learning as a structural pillar rather than a supplemental instrument, NEP 2020 has significantly elevated the institutional stakes for SWAYAM. The policy explicitly recognizes SWAYAM and the National Digital Library as core components of the digital infrastructure of Indian higher education (MoE, 2020).

The SWAYAM PRABHA initiative, comprising 32 high-quality DTH television channels operational since 2017, represents a particularly innovative structural response to India's digital access inequalities. Recognizing that smartphone and broadband penetration remain uneven—particularly in Tier-3 cities, semi-urban, and rural contexts—SWAYAM PRABHA ensures that educational content is accessible to learners without reliable internet connectivity, thereby advancing the platform's foundational equity mandate.

ASSESSING THE QUALITY OF SWAYAM COURSES: FRAMEWORK-DRIVEN ANALYSIS

Theoretical Frameworks for Quality Assessment

Quality in online and open course environments is a multidimensional construct that resists reduction to any single evaluative metric. For the purposes of this study, two internationally recognized frameworks are employed in complementary fashion: the Quality Matters (QM) Rubric (Legon & Garrett, 2018) and the European Quality Reference Framework for MOOCs—EQRiM (Creelman et al., 2014). While QM provides a robust course design-level evaluation tool, EQRiM extends quality evaluation to the systemic and ecosystem levels, encompassing openness, institutional commitment, and learner autonomy—dimensions particularly salient for a national-level MOOC platform like SWAYAM.

Application of Quality Frameworks to SWAYAM

Table 2 presents a systematic mapping of quality dimensions from both frameworks onto observable features and documented characteristics of SWAYAM's course design and delivery architecture.

Table 2: Quality Assessment of SWAYAM Courses Using QM and EQRiM Frameworks

Quality Dimension	Indicators	SWAYAM Context
Content Quality	Accuracy, currency, alignment with outcomes	NPTEL, IIT-curated syllabi; peer-reviewed content by domain experts
Pedagogical Design	Constructive alignment, active learning strategies	Video lectures, self-assessment quizzes, discussion forums
Learner Engagement	Interaction, discussion, feedback loops	Learner analytics partially; limited synchronous engagement
Assessment & Credential	Reliability, validity, proctoring integrity	Proctored exams at NTA centres; standardized credit transfer
Accessibility	Multi-device, multi-language, inclusivity	Regional language offerings; SWAYAM PRABHA DTH for rural reach

Institutional Support	Faculty integration, credit recognition	UGC mandate: 25% credits via MOOCs in NEP 2020 framework

Source: Adapted from QM Rubric (Legon & Garrett, 2018) and EQRiM (Creelman et al., 2014), applied to SWAYAM context

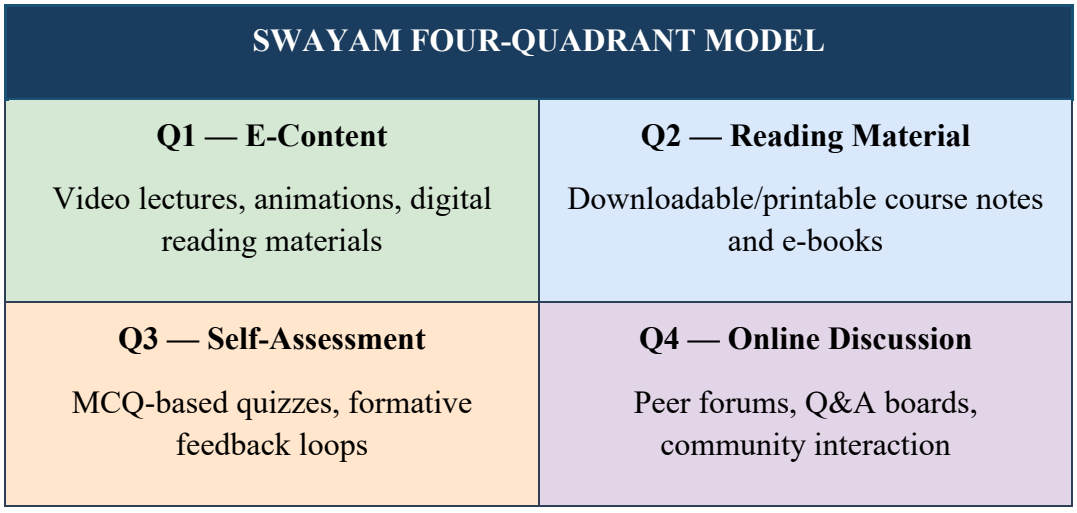
Content Quality and Instructional Design

A substantial strength of SWAYAM's course portfolio lies in the credibility of its content creators. Courses developed under NPTEL—one of the platform's premier national coordinators—are produced by faculty from the Indian Institutes of Technology (IITs) and Indian Institutes of Science (IISc), institutions of unquestioned academic standing. This institutional pedigree lends a degree of content authority that distinguishes SWAYAM from commercially driven MOOC platforms where content quality standards may be variable.

However, a critical appraisal of instructional design reveals persistent concerns. A majority of SWAYAM courses continue to privilege transmissive, lecture-centric video content over constructivist, interaction-rich pedagogical models. Hattie's (2009) meta-analytical synthesis demonstrates that student learning is most powerfully advanced by feedback, formative assessment, and peer learning—mechanisms that remain underdeveloped in much of SWAYAM's current design architecture. The discussion forums embedded within courses, while structurally present, are frequently inactive or poorly moderated, limiting their function as genuine peer-learning spaces.

The structural deployment of four-quadrant learning materials—comprising (1) e-content including video lectures and reading materials, (2) specially prepared reading material that can be downloaded/printed, (3) self-assessment tests via MCQs, and (4) online discussion forums—represents a pedagogically ambitious design schema. In practice, however, the quality of implementation across these quadrants varies considerably across courses and national coordinators.

Figure 2: SWAYAM's Four-Quadrant Learning Model



Learner Engagement and Retention

Perhaps the most conspicuous quality challenge facing SWAYAM—as with MOOCs globally—is the abysmally low course completion rate. Available evidence suggests that completion rates for most SWAYAM courses hover between 5% and 12%, a figure broadly consistent with global MOOC benchmarks (Jordan, 2015) but deeply problematic for a platform aspiring to serve as a formal credit-bearing educational instrument.

The causes of attrition are multifactorial. Kizilcec et al. (2013) identified four distinct learner typologies in MOOC environments: completers, auditors, disengaging learners, and samplers—each with distinct motivational profiles and engagement trajectories. SWAYAM's current design does not adequately differentiate instructional experiences or motivational scaffolds for these varied learner categories. The absence of personalized learning pathways, adaptive assessment, and meaningful instructor-learner interaction represents a significant design gap when evaluated against contemporary pedagogical standards.

It is, however, important to contextualize completion rates against learner intention. A meaningful proportion of SWAYAM enrolments may represent learners seeking specific knowledge or skill development without the intention of completing formal assessments. Disaggregating 'intentional completers' from 'exploratory learners' in enrolment data would yield a more nuanced and accurate picture of platform effectiveness.

Assessment and Credentialing Integrity

The credentialing mechanism of SWAYAM is structured around a two-tier system: an in-course component comprising auto-graded quizzes and assignments, and a culminating proctored examination administered through the National Testing Agency (NTA) at designated examination centres across India. This hybrid model represents a principled attempt to balance scalability with assessment integrity—a persistent challenge in MOOC-based credentialing (Deimann & Farrow, 2013).

The proctored examination component, while logistically demanding for learners—particularly those in remote areas who must travel to examination centres—provides a credentialing mechanism that commands institutional recognition, a critical prerequisite for credit transfer under NEP 2020. The integrity of the in-course assessment component is, however, more vulnerable to academic dishonesty, given the absence of effective identity verification mechanisms at the point of online quiz submission.

CHALLENGES AND CRITIQUES:

Digital Divide and Differential Access

SWAYAM's equity mandate is compromised by the structural realities of India's digital landscape. While mobile phone penetration has expanded dramatically, access to reliable broadband internet—necessary for streaming video content—remains unevenly distributed along geographic, socioeconomic, and gender axes. The 2023 TRAI Annual Report indicates that while urban broadband density stands at approximately 96 connections per 100 persons, rural broadband penetration remains significantly lower, directly constraining SWAYAM's

reach among its intended primary beneficiaries: first-generation college learners in non-metropolitan contexts.

Gender-based access differentials compound this challenge. Research by Arora (2019) documents that young women in conservative rural and semi-urban households face additional barriers to uninterrupted personal device access, limiting their ability to engage with self-paced digital learning platforms despite formal enrolment.

Faculty Readiness and Institutional Integration

The effectiveness of SWAYAM as a credit-bearing educational instrument is contingent not merely on course quality but on the institutional cultures within which it is embedded. Faculty attitudes toward MOOC-based learning remain ambivalent in many HEIs. Concerns persist regarding academic rigour, assessment equivalence, and the implications of SWAYAM integration for traditional pedagogical authority (Banerjee & Mukherjee, 2021).

Moreover, many HEIs lack the institutional mechanisms necessary to smoothly operationalize credit transfer—including awareness among academic advisors, updated curriculum frameworks, and functional credit mapping systems. Without deliberate institutional capacity building, the NEP 2020 credit mandate risks becoming a policy aspiration rather than an enacted reality.

Language and Localization

While SWAYAM has made commendable progress in offering courses in regional Indian languages—including Hindi, Tamil, Telugu, Kannada, and several others—the dominant medium of instruction remains English. Given that a substantial proportion of India's higher education enrolments occur in vernacular-medium institutions, the linguistic hegemony of English-medium content represents a meaningful access barrier. Deeper investment in vernacular course development, particularly in high-enrolment disciplines such as commerce, teacher education, and social sciences, is essential to realize SWAYAM's equity imperatives.

Challenges Area	Evidence / Indicator	Recommended Response
Digital Divide	Rural broadband < 40%; TRAI 2023 urban-rural gap	SWAYAM PRABHA DTH (partial mitigation)
Low Completion Rates	5–12% completion; global MOOC average 10–15%	Learner analytics; personalized pathways needed

Linguistic Barriers	English-medium dominance; vernacular HEI learners excluded	Incentivize regional-language course development
Faculty Resistance	Ambivalence on rigour; institutional credit-mapping gaps	Faculty development workshops; UGC guidelines
Assessment Integrity	Online quiz vulnerability; identity verification absent	AI-based proctoring; adaptive assessment tools
Institutional Variation	NEP 2020 credit transfer unevenly operationalized	Model credit-mapping templates; HEI capacity building

Figure 3 Key Challenges Facing SWAYAM — Summary Matrix

Source: Synthesized from Arora (Arora); Banerjee and Mukherjee (44); Ministry of Education (2022); Jordan (341)

POLICY RECOMMENDATIONS AND FUTURE DIRECTIONS:

The foregoing analysis suggests a set of concrete, actionable recommendations for strengthening SWAYAM's quality assurance architecture and institutional impact:

Establish a Dedicated SWAYAM Quality Assurance Cell (SQAC): A standing inter-institutional body, comprising representatives from NAAC, UGC, national coordinators, and independent academic experts, should be constituted to conduct periodic, framework-driven quality audits of SWAYAM courses using standardized rubrics adapted from QM and EQRiM.

Mandate Peer Interaction and Mentoring Mechanisms: Course design guidelines should require meaningful peer interaction mechanisms—structured peer review assignments, moderated live discussion sessions, and learner community features—as prerequisites for SWAYAM course listing and credit recognition.

Develop Learner Analytics Infrastructure: Investment in real-time learner analytics tools—monitoring engagement patterns, assignment submission rates, and early attrition signals—would enable data-driven course design improvements and proactive learner support interventions.

Expand Vernacular Course Development Incentives: A structured incentive framework for UGC-recognized institutions contributing high-quality vernacular-medium courses to SWAYAM should be developed, with dedicated funding streams under the RUSA (Rashtriya Uchchatar Shiksha Abhiyan) programme.

Strengthen HEI Capacity for Credit Transfer Operationalization: UGC should issue detailed operational guidelines, accompanied by faculty development workshops and model credit mapping templates, to reduce institutional variation in SWAYAM credit transfer implementation across HEIs.

Develop Adaptive Learning Pathways: Pilot programmes incorporating AI-driven adaptive learning features—personalized content sequencing, difficulty calibration, and learner-specific feedback—should be implemented in partnership with select IITs and NITs, with a view to scaling successful models across the SWAYAM ecosystem.

CONCLUSION:

SWAYAM represents a bold and largely successful experiment in scaling open, quality higher education within one of the world's most complex educational ecosystems. Its trajectory from a nascent platform in 2017 to a multi-crore enrolment, nationally recognized digital learning infrastructure by 2023 is a testament to the transformative potential of state-led educational technology initiatives. The platform's structural integration into India's formal higher education framework—catalyzed by the NEP 2020 mandate—has endowed it with an institutional legitimacy that few MOOC platforms globally have achieved.

Yet the foregoing analysis reveals that SWAYAM stands at a critical inflection point. The quantitative achievements of scale and reach, while impressive, must now be matched by a commensurate qualitative transformation in course design, learner engagement, assessment integrity, and quality assurance mechanisms. The application of established quality frameworks—QM and EQRiM—to SWAYAM's operational architecture reveals significant areas of underperformance: limited instructional interactivity, inadequate learner retention support, linguistic barriers, and inconsistent institutional integration.

The stakes of this quality challenge are heightened by SWAYAM's pivotal role in the NEP 2020 vision of multidisciplinary, flexible, and accessible higher education for all Indians. If SWAYAM is to fulfil its extraordinary mandate, policymakers, educational technologists, faculty developers, and institutional leaders must engage in sustained, evidence-informed reform—transforming the platform from a repository of educational content into a genuine engine of deep, equitable, and verifiable learning.

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