From Governance Reform to Knowledge Transformation: Evaluating the Impact of the Modi Government's Education and Digital Policies on Multidisciplinary Research in India

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***Abstract*—Since 2014, the Government of India under Prime Minister Narendra Modi has pursued a twin-track strategy of governance reform and digital expansion whose cumulative effect on the country's research ecosystem has been substantial yet unevenly examined. This paper evaluates how the National Education Policy (NEP) 2020, the restructuring of higher education regulation, and the establishment of the Anusandhan National Research Foundation (ANRF) under the ANRF Act, 2023 have interacted with flagship digital initiatives — Digital India, SWAYAM, DIKSHA, the National Digital Library of India and e-ShodhSindhu — to reshape the conditions for multidisciplinary research in Indian higher education institutions. Employing a qualitative, document-based policy analysis supplemented by secondary institutional data, the study traces a shift from siloed, discipline-bound research administration toward an integrated knowledge ecosystem organised around cross-domain missions such as ANRF's Mission for Advancement in High-impact Areas (MAHA) and the Partnerships for Accelerated Innovation and Research (PAIR) programme. The paper argues that governance reform has provided the institutional scaffolding — credit-based flexibility, Multidisciplinary Education and Research Universities (MERUs) and a unified national research foundation — while digital public infrastructure has supplied the connective tissue that allows researchers across the natural sciences, social sciences and humanities to collaborate at scale. At the same time, the analysis identifies persistent structural constraints: uneven state-level readiness, a digital divide between well-resourced and resource-poor institutions, a continuing STEM-centric bias in funding allocation, and capacity gaps in humanities and social science research infrastructure. The paper concludes with policy recommendations for deepening multidisciplinary convergence, particularly the need to mainstream the social sciences and humanities within ANRF's mission architecture and to extend digital research infrastructure equitably to tier-two and tier-three institutions such as those in Rajasthan.**

***Index Terms*—NEP 2020, Anusandhan National Research Foundation, Digital India, multidisciplinary research, higher education governance, knowledge economy**

I. Introduction

1.1 Background of the Study

Over the last decade India's higher education and research landscape has undergone one of its most consequential transformations since independence. Two parallel and mutually reinforcing streams of policy action define this period. The first is a sustained programme of governance reform culminating in the National Education Policy (NEP) 2020, which replaced the thirty-four-year-old National Policy on

Education of 1986 (Ministry of Education [MoE], 2020). The second is an aggressive expansion of digital public infrastructure under the Digital India programme, launched with the stated aim of transforming India into a digitally empowered society and knowledge economy (Ministry of Electronics and Information Technology [MeitY], 2015), and progressively extended into teaching, learning and research.

While these two streams are usually analysed separately — the former as an exercise in educational governance and the latter as technology policy — this paper contends that their combined effect is best understood as a single, if uneven, project of knowledge-system transformation, whose clearest expression is the push toward multidisciplinary research. The idea of multidisciplinarity is not new to Indian policy discourse, but NEP 2020 elevated it from an aspirational value to a structural mandate, requiring institutions to move away from rigid single-stream colleges toward large multidisciplinary universities offering flexible, credit-based curricula (MoE, 2020; University Grants Commission [UGC], 2022). This reorientation was reinforced by the creation of the ANRF, which frames cross-domain, multi-institutional collaboration as a funding priority rather than an incidental outcome (Anusandhan National Research Foundation Act, 2023; Department of Science and Technology [DST], n.d.).

1.2 Statement of the Problem

Policy documents and official progress reports describe the post-2020 period as one of rapid structural change (MoE, 2025). Independent reviews, however, caution that reform at the level of policy design has outpaced capacity-building at the level of institutions (Aithal & Aithal, 2020; "NEP 2020 to NEP 2025," 2025). The central question of this paper therefore is: has the combination of governance reform and digital expansion produced a measurable shift toward genuine multidisciplinary research capacity in Indian higher education, or has it primarily reformed the architecture of governance without a commensurate transformation in research practice — particularly in the social sciences and humanities?

1.3 Significance of the Study

The question matters for three reasons. First, the scale of public investment now being channelled through ANRF and the proposed Research, Development and Innovation (RDI) Scheme makes it important to ask whose research these instruments are designed to support (IndiaBioscience, 2025). Second, the long-standing gap between policy intention and implementation in India's federal structure (Pressman & Wildavsky, 1973; Varghese & Malik, 2016) means that national design cannot be assumed to produce uniform institutional outcomes. Third, the experience of state private universities in regions such as Rajasthan, which are neither metropolitan research hubs nor centrally funded institutions, is under-represented in the existing literature. The paper situates its inquiry within the broader literature on policy implementation, while offering a structured account of the specific instruments — NEP 2020, ANRF and Digital India — through which the transformation has been attempted.

II. Review of Related Literature

2.1 Multidisciplinarity: Conceptual Foundations

The scholarly vocabulary of multidisciplinarity distinguishes between the juxtaposition of disciplines around a shared problem (multidisciplinarity), the integration of their concepts and methods (interdisciplinarity), and the co-production of knowledge with non-academic actors (transdisciplinarity) (Klein, 1990). Gibbons et al. (1994) influentially described a shift from discipline-bound "Mode 1" knowledge production toward problem-oriented, application-driven "Mode 2" research organised across institutional boundaries. Jacobs and Frickel (2009), however, warn that interdisciplinarity is often asserted rather than demonstrated, and that disciplines remain the primary units through which academic careers, journals and funding are organised. This caution is directly relevant to India, where structural mandates for multidisciplinarity have been introduced faster than the incentive systems that govern academic work.

2.2 NEP 2020 and Higher Education Reform

Scholarship on NEP 2020 has largely converged on the observation that the policy advances global trends of digitalisation, internationalisation and multidisciplinary flexibility, while carrying substantial implementation risk in the form of uneven state readiness, fiscal constraints and limited teacher-training capacity (Aithal & Aithal, 2020). Reviews of the 2020–2025 implementation period identify the adoption of the National Curriculum Framework (2023), the phased rollout of the Four-Year Undergraduate Programme (FYUGP) with multiple entry and exit points, and the expansion of digital learning through DIKSHA, PM eVidya and SWAYAM as the principal markers of on-the-ground change (MoE, 2025; "NEP 2020 to NEP 2025," 2025). The UGC's Curriculum and Credit Framework for Undergraduate Programmes translated these principles into a credit architecture that permits students to combine major, minor and multidisciplinary courses across faculties (UGC, 2022).

2.3 Research Governance and the Anusandhan National Research Foundation

A parallel body of literature addresses research governance. Analyses of the ANRF Act, 2023 situate the Foundation as a response to India's persistent gap between its high global rank in publication volume and its comparatively weak performance in patenting and translational research (IMPRI India, 2025; India Science, Technology & Innovation Portal, n.d.). The Foundation's mission-mode programmes — including MAHA, covering sub-missions in areas such as electric mobility, medical technology and two-dimensional materials, and PAIR, which links premier institutions such as the IITs and IISc with state public universities in a mentorship model — are frequently cited as the clearest institutional attempt to operationalise multidisciplinary, multi-institutional research at scale (Anusandhan National Research Foundation [ANRF], 2024; IMPRI India, 2025). This design resonates with the international literature on mission-oriented innovation policy, which argues that clearly defined societal missions can steer research across sectors and disciplines (Mazzucato, 2018). More recently, the RDI Scheme, anchored by the DST and operationalised

through ANRF, signals an effort to mobilise long-term, low-interest capital for translational research beyond the traditional grants-in-aid model (IndiaBioscience, 2025).

2.4 Digital Infrastructure and Research Practice

A comparatively thinner strand of literature examines the digital dimension of this transformation. Existing work on Digital India's education vertical documents the expansion of platforms for content delivery and credential verification (MeitY, 2015; MoE, 2025) but offers less systematic evidence on how such infrastructure has altered the practice of collaborative, cross-disciplinary research, particularly outside the STEM disciplines.

2.5 Research Gap

The review reveals that the governance and digital dimensions of reform have rarely been analysed together, and that the position of the social sciences and humanities within the new research architecture is under-examined. This gap is significant because it is precisely in these fields — historically organised around single-author, discipline-bound scholarship — that a shift toward digitally enabled, multidisciplinary collaboration would represent the most meaningful test of the reform agenda's transformative claims (Jacobs & Frickel, 2009). The present paper positions itself within that gap.

III. Conceptual Framework

The study conceptualises the transformation of India's research ecosystem as the outcome of two interacting policy layers. The first, *institutional scaffolding*, consists of the governance and funding rules that define who may do research, in what organisational form and with what resources (MoE, 2020; Anusandhan National Research Foundation Act, 2023). The second, *connective infrastructure*, consists of the digital platforms that lower the cost of accessing knowledge, sharing courses and forming research consortia (MeitY, 2015). Following Gibbons et al. (1994), the framework assumes that a shift toward problem-oriented, cross-disciplinary research requires both layers to function together: institutional rules without connective capacity produce paper reforms, while digital capacity without supportive institutional rules produces access without collaboration. The framework further draws on implementation theory (Pressman & Wildavsky, 1973) to anticipate that outcomes will vary by state and institution type, depending on local fiscal and administrative capacity.

The relationship between these layers, the constraints that moderate them and the outcomes they produce is summarised in Figure 1.

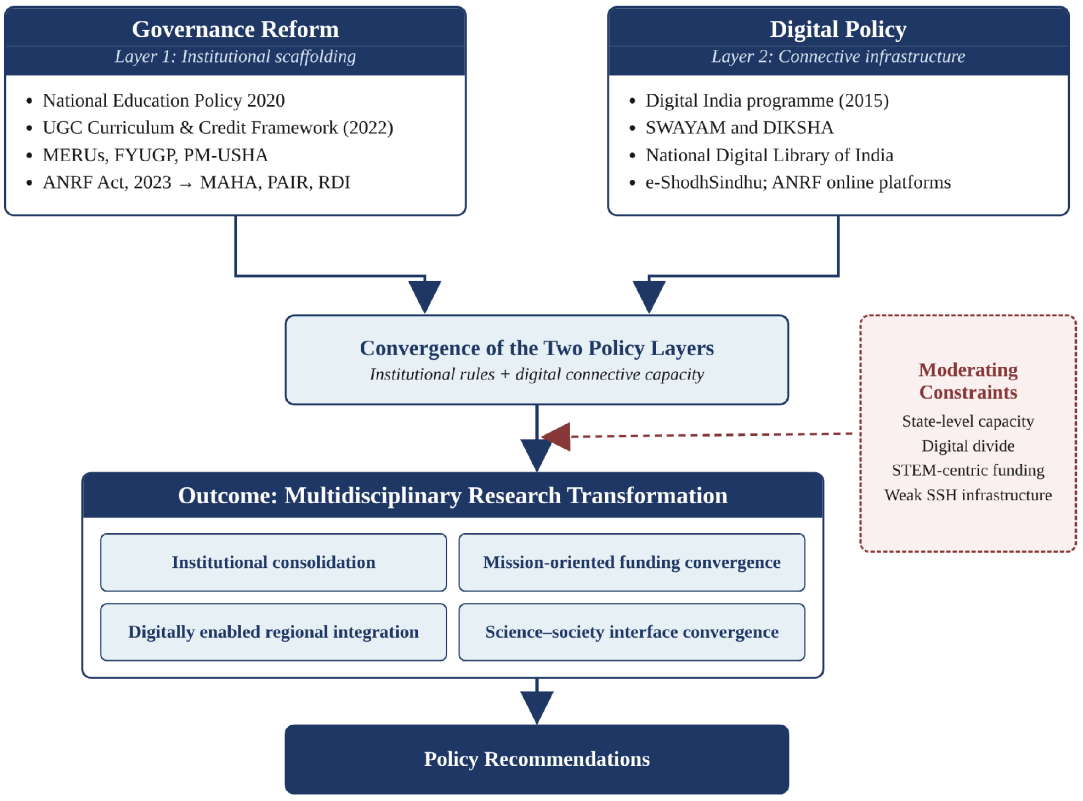


Figure 1: Conceptual framework of the study

Source: Developed by the author based on MoE (2020), Anusandhan National Research Foundation Act (2023), MeitY (2015) and Gibbons et al. (1994).

IV. Objectives and Research Questions

4.1 Objectives

The study is guided by the following objectives:

1. To examine the governance-reform architecture introduced through NEP 2020 and the ANRF Act, 2023, with specific reference to their multidisciplinary research provisions.
2. To assess the role of Digital India-linked infrastructure (SWAYAM, DIKSHA, the National Digital Library of India and e-ShodhSindhu) in enabling cross-disciplinary and multi-institutional research collaboration.
3. To evaluate the extent to which these reforms have translated into observable shifts in multidisciplinary research practice, with particular attention to the relative position of the social sciences and humanities.
4. To identify structural constraints — institutional, fiscal and digital — that continue to limit multidisciplinary convergence, and to propose policy responses.

4.2 Research Questions

1. What provisions for multidisciplinary research are embedded in NEP 2020, the UGC credit framework and the ANRF Act, 2023?

2. How does digital public infrastructure support, or fail to support, cross-disciplinary research collaboration?
3. What evidence exists of a shift in research practice, and how are the social sciences and humanities positioned within it?
4. What constraints limit the realisation of the reform agenda, especially for tier-two and tier-three institutions?

V. Research Design and Methodology

5.1 Research Design

The paper adopts a qualitative, document-based policy analysis design. Document analysis is well suited to policy research because official texts record both the intentions of policy-makers and the institutional instruments through which those intentions are pursued (Bowen, 2009).

5.2 Sources of Data

Primary sources include the text of NEP 2020 (MoE, 2020), the Anusandhan National Research Foundation Act, 2023, the UGC Curriculum and Credit Framework (UGC, 2022), official communications of the DST and the Ministry of Education (DST, n.d.; MoE, 2025), and publicly available programme documentation for ANRF's MAHA, PAIR and RDI schemes (ANRF, 2024). These are read alongside secondary sources — peer-reviewed policy reviews, government progress reports, the All India Survey on Higher Education (MoE, 2024) and policy commentaries (IMPRI India, 2025; IndiaBioscience, 2025) — to triangulate claims about implementation and outcomes.

5.3 Analytical Framework

The documents were coded thematically (Braun & Clarke, 2006) around three axes derived from the conceptual framework: (i) governance restructuring, (ii) digital infrastructure expansion and (iii) observable shifts in multidisciplinary research practice. Within each axis, the analysis distinguished between provisions that are mandatory, incentive-based or merely advisory, since this distinction strongly shapes institutional behaviour.

The sequence of steps followed in the study, from the research questions to the policy recommendations, is shown in Figure 2.

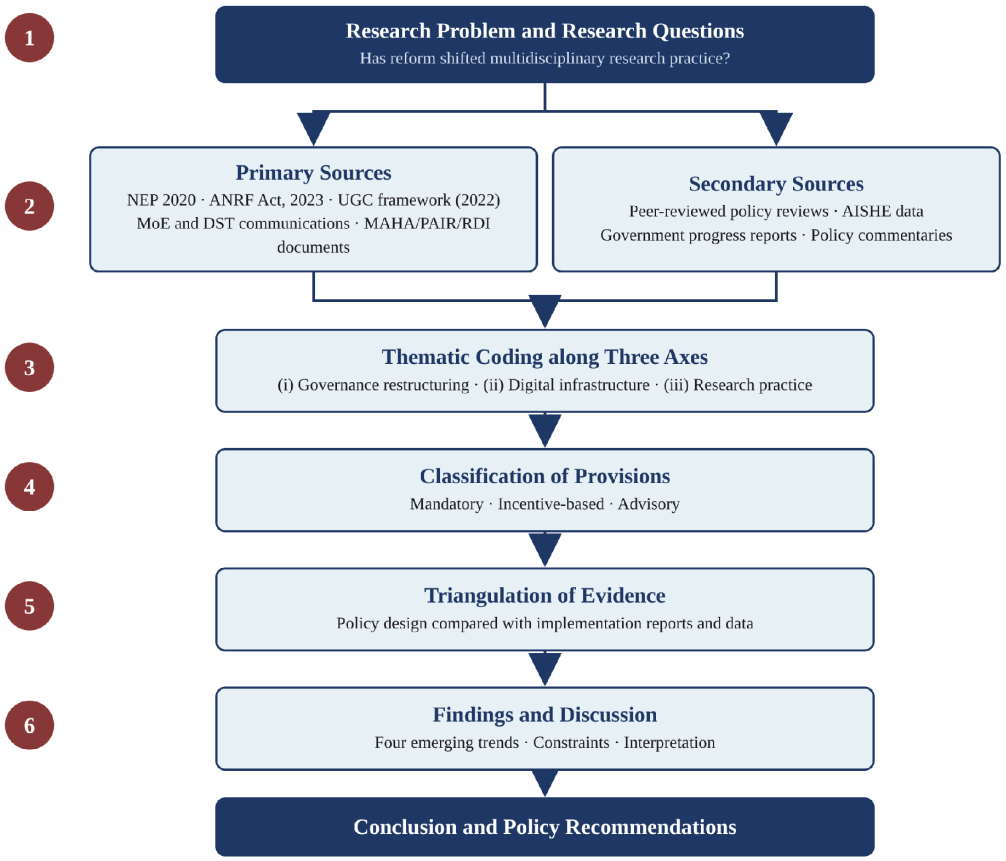


Figure 2: Flow chart of the research methodology

Source: Prepared by the author.

5.4 Scope and Limitations

Given the document-based nature of the enquiry, the paper does not claim causal attribution. Several reforms are recent, and systematic outcome data on research collaboration are not yet available. The paper therefore offers a structured, evidence-anchored interpretation of policy design and its plausible institutional effects, intended to open a broader empirical research agenda.

VI. Restructuring Higher Education Governance: NEP 2020 and the ANRF

6.1 NEP 2020 and the Multidisciplinary University

The governance dimension of this transformation rests on two pillars. The first is NEP 2020's structural redefinition of the higher education institution itself. The policy envisions that all higher education institutions become large multidisciplinary universities, colleges or knowledge clusters by 2040, with at least one large multidisciplinary institution in or near every district by 2030, and proposes Multidisciplinary Education and Research Universities (MERUs) as model institutions (MoE, 2020). Central support for this transition has since been channelled through schemes such as PM-USHA (MoE, 2025). The Four-Year Undergraduate Programme, with its multiple-entry, multiple-exit structure and credit-based flexibility, operationalises this vision at the curricular level by dismantling the rigid science–arts–commerce divisions

that had long constrained cross-disciplinary study (UGC, 2022). Institutions such as Career Point University, Kota have restructured their undergraduate credit matrices accordingly.

6.2 The ANRF and the Reorganisation of Research Funding

The second pillar is the reorganisation of research funding through the Anusandhan National Research Foundation Act, 2023. ANRF subsumed the Science and Engineering Research Board (SERB) and was constituted as an apex body with the Prime Minister as ex-officio President of its Governing Board, mandated to provide strategic direction to research not only in the natural and engineering sciences but also at their interface with the humanities and social sciences (Anusandhan National Research Foundation Act, 2023; DST, n.d.). This is a notable departure from the SERB-era model, which was confined to the natural and engineering sciences. In its first years of operation, ANRF has rolled out programmatic instruments — MAHA and PAIR — explicitly designed around multi-institutional and multidisciplinary collaboration, alongside a hub-and-spoke mentorship model intended to correct regional research imbalances by pairing premier institutions with state public universities (ANRF, 2024; IMPRI India, 2025). The Government's announcement of a Rs. 1 lakh crore RDI Scheme, to be operationalised through ANRF, signals a further shift toward patient, non-grant capital for translational research (IndiaBioscience, 2025).

Table 1: Key policy instruments and their multidisciplinary provisions

Instrument	Policy track	Nodal / implementing body	Relevance to multidisciplinary research
National Education Policy 2020	Governance	Ministry of Education	Mandates transition to multidisciplinary universities; proposes MERUs
Curriculum and Credit Framework for UG Programmes (2022)	Governance	University Grants Commission	Credit-based majors, minors and multidisciplinary courses across faculties
ANRF Act, 2023	Governance / funding	ANRF (Department of Science and Technology)	Statutory mandate covering the science–humanities interface
MAHA and PAIR	Funding	ANRF	Mission-mode, multi-institutional consortia; hub-and-spoke mentoring
RDI Scheme	Funding	DST, operationalised through ANRF	Long-term capital for translational research
SWAYAM and DIKSHA	Digital	Ministry of Education	Cross-institutional access to courses outside the home discipline

Instrument	Policy track	Nodal / implementing body	Relevance to multidisciplinary research
National Digital Library of India and e-ShodhSindhu	Digital	Ministry of Education	Shared access to digital collections and scholarly journals

Source: Compiled by the author from MoE (2020, 2025), UGC (2022), Anusandhan National Research Foundation Act (2023), ANRF (2024) and IndiaBioscience (2025).

The preferred spelling of the word “acknowledgment” in America is without an “e” after the “g”. Avoid the stilted expression, “One of us (R. B. G.) thanks . . .” Instead, try “R. B. G. thanks”. Put applicable sponsor acknowledgments here; DO NOT place them on the first page of your paper or as a footnote.

VII. Digital Public Infrastructure as a Research Enabler

7.1 Platforms for Learning and Knowledge Access

Where governance reform has supplied institutional scaffolding, Digital India's education-linked infrastructure has supplied connective capacity (MeitY, 2015). Platforms such as SWAYAM and DIKSHA, originally conceived for content delivery, have progressively been positioned as vehicles for credit-recognised, cross-institutional learning, allowing students and early-career researchers to draw on courses outside their home discipline without institutional relocation (MoE, 2025; UGC, 2022). Research-specific infrastructure — the National Digital Library of India and the e-ShodhSindhu consortium for scholarly journal access — has narrowed, though not eliminated, the resource gap between well-endowed central institutions and resource-constrained state and private universities. This gap bears directly on humanities and social science scholars, who have historically had weaker access to subscription-based research databases than their science and engineering counterparts.

7.2 Digital Infrastructure as the Operating Substrate of Reform

The digital dimension also underwrites ANRF's own operating model: proposal submission, peer-review coordination and the formation of multi-institutional consortia for PAIR and MAHA are conducted through centralised online platforms (ANRF, 2024) that would be administratively unworkable at national scale under a paper-based system. In this sense, digital infrastructure functions less as a parallel policy track and more as the operational substrate on which the governance reforms described above are implemented — consistent with the two-layer framework set out in Section 3.

VIII. Findings: Emerging Patterns of Multidisciplinary Research

Read together, the governance and digital tracks point toward an emergent, if still incomplete, shift in the practice of research in Indian higher education. Four trends are discernible.

8.1 Institutional Consolidation

The mandated transition toward multidisciplinary universities and the credit-based FYUGP structure have created the administrative preconditions for cross-disciplinary faculty collaboration and joint course design (MoE, 2020; UGC, 2022). This is evident in the curriculum restructuring undertaken by universities aligning their programmes with NEP 2020 and UGC framework conventions (MoE, 2025).

8.2 Mission-Oriented Funding Convergence

ANRF's MAHA and PAIR programmes require multi-institutional and, in several sub-missions, cross-disciplinary participation as a condition of funding (ANRF, 2024). This marks a deliberate policy choice to use financial incentives to induce collaboration that voluntary academic culture alone had not produced — a defining feature of mission-oriented policy (Mazzucato, 2018).

8.3 Digitally Enabled Regional Integration

The hub-and-spoke model linking IITs and IISc with state public universities, combined with consortium-based digital access to journals and libraries, has begun to narrow — without closing — the research-capacity gap between metropolitan and non-metropolitan institutions (IMPRI India, 2025). This development is of direct relevance to universities in states such as Rajasthan.

8.4 Convergence at the Science–Society Interface

More tentatively, ANRF's statutory mandate to fund the interface between the natural sciences and the humanities and social sciences (Anusandhan National Research Foundation Act, 2023) represents the clearest formal recognition yet that questions of climate, health, digital governance and social equity require research designs that cross the science–society divide. However, the evidence available at this stage suggests that implementation at this interface remains early and comparatively under-resourced relative to the natural science and engineering missions (IndiaBioscience, 2025; IMPRI India, 2025).

Table 2: Summary of findings

Trend	Principal evidence	Assessment
Institutional consolidation	FYUGP rollout; credit framework; MERU and PM-USHA support	Well advanced in design; uneven in practice
Mission-oriented funding	MAHA and PAIR consortium requirements	Clear policy shift; early stage
Regional integration	Hub-and-spoke mentoring; e-ShodhSindhu, NDLI	Gap narrowing, not closed
Science–society interface	Statutory mandate in ANRF Act, 2023	Formally recognised; under-resourced

Source: Author's analysis based on the documents listed in Section 5.2.

IX. Discussion

The findings broadly support the two-layer framework proposed in Section 3. Where institutional scaffolding and connective infrastructure operate together — as in ANRF's digitally administered, consortium-based missions — the shift toward multi-institutional research is most visible. Where only one layer is present, the results are thinner. Digital platforms such as SWAYAM have widened access to cross-disciplinary content, but access alone does not create collaborative research unless institutions reward it in promotion, workload and funding decisions.

The findings also confirm the warning of Jacobs and Frickel (2009) that interdisciplinarity is easier to mandate than to institutionalise. The formal inclusion of the humanities and social sciences in ANRF's statute has not yet been matched by dedicated, comparably funded calls. In Gibbons et al.'s (1994) terms, India's reforms have created the conditions for Mode 2 knowledge production in the STEM-industry space faster than in the domains where societal problems are most complex. Finally, as implementation theory predicts (Pressman & Wildavsky, 1973), the distance between national design and institutional outcome is greatest where local fiscal and administrative capacity is weakest — which in practice means state and private universities outside major research hubs (Varghese & Malik, 2016).

X. Constraints and Critical Reflections

Despite this architecture, three constraints limit the depth of transformation.

10.1 Uneven State-Level Implementation

Implementation unevenness across states persists, driven by differences in fiscal capacity, teacher-training infrastructure and administrative readiness to adopt credit-based multidisciplinary curricula — a concern repeatedly flagged in independent reviews of the 2020–2025 period (Aithal & Aithal, 2020; "NEP 2020 to NEP 2025," 2025).

10.2 STEM-Centric Allocative Bias

A STEM-centric bias remains visible in early ANRF funding rounds and mission design, with the science–humanities interface occupying a comparatively marginal position relative to engineering and technology missions, despite its statutory inclusion (Anusandhan National Research Foundation Act, 2023; IndiaBioscience, 2025).

10.3 The Persistent Digital Divide

The digital divide continues to differentiate institutions by resource endowment. While flagship infrastructure exists at the national level, its effective use depends on local bandwidth, device access and library subscription budgets that remain uneven across tier-one, tier-two and tier-three institutions (MoE, 2024). This distinction is of particular relevance for universities located outside major metropolitan research hubs.

XI. Conclusion and Policy Recommendations

11.1 Conclusion

This paper has argued that the Modi government's education and digital policies constitute a coherent, if incompletely realised, project of knowledge-system transformation. NEP 2020 and the ANRF Act, 2023 have supplied the institutional and funding architecture for multidisciplinary research (MoE, 2020; Anusandhan National Research Foundation Act, 2023), while Digital India's education and library infrastructure has supplied the connective capacity that allows this architecture to function at national scale (MeitY, 2015). The clearest evidence of transformation lies in mission-mode, funding-incentivised collaboration under ANRF and in the institutional consolidation mandated by NEP 2020. The clearest evidence of an implementation gap lies in the continued marginal position of the humanities and social sciences within this architecture, and in the persistence of state-level and institution-level unevenness in digital and fiscal capacity.

11.2 Policy Recommendations

1. ANRF's mission-mode programming should be extended with dedicated, adequately resourced calls at the science–humanities interface, rather than treating this interface as a residual category within STEM-oriented missions.
2. Investment in digital research infrastructure should be explicitly weighted toward tier-two and tier-three institutions, including state private universities such as those in Rajasthan, to prevent the concentration of research capacity in a small number of already well-resourced centres.
3. State governments should receive dedicated implementation and capacity-building support — not policy guidance alone — to translate the credit-based, multidisciplinary curricular architecture of NEP 2020 into functioning cross-departmental research collaboration at the institutional level.
4. Universities should recognise co-authored, cross-disciplinary and consortium-based research in faculty appraisal and promotion criteria, so that institutional incentives are aligned with national policy goals.

11.3 Directions for Future Research

Future studies should test the patterns identified here empirically — for example, through bibliometric analysis of co-authorship across disciplines before and after 2020, and through surveys of faculty in state and private universities on their experience of ANRF schemes and digital platforms. Realising the full transformative potential of this decade's reforms will depend less on further governance redesign than on the equitable and sustained operationalisation of the architecture already in place.

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