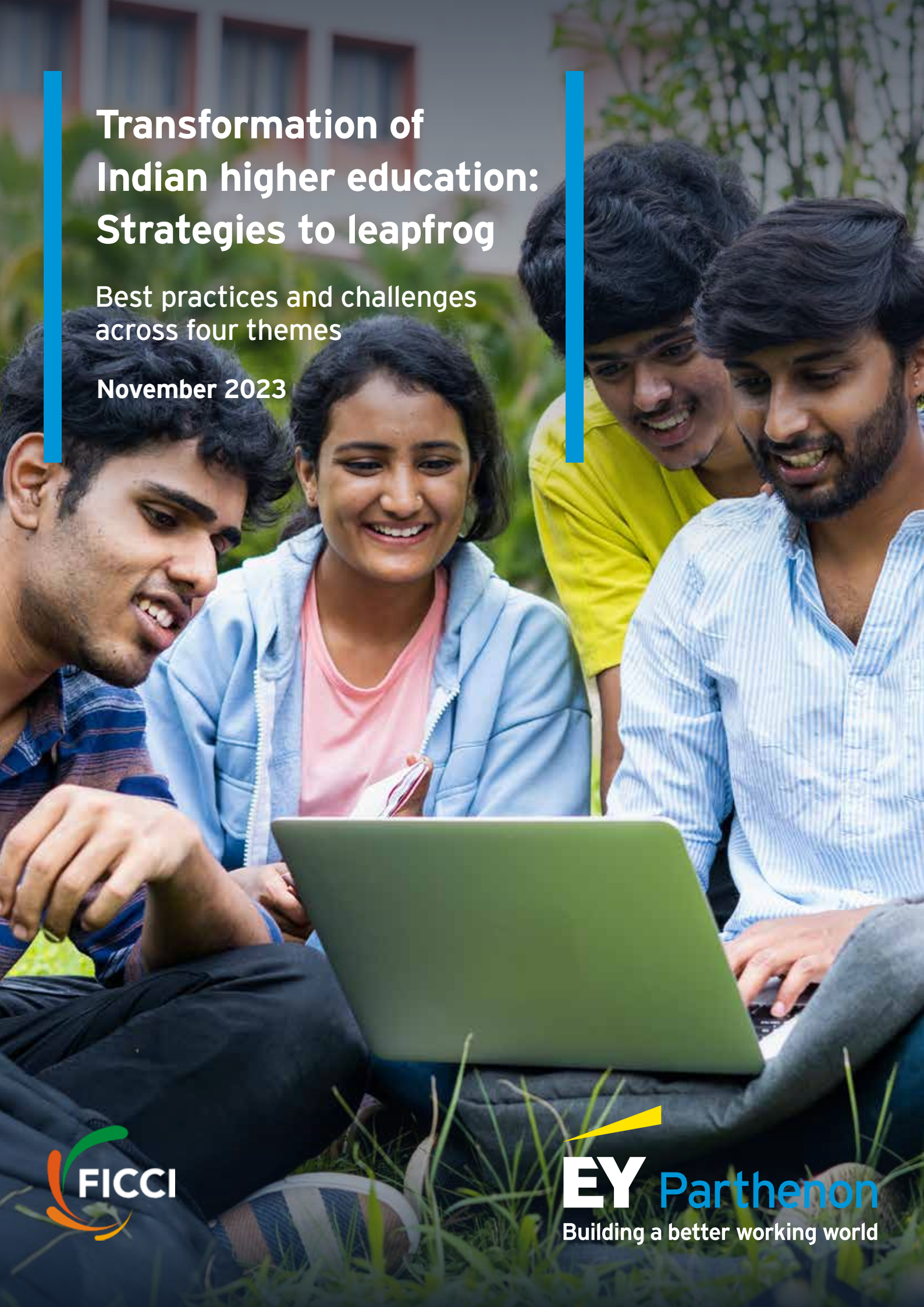

Transformation of Indian higher education: Strategies to leapfrog

Best practices and challenges across four themes

November 2023

FICCI

EY Parthenon

Building a better working world

FICCI Foreword

India's higher education landscape is a vibrant tapestry that reflects the diversity and richness of our nation. Boasting over 55,000 higher education institutions, catering to 40 million students supported by 15 lakh teachers, India's higher education sector stands among the largest globally. The recent transformative reforms introduced through the National Education Policy (NEP) 2020 aim to achieve a 50% Gross Enrollment Ratio (GER) and elevate Indian universities into the top 100 in global rankings.

As the nation stands on the brink of a new era, witnessing the ever-evolving dynamics of education, the landscape of Indian higher education has undergone a profound transformation in recent decades. Marked by over 60% enrollment in private higher education institutions, the evolution from traditional pedagogical methods to the seamless integration of cutting-edge technologies has rendered this journey both challenging and exhilarating.

The FICCI EY Parthenon Report 2023, titled 'Transformation of Indian Higher Education: Strategies to Leapfrog,' looks at a thorough evaluation of advancements and transformations made within the Indian Higher Education in the key themes of quality education, industry alignment, research and innovation, and inclusivity. By delving deeper into the intricacies of each area, the report aims to provide a comprehensive understanding of the evolving landscape of Indian higher education. It acts as a lens through which we scrutinize the strides made, challenges encountered, and opportunities unveiled in the pursuit of educational excellence.

The knowledge report, while going beyond addressing key structural and implementation challenges, also actively explores opportunities and puts forth actionable recommendations which look at paving the way for an equitable, inclusive, and globally competitive higher education system in the country.

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EY-Parthenon Foreword

India's higher education sector has expanded significantly over the past few decades. With over 56,000 institutes and more than 40 million enrollments, the Indian higher education system is one of the largest in the world. With the introduction of National Education Policy (NEP) in 2020, the sector has witnessed massive disruption across several areas such as multidisciplinary and holistic education, technology integration, skilling for graduate employability, research and innovation and internationalization.

In order to achieve the vision laid down by NEP 2020, India will have to add 26 million more enrollments by 2035. This requires a corresponding increase in staff and infrastructure. There is potential for higher education institutions to capitalise on this opportunity by leveraging policy and technology as key enablers. We had identified the key unlocks required to transform India into a global higher education hub in the 2022 EY Parthenon-FICCI report titled "Higher Education in India Vision 2047". The report had defined five strategic 5-year plans from 2022 to 2047 to achieve the Vision 2047 for higher education.

This report builds on last year's report by diving deeper into the first five-year plan and outlining the key action points for various stakeholders for the next 12 to 36 months across the themes of quality education, industry alignment, research and innovation and inclusivity. We believe that these four themes will be critical to focus on in the short term to lay down strong fundamentals and catalyse future growth in the sector. We have analyzed India's performance across these themes and compared that with some of the global benchmarks to arrive at recommendations.

We thank everyone who has helped us in bringing out this report. We hope that stakeholders across the Indian higher education system find this report useful, thereby enabling them to structure their short-term action plans even more effectively.

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Executive summary

FICCI and EY Parthenon's 2022 report titled 'Higher Education in India Vision 2047' outlined several goals and objectives to transform India into a high-quality, industry-aligned, inclusive, and global education hub. The report focused on identifying the structural challenges in Indian higher education system and measures to be implemented to progress towards Indian higher education's goals by 2047. The report focused on 5 strategic pillars: (i) building a student-centric and equitable ecosystem, (ii) enhancing research and innovation in higher education institutes (HEIs), (iii) developing faculty across the HEI ecosystem, (iv) developing international mobility and (v) investing in digital learning. To achieve India @2047 vision, five strategic 5-year plans were outlined, with detailed recommendations provided for the industry, HEIs and government to boost the higher education landscape over the next 25 years.

Based on the goals set by the first 5-year plan, this year's report has identified the critical short-term areas of focus for Indian higher education in the form of 4 themes. These themes are (i) quality education, (ii) industry alignment, (iii) research and innovation, and (iv) inclusivity, with various sub-themes identified in each of these broader areas.

The report analyzes India's performance across all four themes, evaluating initiatives undertaken by HEIs and the government. These initiatives were then benchmarked with best practices across the globe, including countries such as the USA, the UK, Australia and South Korea. The report further goes on to identify challenges for Indian higher education, opportunities to capitalize on in the coming years, and provides recommendations on achieving global standards of higher education excellence.

Theme	Sub-theme	Current state in India
Quality education	▶ Faculty recruitment and development ▶ Digital/ online learning and technology in administration ▶ Internationalisation of education ▶ Academic flexibility and multi-disciplinarity	▶ Lack of quality PhD students leading to faculty shortage ▶ Limited clear-cut policies on technology use in education ▶ Slow adoption of online courses ▶ Slow global expansion of top tier Indian universities ▶ Increasing focus on flexibility and multi-disciplinarity among top tier institutes ▶ Both government and HEIs are focusing on localization of subjects, content and pedagogy
Industry alignment	▶ Skilling for graduate employability ▶ Industry-institute collaborations	▶ Insufficient industry investment in higher education ▶ Limited uptake of apprenticeship programs ▶ Low overall employability despite improvements over years
Research and Innovation	▶ Research ▶ Innovation/ entrepreneurship	▶ Low expenditure on R&D by government ▶ Focus on quantity over quality in published research work ▶ Limited R&D spending by higher education institutions ▶ Lower innovation outcomes at lower-ranked institutions ▶ Top ranked public universities showcase much better research and innovation outcomes compared to private ones
Inclusivity	▶ Gender diversity ▶ LGBTQIA+ ▶ Economically and socially challenged students (ESCS) ▶ Students with disabilities	▶ Limited female representation in higher education leadership ▶ High number of female STEM graduates, but low employability ▶ Limited inclusivity measures for the LGBTQIA+ community ▶ Adequate support for students with disabilities in terms of physical infrastructure, insufficient investment in assistive technologies

The quality of the Indian higher education system can be greatly improved by developing a strong faculty pool. This can be achieved by developing good quality PhD programs. These programs can even be targeted at working professionals from industry. Faculty also need to be supported to ensure that they embed employability in the curriculum through curriculum audits, industry secondments, etc. The industry needs to actively engage with higher education institutes by facilitating knowledge sharing with faculty, supporting curriculum development and delivery as well as offering work related learning opportunities for students.

A tripartite partnership between higher education institutions, government and the industry is critical to improve research and innovation outcomes, which result in societal impact. Industry-government co-funded programs are required to catalyse research and innovation efforts at higher education institutes. These efforts need to be streamlined so that even lower tiered institutions benefit from such opportunities through effective mentoring and capacity building.

Lastly, the higher education system in India needs to be more inclusive, especially to increase female participation in leadership roles through leadership tracks and training programs, institutionalising policies to create an inclusive atmosphere for LGBTQIA+ students and investing in assistive technology to support students with disabilities.

2

Introduction

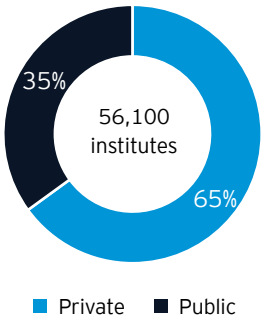
India has one of the largest higher education systems in the world, consisting of 56,100 institutes[1], with most of them owned by private players.

The institutes are primarily categorized into three major categories:

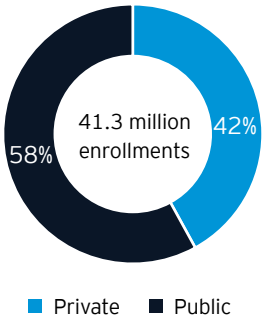
- Universities: Higher education institutions (HEIs) that are empowered to award degrees under a state or a central act. There are 1,100 universities in India
- Colleges: HEIs that are not empowered to grant their own degrees and need to be affiliated with universities. There are 43,700 colleges in India
- Stand-alone institutes: Institutions that run diploma or postgraduate (PG) diploma level programs, for which they require recognition from a statutory body. There are 11,300 standalone institutes in India

Indian HEIs enrolled a total of ~41.3 million students across various disciplines in 2021. Notably, public institutes constituted 35% of the total higher education institutes, accounting for 58% of total enrollments

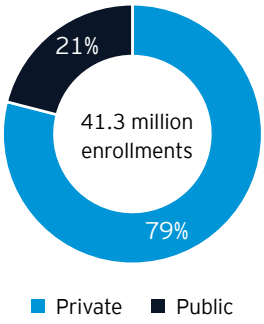
Gross Enrollment Ratio (GER) has increased during the last five years, from 24.1 in 2017 to 27.3 in 2021. Undergraduate (UG) offerings in India continue to be a major contributor to the HEI landscape, accounting for 79% share of total enrollments, in line with other developed countries



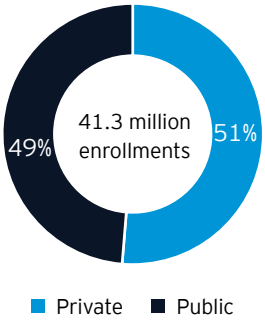
Private-public split: number of HEIs, 2021



Private-public split: number of students, 2021



Private-public split: number of students, 2021



Private-public split: number of students, 2021

Source: University Grants Commission (UGC), AISHE 2020-21

1. Academic year 2021

With India's higher education system being one of the largest in the world and growing rapidly, it becomes imperative to develop the Indian ecosystem into a robust and student-centric global education hub.

National Education Policy (NEP) introduced in 2020 is a landmark transformative initiative by the government, to develop India's higher education system and create a global learning environment for students. The key focus areas of NEP 2020 are student centricity, faculty development, research and innovation, governance, equity and inclusion, and digital learning.

Lately, various changes at a structural and policy level have been observed in India's higher education sector. To grow and develop world-class capabilities, it is of utmost importance for the higher education ecosystem to adapt to the evolving trends and capitalize on underlying opportunities.

Existing trends within higher education ecosystem

Demand for digital skills and non-conventional courses

Rise in virtual learning and increased role of technology in higher-ed

Improving overall GER

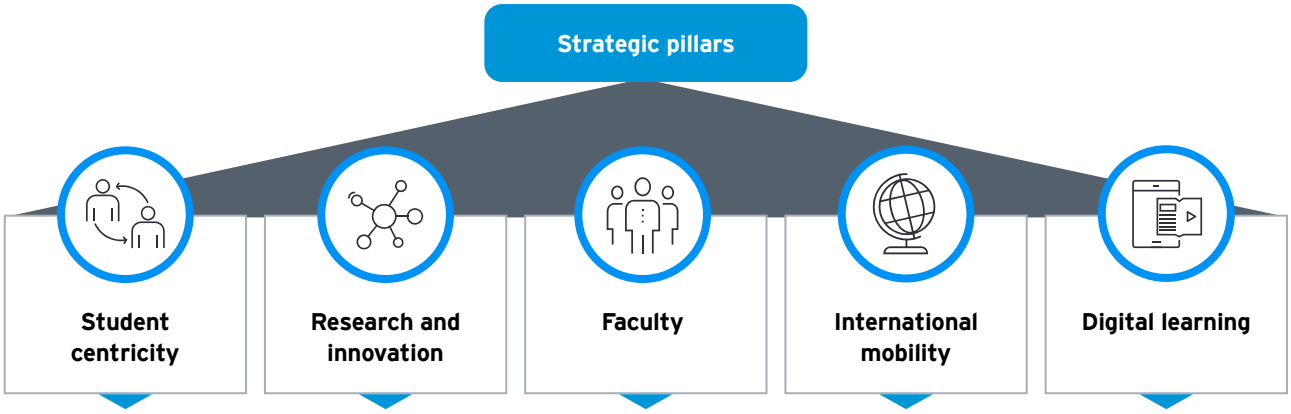
Collaboration between formal education institutions and ed-tech providers

In November 2022, FICCI-EYP released a knowledge report titled 'Higher Education in India Vision 2047', identifying the current structural challenges and measures to be implemented to progress towards higher education's goals by 2047. The report suggested key recommendations to create an equitable, inclusive and a globally competitive higher education system. In addition, it further elaborated on five critical elements that have the requisite potential to radically transform the future landscape of the Indian higher education system – student centricity, research and innovation, faculty development, international mobility, and digital learning.

Lets look at these 5 elements that form the strategic pillars to develop a futuristic higher education landscape in detail.

Strategic reforms across student centricity, research and innovation, faculty, international mobility and digital learning are imperative to achieve the goals laid out for India's higher education vision 2047

To achieve India's higher education goals by 2047, it is necessary to focus on enhancing student experience and ensuring support by operators across the ecosystem. To achieve this, we must develop a futuristic HE landscape by focusing on the 5-pillar strategic framework mentioned below.



FOCUS

- Enhance learning with revision of curriculum to include formal, informal, physical and virtual elements
- Attract and retain new student segments introducing new models focused on blended learning, micro-credentials and interdisciplinary elements

- Develop research-oriented HEIs
- Promote, fund and create more research opportunities with planned collaboration and partnership with industries

- Ensure smooth learning process with effective and transparent faculty recruitment
- Apply the best global standards of teaching-learning by training and equipping faculty with the latest in development
- Full emphasis on faculty and leadership professional development

- Strengthen education quality offered by HEIs with cross-border differentiated partnerships
- Establish required skills in both faculty and students, improving foreign student experience

- HEIs recognized credits to allow students to undertake Massive Online Open Course (MOOCs) on ed-tech platforms
- Promote more online degrees
- Regulate online HE space by developing policies

KEY BARRIERS

- Graduates' skills gap
- Higher seat reservation
- Loss of revenue from students moving abroad

- Inadequate infrastructure and funding support
- Inadequate focus on research

- Limited supply of skilled faculty
- High student-teacher ratio in Indian higher education
- Lack of professional development opportunities for faculties

- Limited international student inflow
- Inadequate quality, offerings and infrastructure with respect to global standards

- Inadequate computer literacy and digital skills
- Low internet penetration
- Inadequate digital tools and resources

To achieve the higher education system's goals of Vision 2047, the 2022 report had laid down five-year plans that are expected to enable India to become a student centric, global higher education hub in the long-term

Redesigning regulations to make HEIs student-centric, making skill development an integral part of the curriculum, building digital infrastructure and bridging the gap between education and industry needs are the goals laid down in the "Five-year plans" to transform India into a global education hub.

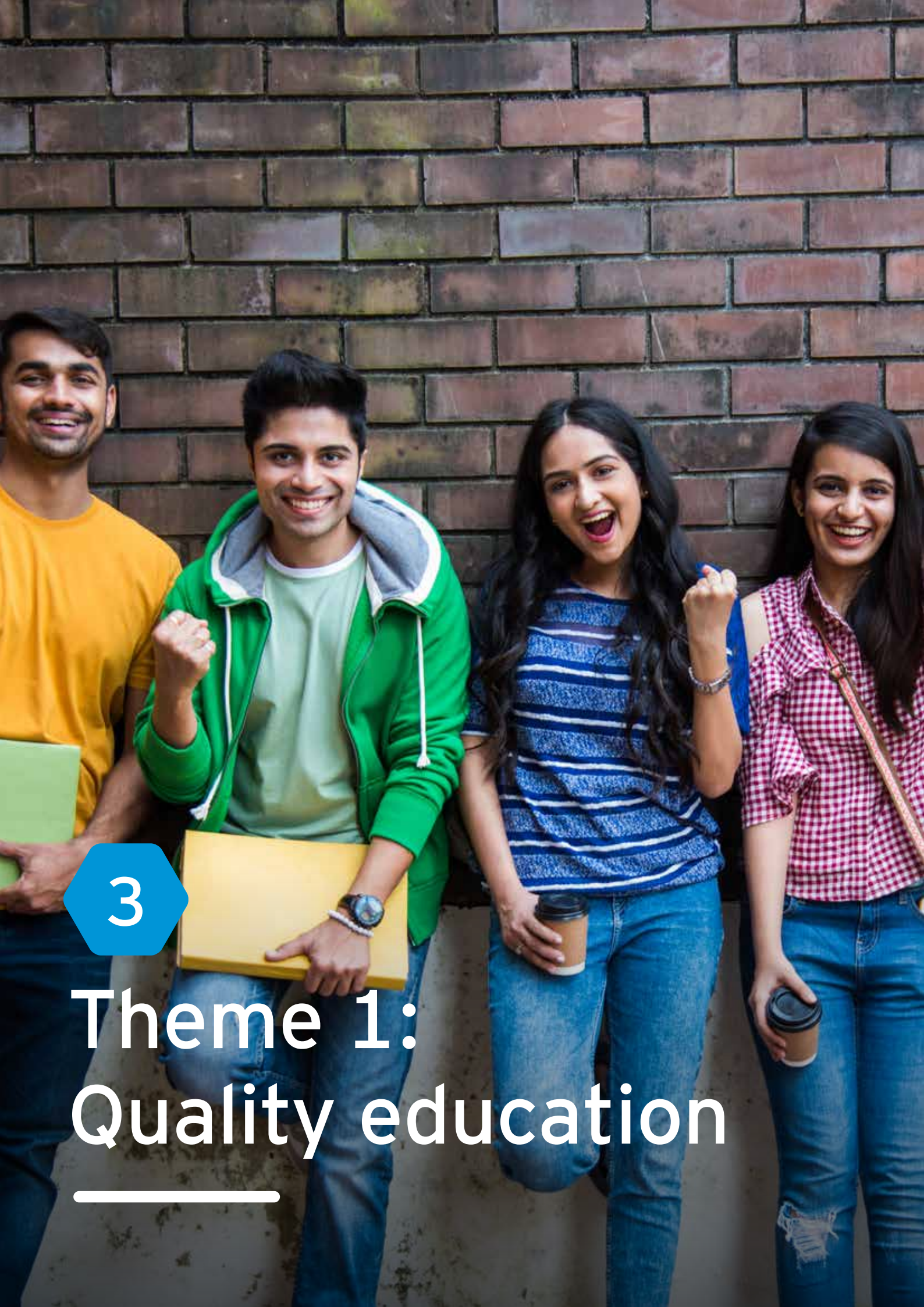
1st	2nd	3rd	4th	5th
Five-year plan (2022-2027)	**Five-year plan (2028-2032)**	**Five-year plan (2033-2037)**	**Five-year plan (2038-2042)**	**Five-year plan (2043-2047)**
Develop industry accepted curriculum, robust digital infrastructure, improve faculty quality and streamline regulations.	Promote or fund research-focused HEIs and develop robust physical infrastructure to improve global rankings and international student mobility.	Establish student cities to facilitate students and incentivize HEIs to partner with industry to provide consulting and research services.	Develop student centric ecosystem and explore unique modalities for complex degrees, improving international cooperation with global HEIs network.	Make India among the top-10 international student receiving nations with world class HEIs in all domains such as STEM, sports, language and culture etc.

While the goals of Vision 2047 keep an eye on the future, India's actions today are equally critical in meeting the long-term plan of accelerating the HE ecosystem. Hence, this report focuses on the immediate steps India should take in order to reach the planned objectives of 2047. Mentioned below are the key goals of 1st five-year plan discussed in 'Higher Education in India Vision 2047', from which we identified the 4 key themes that India should place emphasis on, in the short-term.

First five-year plan (2022-2027)

	Quality education	Industry alignment	Research and innovation	Inclusivity
Key goals to achieve in first five-year plan include	▶ Improving the quality of teaching through digital infusion in classrooms ▶ Developing a library of industry acceptable online courses across disciplines	▶ Developing industry partnerships to impart a mix of technical and business skills	▶ Emphasising faculty's focus on research ▶ Developing partnerships with international HEIs for collaborative research	▶ Increasing the GER to 35% ▶ Providing scholarships to approximately 20% of students
Themes identified	**Quality education**	**Industry alignment**	**Research and innovation**	**Inclusivity**
Sub-themes	▶ Faculty recruitment and development ▶ Digital /online learning and technology in administration ▶ Internationalization of education ▶ Academic flexibility and multi-disciplinarity	▶ Skilling for graduate employability ▶ Industry-institute collaborations	▶ Research ▶ Innovation/ entrepreneurship	▶ Gender diversity ▶ LGBTQIA+ ▶ Economically and socially challenged students (ESCS) ▶ Students with disabilities

This report focuses on the key themes of quality education, industry alignment, research and innovation, and inclusivity, identified based on the first five-year plan's goals. The report identifies the challenges faced across each theme and suggests recommendations for developing India's higher education ecosystem.



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Theme 1: Quality education

Faculty recruitment and development, digital learning and technology in administration, internationalization of education and academic flexibility are the key sub-themes identified under quality education

India's HE landscape faces various obstacles in increasing the country's overall quality of education:

- Attracting quality faculty is a bigger problem as they form the backbone of quality education and research, along with being directly responsible for student learning, development, and growth
- The effect of quality faculty on education can only be amplified using future-ready course delivery methods that seamlessly integrate technology in all aspects of the teaching process. Similarly, admin-related practices can be digitalized to boost efficiency in management
- To align with India's 2047 vision of becoming an international hub and a top 10 nations for student inward mobility, international collaborations for research, student/ faculty exchange, knowledge-sharing, branch campuses etc. are critical
- Lastly, providing students flexibility in planning their education over multiple years, multiple entry-exit points and studying across multiple disciplines is essential to becoming a global force in high-quality education

1. Faculty recruitment and development

Effective faculty recruitment, training and development programs are fundamental requirements for establishing a globally competitive HE ecosystem. Recruiting quality faculty through promoting high-quality PhD programs, flexible pursuit of PhD degrees and strong faculty advisors is critical. Consequently, nurturing incoming and existing faculty through training programs, leadership development and personalized career-track guidance is an equally important pillar for maintaining faculty quality.

Country	Government best practices	HEIs best practices
USA UK Germany	Developed countries: USA, UK, GER PhDs awarded as % of total enrollments in higher education (2021): 0.28%, 0.78%, 0.95% ▶ The total number of PhDs awarded as a percentage of the total HE enrollments is significantly higher in Germany, UK and other developed countries (~0.06% for India) ▶ Fulbright Faculty Development Program by the US Embassy in Minsk, Belarus, is a professional development program for junior university faculty to develop fresh courses and cultivate teaching skills based on the US educational method and encourages international faculty to collaborate with senior American faculty	US universities have several training initiatives to improve the quality of future faculty: ▶ The University of Kentucky offers a Graduate Certificate in College Teaching and Learning, open to graduate students and post-doctorates from any university ▶ This program is part of the National Preparing Future Faculty initiative implemented by the Council of Graduate Schools and Association of American Colleges and Universities ▶ This national initiative teaches students faculty roles and responsibilities, provides guided support through mentorship programs and works with clusters of universities to provide students experience in faculty training across different disciplines and institute types

Source: National Science Foundation, HESA, USAFacts, European Commission website, Statistisches Bundesamt website

2. Digital / online learning and technology in administration

The use of technology in course delivery, assessments, student resources, learning management systems and administration related practices is a key pillar in boosting both student and faculty outcomes. The creation of libraries of online course content, full-time/ part-time online degree programs, use of AI in teaching and learning and design of responsible use practices for technology and student data are fundamental to promoting high-quality education in India.

Country	Government best practices	HEIs best practices
 USA	▶ The National Educational Technology Plan (NETP 2017) and the Supplement for Higher Education lay out the scope of implementation for the latest technology practices in HEIs ▶ Covers recommendations on the use of technology in teaching, assessments, innovation and student success, along with policies for protection of student data privacy and ethical use of student information ▶ The U.S. Department of Education's "AI and the Future of Teaching and Learning" states the use of technology to improve teaching and learning	▶ Some universities in the US implementing leading digital practices are: ▶ A top ranked private research university launched a research project for responsible use and ethical collection of student data and created Responsible Use Policies to maximise data privacy for students ▶ Rice University, California State University and University of Minnesota have created online portals to enable access to openly licensed textbooks. These portals are accessible to anyone across universities and allow academics and faculty from multiple institutions to contribute to the content library
 UK	▶ Government Strategy for Technology Education released in 2019 with key topics, including securing digital infrastructure, promoting digital safety and improving accessibility to technology ▶ Call for evidence drive (2023) to gather public opinion on AI tools such as ChatGPT, Google Bard, from education professionals across schools, universities – results of the drive to be used to inform future policy work and integrate public opinion in AI frameworks	▶ Some UK university's best practices in the digital learning space are: ▶ Creation of a joint set of principles by the Russell Group universities to help students and staff maximise the use of AI ▶ Set of guiding principles to ensure the responsible use of AI and facilitate inter-university collaborations in sharing AI insights and best practices
 Tanzania		▶ The Mbeya University of Science and Technology and Mzumbe University are piloting the use of Kibuti-BOT, a chatbot delivering instant course information to students through SMS services

3. Internationalisation of education

To achieve the goal of becoming a truly international hub for HE, it is essential for India to continue to collaborate with foreign institutions for student and faculty exchange programs, joint research initiatives, set up of international branch campuses (IBCs), dual degree programs and increase provisions to ensure seamless integration of international students into the Indian HE ecosystem.

Country	Government best practices	HEIs best practices
Australia	Australia has a dedicated National Strategy for International Education 2021-30, to boost the overall experience for international students ▶ Education Services for Overseas Students framework ensures that inclusivity and community building for international students are taken up by universities	▶ Harvard 's T.H. Chan School of Public Health has a research centre in Mumbai, that collaborates with the Ministry of Women and Child Development amongst others, to assist with skill training and development of the Indian healthcare workforce ▶ A high ranked American public research university has set up a centre at the IIT Madras Research Park to boost their international footprint in research and innovation
USA	▶ Change to visa provisions for international students with 3 year visas for masters by coursework students, temporary increase for the visa period for vocational education and training (VET) graduates to 2 years	

Sources: NETP document, US Department of Education website and reports, Rice Univ, California State Univ., Univ. of Minnesota, Harvard Univ, webpages, UK Government webpages and reports, Australian Government webpages

4. Academic flexibility and multi-disciplinarity

Offering students the flexibility to distribute their education over multiple years, re-enter their degree of study at later stages in life and study across multiple disciplines through an academic bank of credits and multiple major/ minor options, are pre-requisites to achieving global quality standards in HE. These practices can be maximized in efficiency through the integration of flexibility in course delivery using online/ hybrid options.

Country	Government best practices	HEIs best practices
 USA	▶ 2+2 Model - certain community colleges have dual admission transfer partnerships with four-year universities, allowing transfer of students to a partnered institution after completing required degree at community college ▶ Community College of Philadelphia has partnerships with Rutgers University, Temple University, etc. allowing students to transfer as third year UG students	▶ MIT Open Learning's MicroMasters Program allows students to take up online credentials in fields such as data science, finance, etc. - credits for the online program are recognized as part of the credit requirements for the actual Master's degree ▶ Similar MicroMasters programs are also offered by other universities like Georgia Tech, Rochester Institute of Technology and more
 Chile	▶ Lower tuition expenses, living cost, flexible working options and huge transfer potential from community colleges are the key benefits	▶ The Pontifical Catholic University of Valparaíso (PUCV) in Chile permits students to transfer between university branch campuses in different cities, with 100% credit transfer, also validating up to 50% of course credits completed at other HEIs
 Australia	▶ Higher Education Diploma Program provides students a flexible route into HE, allowing students without A-levels to study at university. Students are provided credits for taking on learning diploma courses, combined with a recognition of their other prior learning (RPL) to enter HE	▶ Victoria University offers a range of preparatory courses for students entering university studies – 13-week foundation studies program for students that have attempted grade 12, as an alternative entry option to university studies
 UK	▶ Several UK universities allow three-year bachelor's degree to be spread over four to six years of study, also providing students with accelerated two-year course options	▶ The University of Adelaide has a MicroMasters program in Big Data, that is substitutable as 25% of the course credits for their Master of Data Science program
 USA	▶ Lifelong Loan Entitlement scheme (in effect from 2025) will enable people to flexibly enter or re-enter education at different stages of life and include tuition fees loan, maintenance loan and more	▶ The University of Cambridge offers an MPhil in Multidisciplinary Gender Studies that provides a wide range of disciplinary approaches, methods and theoretical perspectives to the study of gender
 Malaysia	▶ Malaysia's Recognition of prior learning (RPL) program allows prospective students without prior qualifications to apply for certificate, diploma, UG and Master's degrees through the Accreditation of Prior Experiential Learning (APEL) process that includes aptitude test, portfolio submission, interviews, etc.	▶ The University of Washington provides students flexibility to design their own majors, with students being allowed to create individualized learning plans that can cut across disciplines; students can create their own learning goals, coursework, and assessment plans, subject to university approval

India - current state analysis

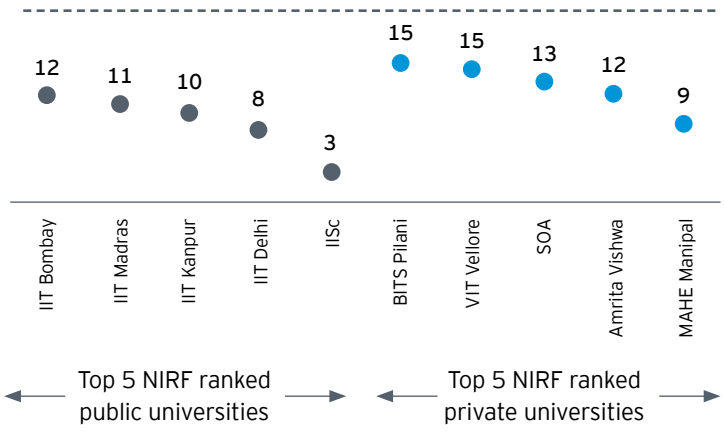
India's current state across the 4 sub-themes can be looked at from the lens of government actions as well as HEIs efforts; key to look at the marquee initiatives undertaken to boost quality education in the country to identify the gap(s) in implementation across varying quality of institutions.

1. Faculty recruitment and development

Good faculty-student ratio and high % of faculty with PhD at top-ranked institutions in India, however severe faculty shortage prevails at a national level

Faculty-student ratio (FSR)

India's average faculty-student ratio is at **27:1** in HE



Lower ranked NIRF institutes have FSRs that are better than the national average, but still lagging behind top ranked NIRF institutes – Christ University with FSR of 17, Mumbai University (16.4) , IIT Bhubaneshwar (16.9).

High faculty vacancies even at top ranked institutes - vacant faculty positions[1] ~40% in IITs, ~31% at IIMs and ~33% at Central Universities – due to the supply-demand gap of quality PhD students.

The proportion of faculty with PhDs is close to 100% for top-ranked public institutions, however top-ranked private institutions show differing trends with several having <50% faculty with PhD.

Sources: National Institute Ranking Framework

1. Ministry of Education

Several faculty development initiatives have been undertaken at a government and institution level

Several government initiatives have been introduced:

- National Initiative for Technical Teacher Training, AICTE quality improvement program, AICTE visiting professorship and more
- Other UGC programs include the Malaviya Mission for Teacher Training, UGC faculty recharge programs, UGC faculty development guidelines, etc.

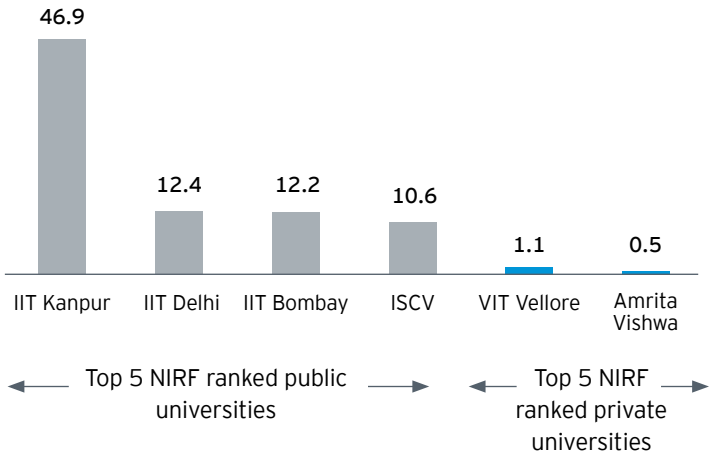
Some faculty training programs offered by HEIs:

- The teacher learning centre at IIT Madras conducts faculty development programs in collaboration with a high ranked US public university and large Indian IT/consulting company, to align faculty with the latest teaching methodologies and emerging education technologies
- A NIRF top 100 ranked institute has a wide variety of faculty training programs that include psychometric assessments, leadership programs, designated programs for female faculty

2. Digital / online learning and technology in administration

Despite UGC regulations for credit transfer through SWAYAM, the adoption of SWAYAM courses is mixed across top ranked institutes; Samarth e-governance platform shows low adoption rates

Number of students offered online courses which have credits transferred to transcript (SWAYAM), in 000's



Top ranked private universities show contrasting trends, with three of the top five ranked private universities having no adoption of SWAYAM online courses with credits transferred.

The Ministry of Education's Samarth e-governance platform provides a centralized technology platform for administrative operations.

Software has only been adopted by 200+ universities and 100+ colleges.

The uptake of SWAYAM online courses (that have credits transferred to transcripts) is steadily growing amongst top ranked public universities.

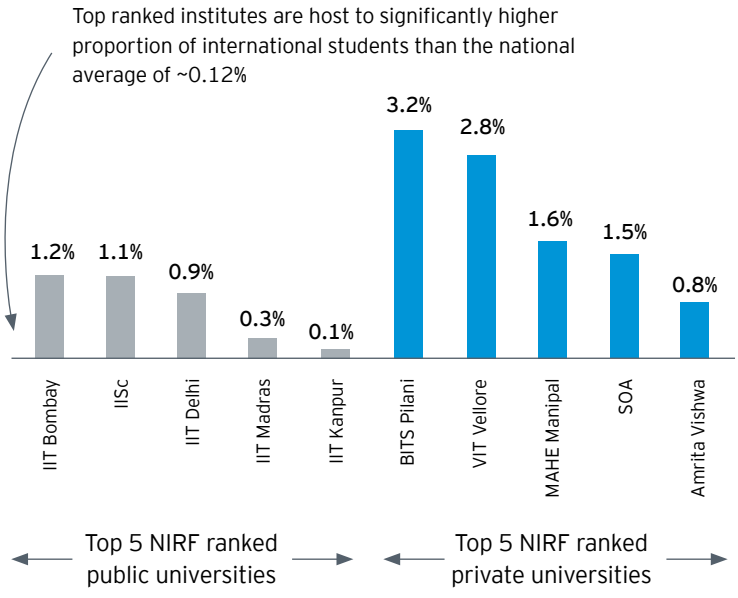
Sources: National Institute Ranking Framework

Sources: NEP 2020, Ministry of Education webpages, UGC, Primary interviews, National Institute Ranking Framework, EYP analysis

3. Internationalization of education

~6% of total international students are concentrated in the top five ranked public and private institutes

Per cent of international students



- GOI established a Study in India platform to provide seamless integration for foreign students; hosted students from 136 countries at 160+ institutes
- NEP 2020 places emphasis on promoting India as a global study hub, setting up GIFT city to promote IBCs of global institutes and encouraging top ranked Indian HEIs to set up global campuses
- VIT has a Joint 1+1 Master's Program with international partners such as the University of Michigan, Rochester Institute of Technology and Binghamton University
- A NIRF top 100 ranked institute offers a range of student and faculty exchange programs, 2+2 dual degree programs and only partners with the top 250 universities in the world
- Sathyabama University is part of the EU's Erasmus+ scholarship that facilitates joint international master's programs and provided grants to eligible students

Sources: National Institute Ranking Framework

4. Academic flexibility and multi-disciplinarity

Less than 1% of colleges registered for Academic Bank of Credits; increase in flexibility at top ranked institutions through multiple entry-exit options and major-minor programs

Flexibility

- NEP 2020 called for the establishment of a system of Academic Bank of Credits (ABC), common curriculum courses, flexible entry and exit programs with multiple degree options, multidisciplinary education and provisions for credit transfer between institutions
- Despite 1,639 institutions registered on the government's Academic Bank of Credits (ABC) portal, including 955 universities, Indian colleges have shown limited involvement in adopting this flexible credit system
- IIT Madras offers an online degree program, BS in Data Science and Applications that allows students flexible exit options, with opportunities to exit at the foundation, diploma or BSc degree level
- A leading Indian liberal arts institution offers students the flexibility to declare their major in the second year of study and switch their major fields at later stages of their degree
- Close to all top ranked public and private universities offer the ABC system to enable student mobility across HEIs

Localization

- To promote the goal of localization, as highlighted by NEP 2020, several initiatives have been taken at a government and HEI level
  - 500+ courses on the SWAYAM platform are available in regional languages such as Bengali, Gujarati, Hindi, Kannada, Malayalam, etc.
  - Shiv Nadar University offers BTech students an option to minor in performing arts, providing an opportunity to connect with certain Indian art forms
- 20+ engineering colleges across India, such as Graphic Era Dehradun, NRI Institute of Technology, have initiated full course offerings in regional languages such as Hindi, Marathi, Bengali, Tamil, Telugu, Gujarati and more
- GOI's Ministry of AYUSH has established 12 national institutions and five research organizations; seven-day mandatory internship posting of MBBS students at AYUSH hospitals/clinics to introduced them to traditional methods of medicine

Challenges to be addressed for quality education in India

Lack of quality PhD students leading to faculty shortage

- ~211,000 enrollments in PhD programs (2021), constituting only 0.51%[1] of the total enrollments In Indian HE
- Vacant faculty positions[2] at ~40% in IITs, ~31% at IIMs and ~33% at Central Universities – several lower ranked HEIs with less than 50% PhD faculty

Limited integration of digital learning as convertible course credits

Significant increase in online degree enrollments, SWAYAM integration is picking up – however, still a limited scope of online micro-credentials that can be accumulated as stackable credits post enrollment in HE degree

Limited clear-cut policies on technology use in education

Lack of dedicated policies for HE in areas such as technology implementation, AI, data privacy and ethical use – broader overall vision presented under NEP 2020

Lack of strong recognition of prior learning programs

Absence of RPL programs for students without high school education to enter university studies. No current provisions for students who have not graduated high school to gain UG or PG admission at HEIs.

Limited uptake of international expansions by Indian Universities

UGC guidelines permit Institutions of Eminence (IoEs) to set up campuses abroad with prior approval of the Ministry of Education, however establishment of International Branch Campuses (IBCs) has been slow-paced. IITs and IIMs have planned foreign campus expansions, however overall uptake of IBCs is still growing.

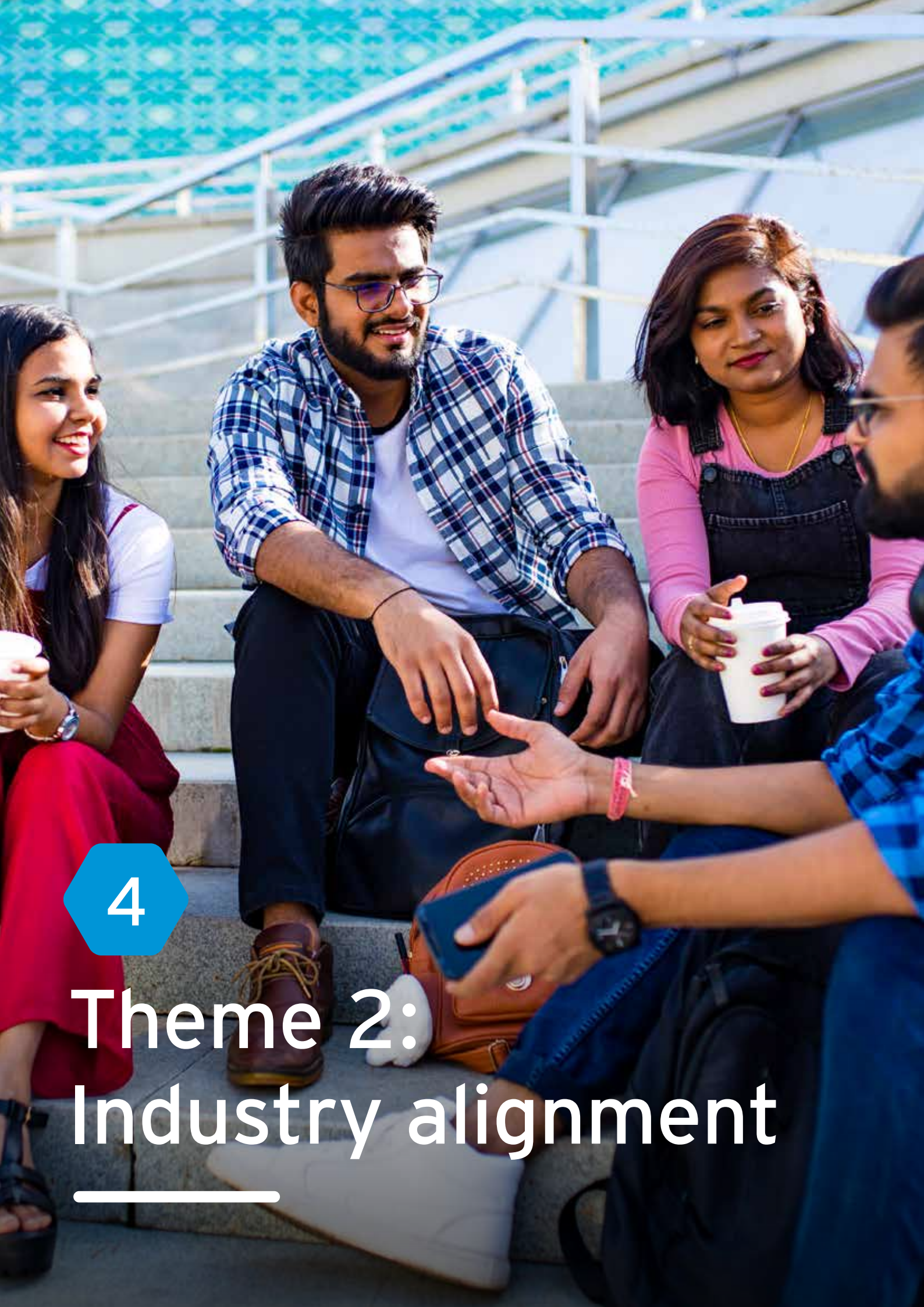
1. AISHE Report 2021
2. Ministry of Education

KEY RECOMMENDATIONS

PRIORITY *Indicates recommendations to be prioritized in the next 12 months*

Stakeholders	Recommendations
Government actions	GOI must consider the introduction of a dedicated policy for technology in higher education as well as specialized data privacy norms for higher education institutes, to place safeguards against misuse of information — PRIORITY
	GOI can consider the creation of stronger Recognition of Prior Learning Policies (RPL), that facilitate entry into Bachelor's/ Master's programs for students with no high school education, through recognition of prior work experience and skill-based assessments
Industry actions	Industry partners need to allow employees flexibility to pursue part-time PhD programs and other integrated options for higher studies; also need to facilitate knowledge sharing through regular employee visits to higher education institutes — PRIORITY
HEI actions	Higher education institutions need to increase the implementation of joint PhD programs that allow working professionals to pursue PhD degrees while engaged in full-time employment — PRIORITY
	Higher education institutions need to align online course offerings with the National Higher Education Qualification Framework and establish equivalence across various qualifications — PRIORITY
	Higher education institutions need to increase their pace of expansion to international locations to boost the globalization of the Indian higher education system

Sources: Primary interviews, EYP analysis



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Theme 2: Industry alignment

Skilling for graduate employability and industry-institute collaborations are the key sub-themes identified under industry alignment

The HE landscape of India faces various challenges in aligning industry partners for meaningful collaborations. Industry-institute partnerships are vital contributors to an institute's growth and are key to achieving India's vision of the top 100/200 higher education institutes being consulting and research partners to industry. Institutes are also responsible for preparing their graduates to be industry-ready to achieve the goal of creating a highly skilled workforce.

1. Graduate employability

Preparing students to tackle industry needs by exposing them to diverse skillsets required by their employers is a fundamental responsibility of HEIs—these initiatives can take the form of skill-based training programs with industry partners, apprenticeships/ work experience and access to other career development support.

Country	Government best practices	HEIs best practices
 Singapore  USA	SkillsFuture is a skill-building initiative by the Singapore government that provides students, early career and mid-career individuals with a wide variety of certified online credentials that they can pursue. ▶ To promote uptake of these credentials, all Singapore residents are provided an opening credit of S$500 that can be used to purchase courses. Residents were also provided with an extra top-up S$500 in 2020, with individuals aged 40 to 60 receiving a cumulative top-up of S$1,000	East Tennessee State University has a joint degree program with a large health plan insurance firm. The bachelor's in computer science program is 100% administered at the firm's headquarters and taught by industry faculty, with top performers receiving direct job offers at the firm.
 UK	UK facilitates industry-university partnerships through apprenticeship programs that allow flexibility in working with connected industry partners while simultaneously pursuing a university degree. Most programs provide students with sizable starting salaries to fund their education, while others have provisions for employers to fund the cost of education.	▶ University of Warwick offers apprenticeship programs across engineering, digital, business, healthcare with several employers, which include multinational corporations across various sectors ▶ University of Oxford offers a wide range of apprenticeship programs, with apprentices provided a starting salary of up to ~£20,000

2. Industry-institute collaborations

Industry partnerships are a critical part of HE ecosystem – receiving industry support and funding to develop high-tech laboratories/ centres of excellence, develop new products, incubate ideas, co-develop courses and carry out professional research are key enablers to increase the quality of institute outcomes.

Country	Government best practices	HEIs best practices
 USA	The US government facilitated industry partnerships through National Science Foundation (NSF) which has an Industry - University Cooperative Research Centres Program, that promotes research through sustained partnerships between industry innovators, academic teams and government agencies.	▶ Duke University has a centralized portal where proprietary technologies invented by students and faculty are displayed and industry players can directly reach out to invest in interested technologies ▶ The University of Michigan has co-developed 20+ on-the-market products with various industry players
 UK	The UK-India Business Council set up the University Corporate Partnership program to encourage partnerships between UK universities and Indian corporates. Components of the program include joint research, training arrangements, graduate placements internships and PhD sponsorships.	▶ Coventry University received ~£26 million for the setup of an Advanced Manufacturing and Engineering Centre, funded by an industry partner and ~30% funded by a government research fund ▶ A public research university in the UK has an innovation centre to bring together academia, businesses, government and investors to ensure inventions get an opportunity to become on-the-market products

Sources: National Science Foundation webpage, US Department of Education website, UK India Business Council report, Coventry Univ, Duke Univ, Univ. of Michigan, Oxfor Univ., Univ. of Warwick, ETSU webpages, USAID report

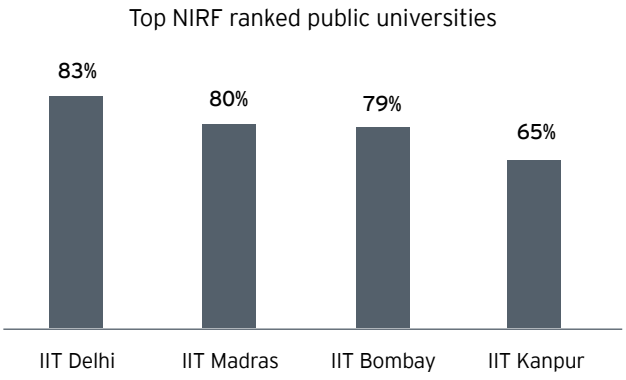
India - current state analysis

India's current state across the two sub-themes can be looked at from the lens of government actions as well as HEIs efforts; key to look at the marquees initiatives undertaken to boost industry alignment in the country to identify the gap in implementation across varying quality of institutions.

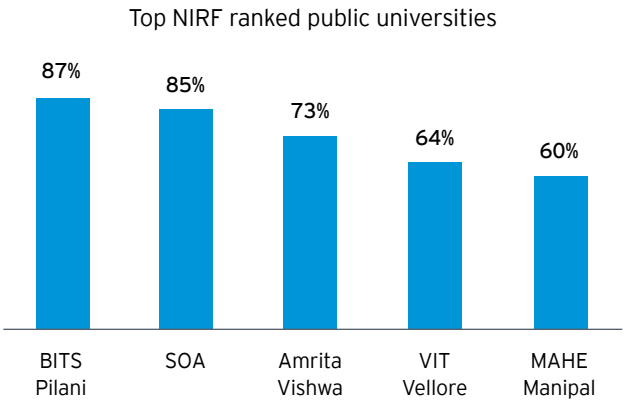
1. Graduate employability

Top ranked public and private universities tend to display strong employment outcomes due to extensive career development initiatives; lower ranked universities show mixed employment statistics

Average placement rate for flagship program (2017-2019)



Sources: National Institute Ranking Framework



Sources: National Institute Ranking Framework

Certain lower ranked public universities display similar strong placement outcomes with three-year average placement rates of ~74% for Mumbai University and ~84% for IIT Bhubaneshwar.

Some state and central govt. employability initiatives:

- Andhra Pradesh's State Council of Higher Education entered into an MoU with large Indian IT/consulting company, to offer a 20-hour foundational skill training program to students
- The AICTE Internship Enterprise Portal acts a national internship portal with 70,000+ companies and close to 3 million internship placements

Lower NIRF ranked private universities have lower placement outcomes – Christ University (~36%) and Sri Ramachandra Institute of Higher Education and Research (~46%).

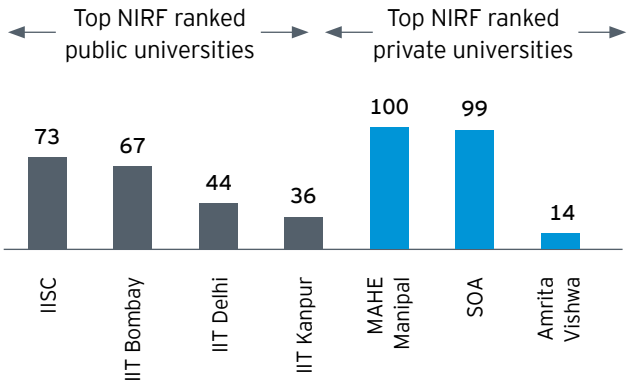
Some initiatives at top ranked institutes are:

- BITS Pilani runs Practice School, where students complete 8 months of industry work as part of their course requirements - 3500+ students placed at internships every year, ~50% of students receive PPOs
- VIT Vellore provides mandatory skill-based technical and non-technical training to students through their Career Development Centre to boost industry-readiness and employment outcomes

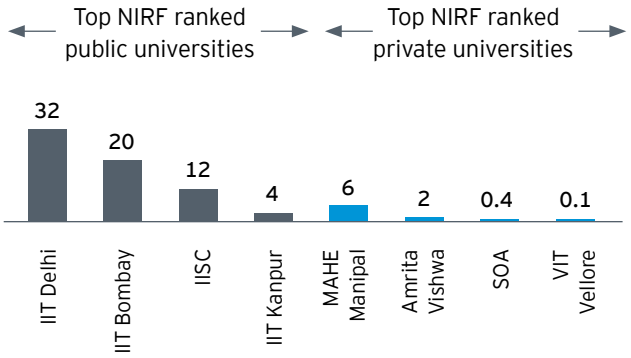
2. Industry-institute collaborations

Top ranked private universities lag behind in executive development programs, however, are ahead of several top public universities in consultancy projects taken up with industry partners

Consultancy (amount in INR crores)



Consultancy (amount in INR crores)



Sources: National Institute Ranking Framework

Sources: UGC, APSCHE webpage, Ministry of Education, Primary interviews, National Institute Ranking Framework, EYP analysis

Certain top ranked private universities outshine public universities in consultancy projects with industry. However, lower ranked public institutes show lower figures, with Mumbai University (INR 0.8 crores) and IIT Bhubaneswar (INR 4.8 crores).

Recently established UGC guidelines in this area

- Establishment of a dedicated Industry Relations Cell for partnership
- Appointing of industry professionals to Academic Councils, board of studies and as professors of practice

Top ranked private institutes mostly lag behind their public counterparts in Executive/ Management Development programs. However, lower ranked public institutes have no EDP/MDP programs.

Various private universities have taken up leading industry partnership initiatives:

- BITS Pilani has PhD programs for external industry professionals
- A NIRF top 100 ranked institute co-develops joint degree programs with industry partners
- VIT Vellore hosts industry conclaves, inviting 15+ industries

EDP: Executive development program; MDP: Management development program

Case in point – Industry alignment at MAHE Manipal

MAHE Manipal

178

Number of industry MoUs

17.2%

Permanent faculty with experience working in the industry

582

Number of adjunct faculty who are also currently working in the industry

4400

Number of students granted internships last year

- Manipal Academy of Higher Education, Manipal has industry collaborations with firms in the life sciences, IT, finance, energy and multiple other spaces to establish centres of excellence, provide skill-building programs and carry out industry visits, seminars and conferences
- MAHE brings an industry perspective into their teaching, with 565 of their 3,285 permanent faculty having previous industry experience; they further bring in latest industry insights through their 582 adjunct faculty currently working in the industry
- MAHE also co-develops courses with industry partners– the BCom Process Management course is created in partnership with a large Indian IT/ consulting company, with all course faculty being trained and certified by Indian IT/consulting company; the course also includes a one semester internship/ apprenticeship program to provide industry exposure
- MAHE has a high percentage of students placed at internships every year; 50+ fortune 500 companies hire for full-time positions

Sources: EYP survey

Case in point – Industry alignment at IIT Delhi

IIT Delhi

2100+

Number of industry collaborations (through FITT)

185+

Technology transfers with industry

500+

Training programs with industry

83%

Average placement rate 2017-19

- IIT Delhi is one of the strongest universities in Indian in terms of industry partnerships, which they facilitate through their Corporate Relations Office and Foundation for Innovation and Technology Transfer (FITT)
- The university organises an annual 'Industry Day' conference where representatives from 200+ corporates interact with students and faculty to facilitate potential collaborations and showcase existing industry-institute joint projects
- The FITT facilitates collaboration with industry for technology transfer and licensing, training programs, development projects, and R&D and entrepreneurship related activities
- The university's Office of Career Services facilitates connections with top global and Indian recruiters, also providing students with services such as workshops, training programs, industry tours, etc. to maintain high employability and placement conversion rate

Sources: IIT Delhi Website, National Institute Ranking Framework, Foundation for Innovation and Technology Transfer website

Challenges to be addressed for industry alignment in India

Insufficient industry investment in higher education

Primary interactions highlight a dire lack of industry investment in Indian HE – academic research brought under CSR, but monetary initiatives to incentivize industry are lacking from GOI.

Limited uptake of apprenticeship programs

India's apprentices as a percentage of the workforce stands at 0.11%[1] (UK – 2.1%, Germany – 2.96%); UGC guidelines for apprenticeship embedded degrees focus only on one semester internships, no focus on continuous part-time employment.

Low overall employability despite improvements over years

According to the India Skills Report 2023, overall employability improved to 50.8% in 2023 from 46.2% in 2022, with the 22-25 age group most employable; despite clear advancements, India is still well behind global benchmarks.

1. India Education Forum report

KEY RECOMMENDATIONS

PRIORITY *Indicates recommendations to be prioritized in the next 12 months*

Stakeholders	Recommendations
Government actions	GOI needs to take further initiative to boost industry investment in higher education. Industry-government joint sponsorship programs need to be conceptualized to set up Centres of Excellence and specialized manufacturing facilities at higher education institutes
Industry actions	Industry partners must provide work-related learning opportunities for students, co-develop and co-deliver courses with higher education institutes and provide joint certifications/ degrees PRIORITY
HEI actions	Higher education institutions need to support faculty to embed employability in curriculum through curriculum audits to ensure industry relevance, industry secondments to faculty and on-campus training programs from industry professionals PRIORITY
	Higher education institutions need to ensure greater alumni engagement for student mentoring, inputs on curriculum and employability training, and job opportunities for students PRIORITY
	Higher education institutions need to provide work related learning opportunities for students including internships, live projects at industry sites, industry experience as course credits and on-campus centres of excellence with industry partners PRIORITY
	Higher education institutions must appoint industry professionals to Academic Councils, Board of Studies and as Professors of Practice PRIORITY
	Higher education institutions need to establish support facilities to enable industry partnerships such as a corporate relations office, technology transfer cell and other outreach measures PRIORITY

Sources: Primary interviews, EYP analysis

5

Theme 3: Research & innovation

Research and innovation/entrepreneurship are the key sub-themes identified to promote student and faculty outcomes in higher education institutes

India's higher education landscape is yet to overcome several obstacles in research and innovation to reach the desired goals of the GoI's Vision India @ 2047. Promoting high quality research outcomes across all tiers of institutes, establishing more research focused HEIs, collaborating with industry partners to provide research services and promoting high-quality entrepreneurship opportunities are the key focus areas from India's perspective.

1. Research

Ranking 4th in the world for total number of publications, India's quality of academic research needs to further improve to match its global peers. Research outcomes are influenced by government spending on Research and Development (R&D) as well as HEIs allocations to research-focused initiatives.

Best practices

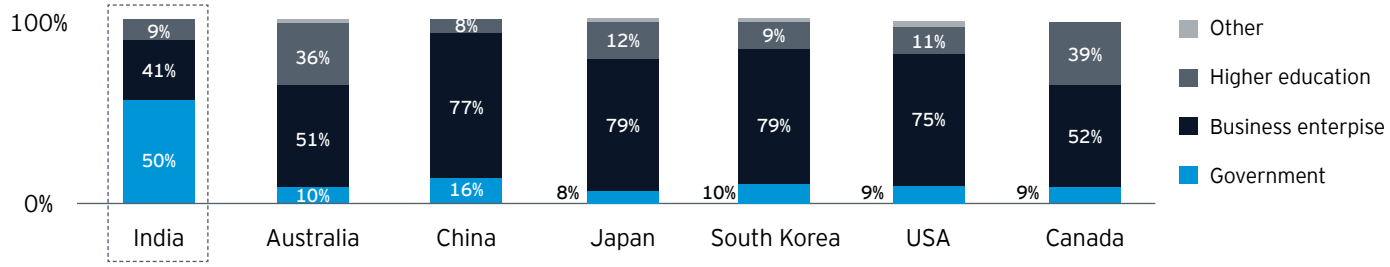
- US universities promote a strong research culture with HEIs spending ~US$90 billion on research in 2021; high investment in STEM, with ~80% of research expenditure allocated to the sciences[1]
- The US Economic Development Association's (EDA) US$1 billion 'Build Back Better Regional Challenge', aims for five-year strategies that invest in advanced industry clusters to benefit historically excluded communities. Over one third of the EDA's investments are awarded to research universities, including research partnerships with Georgia Tech and more

Best practices

- The spend on research by Indian HEIs was around US$5 billion PPP in 2021[2]
- UGC's "Guidelines for Sustainable University-Industry Collaboration in Indian Universities" encourage the creation of R&D clusters at state or regional levels through university-industry linkages, establishing R&D labs, research organizations, apprenticeship programs etc.
- In August 2023, India approved the setup of the National Research Foundation (NRF)
  - To provide high-level strategic direction for research, innovation and entrepreneurship in various fields
  - Aims to elevate research and innovation in tier-2 and tier-3 institutions, with 11% of its budget earmarked for their capacity building

1. National Science Foundation
2. Department of Science and Technology, EYP Analysis

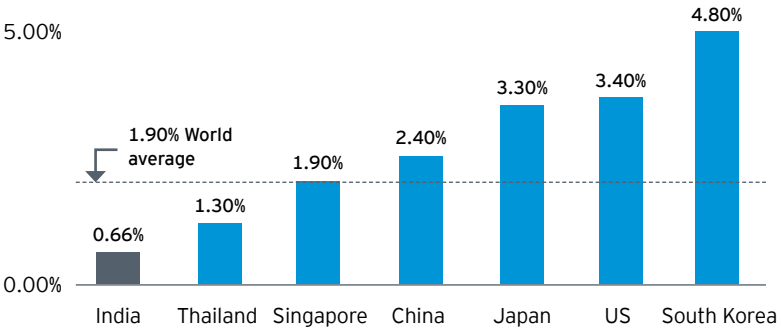
Participation of different contributors in GERD (2020)



Participation of the HE sector and business enterprises in India's GERD is extremely low as compared to global benchmarks.

Sources: Department of science & technology report

R&D expenditure as a percent of GDP (2020)

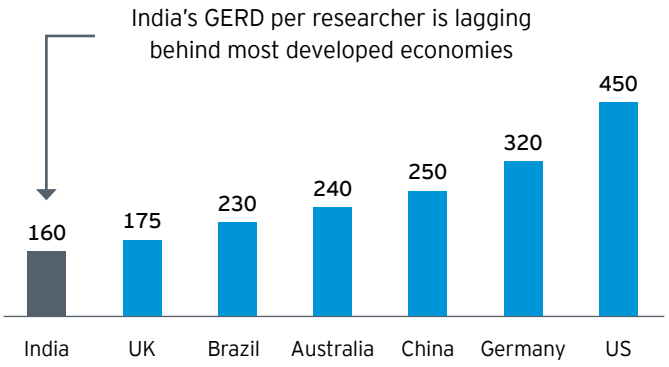


Sources: Department of science & technology report; World Bank

Case in point – R&D excellence in South Korea

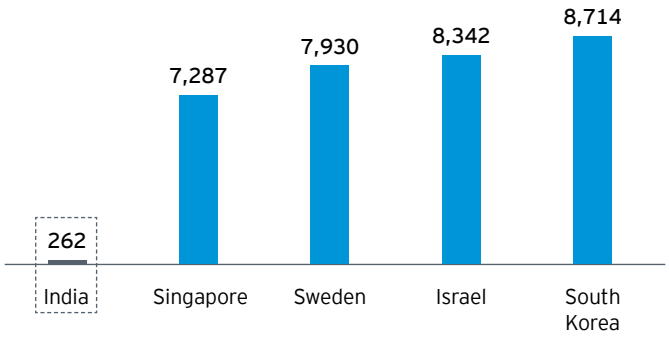
- South Korea's R&D expense is 4.8% of GDP, due to seamlessly integrated partnerships between the government, industry and HEIs:
  - Promotion of a strong R&D culture by the govt. through incentivising large industrial groups such as Lotte, LG and Samsung to invest in nation-building R&D - 80% of South Korea's R&D spending in 2019 was funded by private entities
  - Industry giants partner with domestic and international HEIs – between 2015-19, Samsung collaborated with Sungkyunkwan University to publish 159 research articles, 51 with UC Berkeley and 31 with a top ranked American universities
  - Govt. facilitated the contribution of regional innovation centres since the early 2000s, that brought industry R&D production infrastructure together with local and national universities - establishment of 105 such regional centres by 2010

GERD per researcher, 000's current PPP$, (2020)



Sources: Department of science & technology report

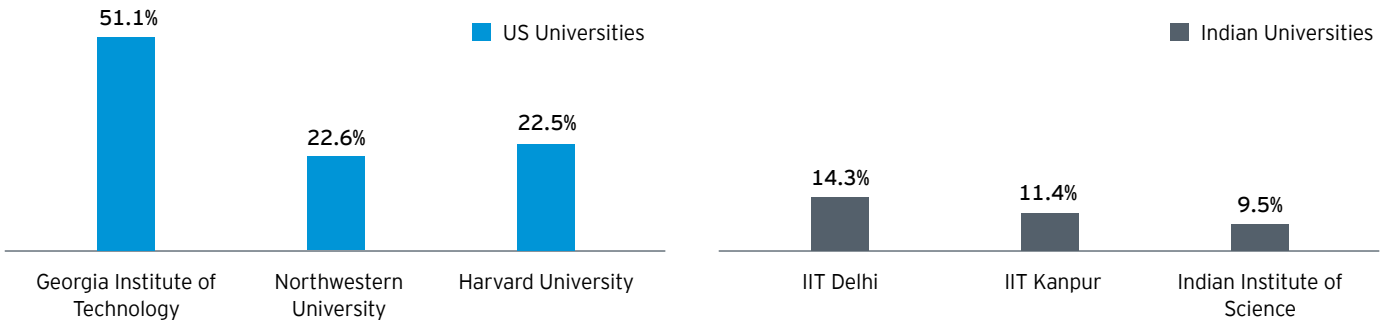
Number of researchers per million people, (2020)



Sources: Ministry of science & technology report

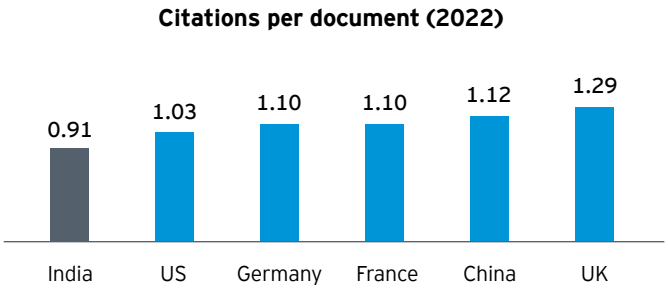
- While the number of researchers per million people has gradually improved over the years, the gap between India and developed economies is still exponential
- India's relatively low R&D expenditure also leads to a low GERD per researcher, directly impacting the quality of research work being published by academicians

R&D as % of OPEX (2022)

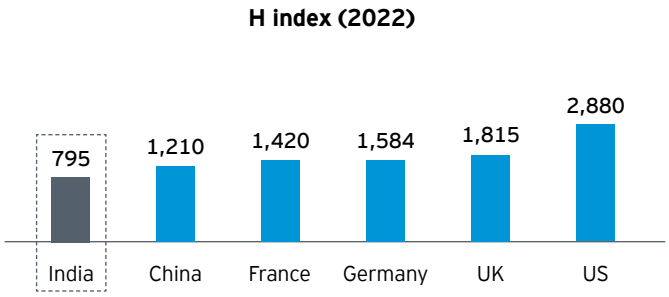


Sources: Higher education research and development survey, NSF

Top ranked Indian universities allocate a significantly lower proportion of their operating expenses toward research and development initiatives, as compared to their global counterparts.

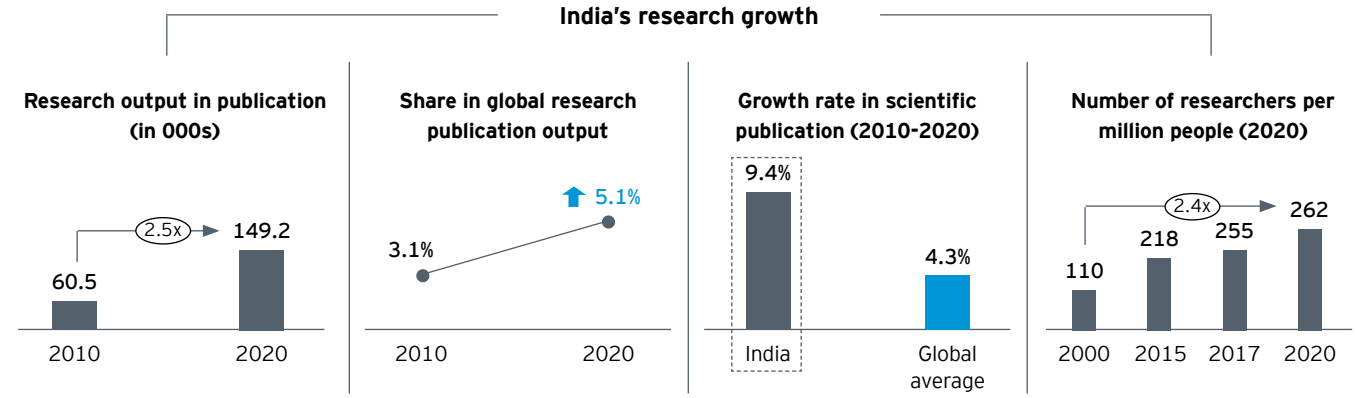


Sources: Scimago journal and country rank



Sources: Scimago journal and country rank

The limited availability of funds for researchers leads to lower quality standards for the material published – India is behind several developed countries in the number of citations per document and the H-Index score.



Sources: Department of science & technology report

Despite lagging in certain quality indicators of research, India has seen a growth in research outcomes over the years, with the fourth highest number of publications in the world (in 2022).

Case in point – Research outcomes at VIT Vellore

VIT Vellore

43,578	Number of publications	**4,32,016**	Number of citations
177	h-Index	**9.91**	Citation index

- VIT Vellore is one of the leading private universities in India for research, being the top ranked private institute in NIRF Research rankings
- In 2022, VIT had a citation index of 17.2 and 4,079 journal articles published. Their current i-10 index stands at 10,654

Sources: VIT Vellore website, EYP Analysis

Case in point – Research outcomes at Indian Institute of Science (IISc)

IISc Bangalore

INR 544 cr.	Amount of sponsored research projects	**100%**	PhD Faculty
1,178	Number of sponsored research projects	**1st**	Ranking amongst Indian universities in citations per faculty

- IISc sets the benchmark for quality research for Indian universities, having a score of 100/100 in the citations per faculty parameter of the QS rankings and 100% of faculty with PhDs, to promote strong research outcomes amongst the student body
- IISc also obtained the highest funding amount for sponsored research projects amongst the top 5 public universities, highlighting the ease of procuring grants due to the high standard of research output

Sources: QS Rankings 2024, National Institute Ranking Framework, EYP Analysis

2. Innovation and entrepreneurship

Innovation/ entrepreneurship-based initiatives promoted by the government and developed by HEIs, have a substantial standing in India's economic growth and boosting overall student development.

Best practices

- Norway facilitates university innovation and entrepreneurship through the Norwegian Innovation Clusters, under the EU's European Cluster Collaboration Platform (ECCP):
  - Three levels of clusters – Arenas, Norwegian Centres of Expertise (NCE) and Global Centres of Expertise (GCE)
  - Universities provide R&D support, knowledge-sharing, entrepreneurship-based initiatives and sector expertise to firms in these clusters
  - Technical and financial support by the EU for three to five years

Best practices

- The Department of Science and Technology's NIDHI Inclusive Technology Business Incubator (i-TBI) initiative facilitates the setup of incubators at HEIs and provides funding of up to INR 5 crores over three years
- The MoE's Innovation Cell (MIC) has created 'Institution's Innovation Councils' (IICs) in selecting HEIS to promote innovation and entrepreneurship
  - Series of hackathons – Smart India Hackathon, UNESCO-India-Africa hackathon, ASEAN India Hackathon, etc.
  - National Innovation and Start-up Policy 2019

Sources: UGC, Ministry of Education, Primary interviews, National Institute Ranking Framework, EYP analysis

Best practices

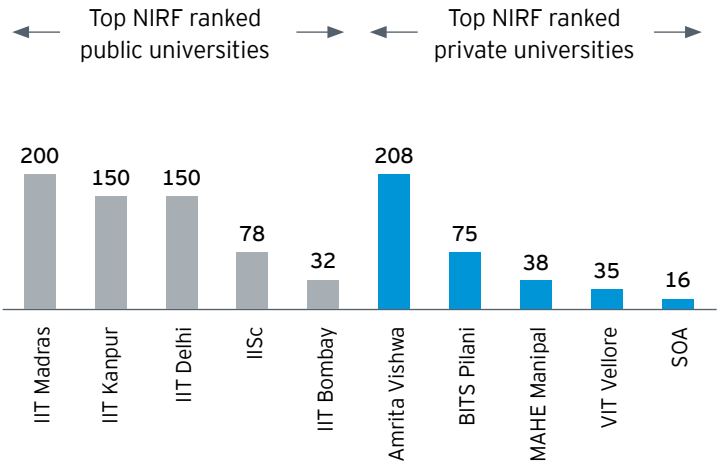
- Hong Kong University of Science and Technology (HKUST) is a research-focused university with 30 years of expertise in deep technologies – spanning health technology, AI, robotics, big data, FinTech and renewable energy
  - Over 600 industrial and governmental partners - as of 2022, incubated over 1,600 start-ups, including nine unicorns and seven IPOs, creating a value of HK$400 billion
  - Technology transfer portal regulated by Office of Technology Transfer with patented technologies across advanced materials, biotechnology, electronics, etc., is available for industry collaborations

Best practices

- To bring in a sustainability focus in research and innovation initiatives, several measures have been taken up by HEIs:
  - IIT Delhi's initiatives aligned with the UN's SDG goals, such as the Digital Delhi conclaves and SDG Research programs, have facilitated 55+ projects in attaining SDG goals of industry, innovation and infrastructure, sustainable cities and communities, and more
  - IIT Kanpur's department of sustainable energy engineering, has partnered with Rice University and the Mehta Family Foundation to achieve excellence in energy sustainability education, research and technology development

Top ranked public universities outperform top ranked private universities on the number of start-ups incubated and patents published; outcomes in lower ranked universities is significantly lower

Number of start-ups incubated on campus

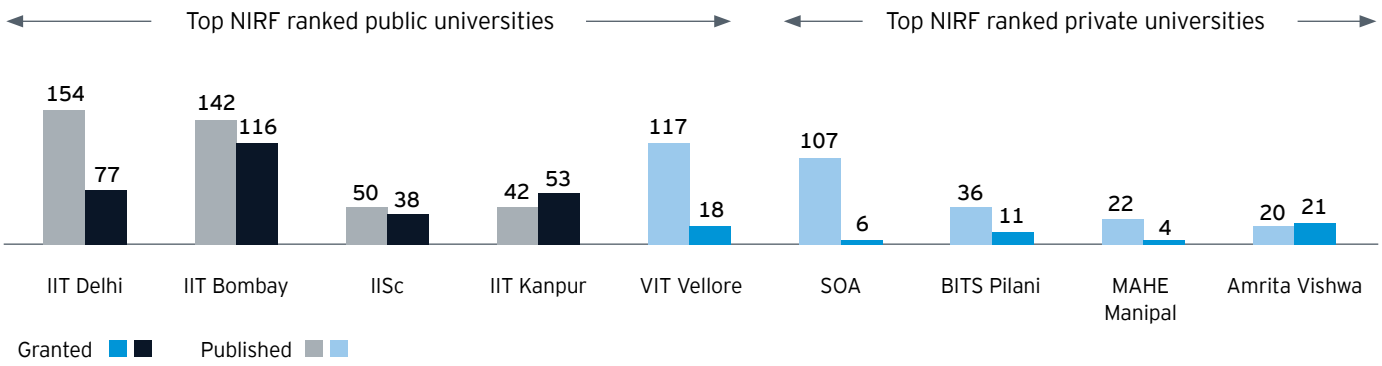


Similarly, lower ranked public universities display significantly lower innovation outcomes

- Top ranked public universities have consistently higher innovation outcomes due to strong incubation centers, technology transfer cells, Intellectual Property Rights cells (IPR) and a diverse network of funding partners
- While top ranked private universities are adopting similar initiatives at a rapid speed, there is a significant gap in the number of start-ups incubated and patents granted at lower ranked private universities

Source: National Institute Ranking Framework

Number of patents published and granted (2021)



Source: National Institute Ranking Framework

Case in point – Innovation outcomes at BITS Pilani

BITS Pilani

3rd Rank amongst Indian HEIs in number of start-ups formed

75 Number of start-ups incubated

- BITS Pilani is one of the leading Indian private universities in start-up incubation and development
- 75 start-ups have been incubated in BITS Pilani's Technology Business Incubator set up since 2004; the university is also host to Conquest, India's largest student-run start-up accelerator
- BITS has provisions for students and faculty to take a 1-year sabbatical to develop their start-ups, earn course credits for innovative prototypes and officially register their start-up companies
- BITS's PhD DRIVE program fosters the creation of deep-tech start-ups, offering students a prototype grant of INR 10 lakhs, entrepreneurship training, access to the incubator and access to the BITS alumni network for additional investments

Sources: UGC, Ministry of Education, Primary interviews, National Institute Ranking Framework, EYP analysis

Challenges to be addressed for research and innovation in India

Low expenditure on R&D by govt.

With R&D expense[1] as a % of GDP at ~0.7%, India falls behind several developed economies; GERD has only grown at 2.4% CAGR from 2015-2021 leading to low availability of funds for researchers.

Quantity over quality in published research work[2]

India ranks fourth in number of documents published but lags in quality with only 0.91 citations per document, low citable documents % of ~5% (as % of total global citable documents) and an H-index score of 795.

Limited R&D spending by higher education institutions

Overall contribution of HEIs to India's R&D spend[3] only at ~9%; top Indian institutions with significantly low R&D spend as % of operating expenditure as compared to global players.

Lower innovation outcomes at lower-ranked institutions

Lower ranked public and private institutes display lower outcomes for the number of start-ups incubated and patents published as compared to their higher ranked peers.

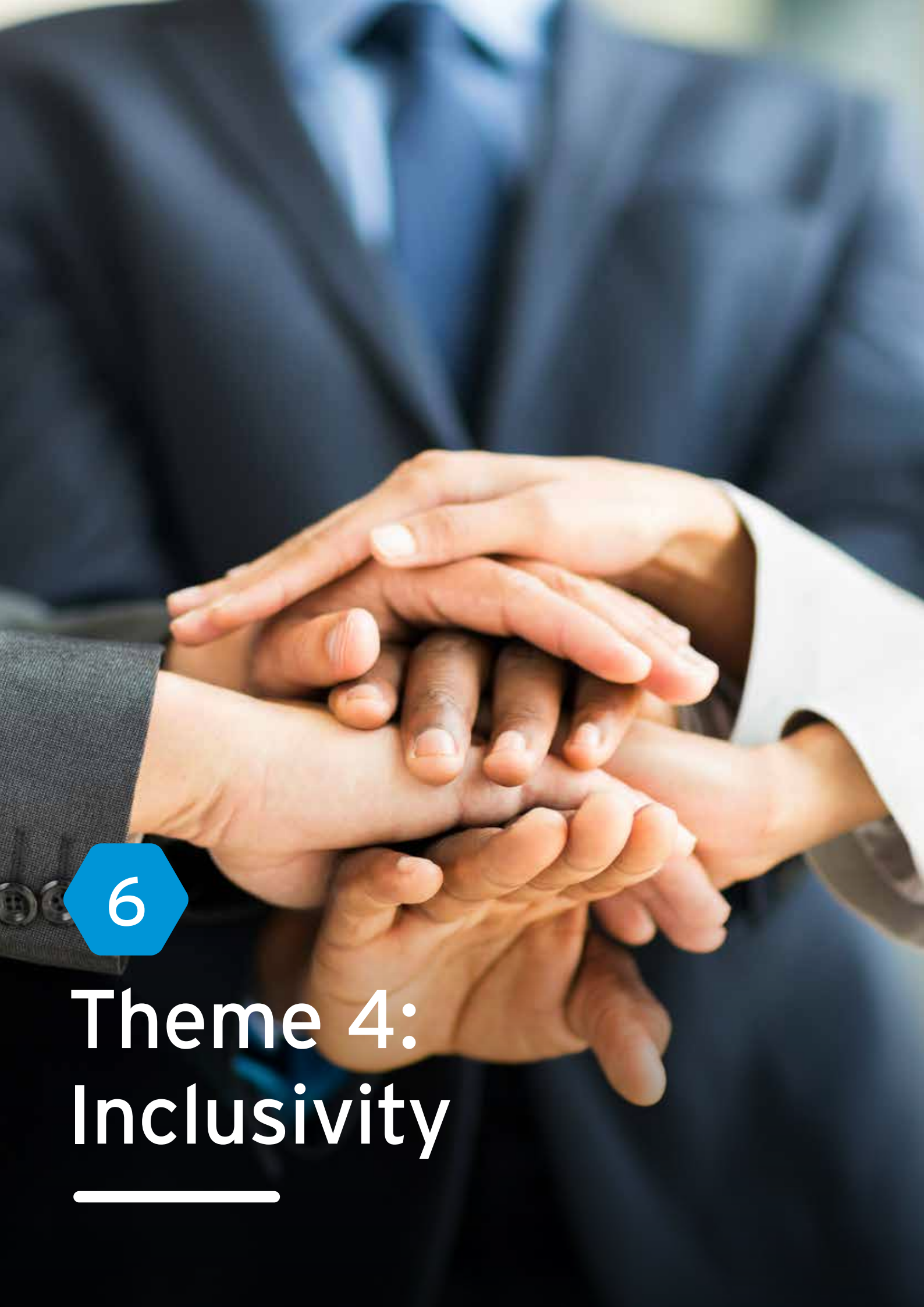
1., 3. Department of science & technology report,
2. Scimago journal and country rank, EYP Analysis

KEY RECOMMENDATIONS

PRIORITY *Indicates recommendations to be prioritized in the next 12 months*

Stakeholders	Recommendations
Government actions	Significant increase in R&D expenditure by GOI to boost the research ecosystem – need to set short-term and long-term targets for R&D expenditure as a percentage of GDP, looking at global benchmarks of US, South Korea, Japan
	The National Research Foundation can facilitate Industry-University partnerships through a centralized database matching university research projects with interested industry partners (in a similar format as the USA's National Science Foundation)
	UGC appointed innovation mentors can be assigned to lower tier institutions, to develop expertise among faculty and boost student accessibility to innovation ecosystems – student ideas with high potential can be incubated in partnership with top ranked institutions with required incubation facilities PRIORITY
Industry actions	Establishment of industry-government co-funded programs to boost research initiatives at higher education institutions
HEI actions	Higher education institutions to shift focus on quality over quantity in research – involves setting targets for faculty on number of citations per document, percentage of citable documents and h-Index to be achieved based on US, UK, Germany benchmarks PRIORITY
	Higher education institutions to set desired targets for R&D spending as a percentage of operating expense, based on benchmarks of QS top 100 universities
	Higher education institutions to focus on impact of research by aligning their focus areas as per nation-building objectives and UN SDGs

Sources: Primary interviews, EYP analysis



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Theme 4: Inclusivity

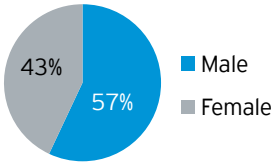
Gender diversity, LGBTQIA+, economically and socially challenged students (ESCS) and students with disabilities are the key sub-themes identified under inclusivity

Making HE accessible to people from all groups and communities is essential to achieving India's inclusivity goals outlined in the Higher Education Vision for 2047. Promoting inclusivity through supporting gender diversity, increasing LGBTQIA+ representation, uplifting economically and socially challenged students, and providing physical and technology infrastructure to students with disabilities are key goals to be achieved.

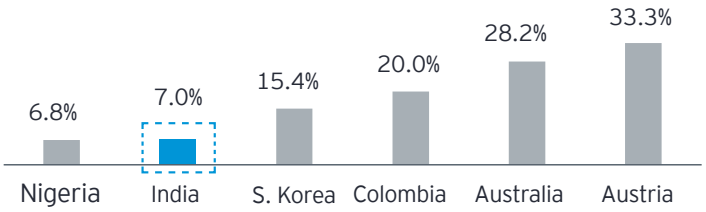
1. Gender diversity

Promoting female inclusion in HE is critical not only for increasing enrollments but also to foster female representation in leadership and employment outcomes. Having female representation at leadership positions in HE is a key pillar to boost the representation of female students and faculty and to better their overall outcomes.

Faculty: gender-wise split in India (2021)



Proportion of female university leaders (2019)

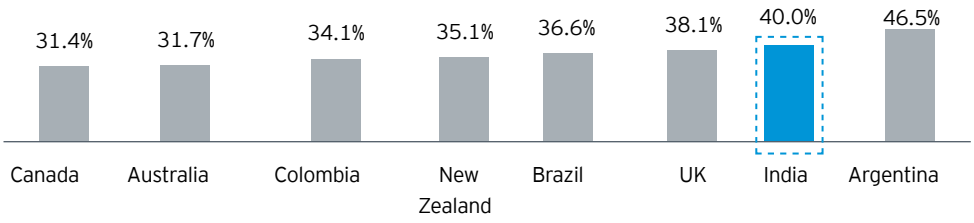


Source: Association of Indian Universities, AISHE 2021, UNESCO

43% of faculty in India are women, however less than 7% of vice-chancellors are female in Indian HE, highlighting a clear gap in the advancement of female faculty into senior positions.

Female graduates in STEM programs (2020)

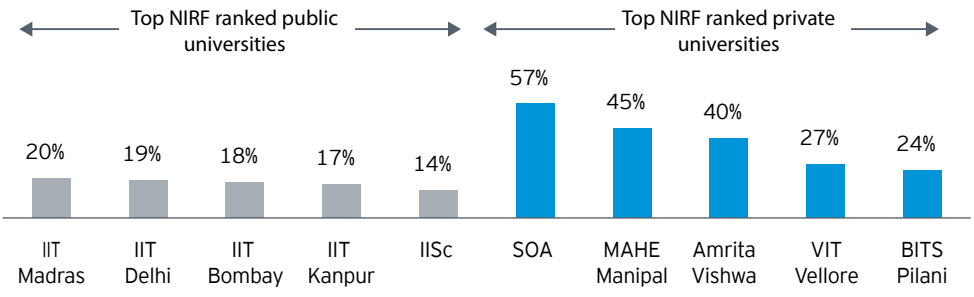
India ranks 19th in employing female graduates



Source: UNESCO, British Council

A huge disparity in the number of women enrolling in STEM programs and the number of women being able to seek employment in STEM is observed in India.

% female students (2023)



Source: UNESCO, British Council

Proportion of female students is substantially higher at top ranked private universities, with lower ranked private universities displaying similarly strong numbers. Lower ranked public universities have mixed outcomes – Mumbai University (50.7%), IIT Bhubaneswar (18.5%).

2. LGBTQIA+

Fostering a safe and inclusive environment for people from the LGBTQIA+ community is an essential pillar of representation to be achieved across all tiers of institutes in Indian HE.

Best practices

- US universities promote community safety and inclusivity with measures such as gender-inclusive hostels, LGBTQIA+ groups, gender and sexuality centres etc. Rutgers University provides support to LGBTQIA+ students in the form of counselling and professional advice, also offering scholarships
- Some UK universities that have established LGBTQIA+ student associations, staff LGBTQIA+ networks, conferences/ seminars are Cardiff University, University of Essex

Best practices

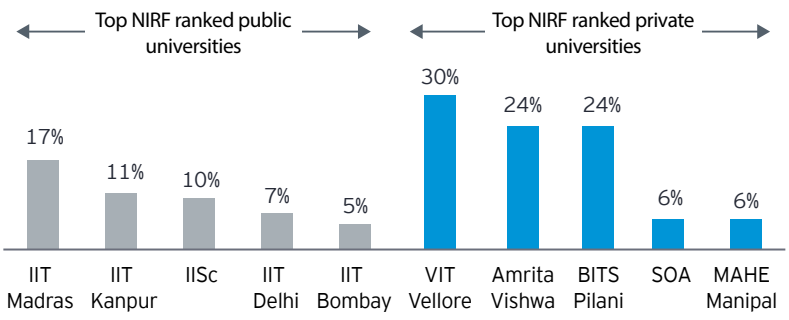
- Certain Indian universities, such as BITS Pilani and Krea University have dedicated student associations to ensure representation for the LGBTQIA+ community
- A leading liberal arts institution in India provides full support to the LGBTQIA+ community with gender-neutral floors in student housing, gender expression seminars and discussions, etc.

Sources: Ministry of Education webpages, UGC, Primary interviews, National Institute Ranking Framework, University websites, EYP analysis

3. Economically and socially challenged students

Promoting scholarships, financial aid initiatives and well-developed inclusivity programs for students who are economically and socially challenged is critical to ensure equal opportunities for all in HE.

% female students (2023)

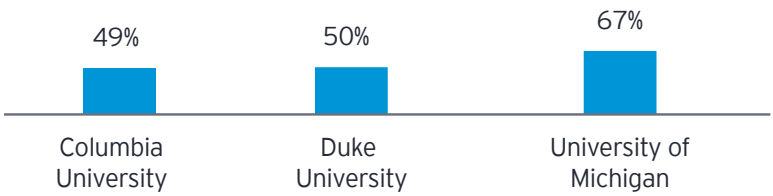


Source: National Institute Ranking Framework

Lower ranked private universities also tend to under-perform in this metric, with lower ranked public universities showcasing mixed results – IIT Bhubaneswar (7.4%), Mumbai University (23.5%).

- Top ranked private universities have a consistently higher share of economically backward students than their public counterparts. However, certain top ranked private universities perform poorly here as well
- Some initiatives undertaken at private universities:
  - VIT Vellore provides district toppers from rural areas in Tamil Nadu full tuition fee waivers
  - Sathyabama University partners with NGOs to provide full scholarship to 500+ students from marginalized communities yearly

% of UG students receiving financial aid in the US HE (2023)



- US universities tend to provide a significant amount of financial aid to students across disciplines. While these are not all 'economically challenged' students, the proportion of students receiving financial aid is significantly higher

4. Students with disabilities

Creating an inclusive environment for students with disabilities is not only restricted to adequate physical infrastructure but also encompasses inclusive teaching methodologies, customisable learning track pathways and seamless integration of technology to cater to learning disabilities.

Best practices

- Adelphi University supports students with learning disabilities through personalized sessions from educators and counsellors and access to assistive technology, such as:
  - Assistive listening systems for people with hearing loss
  - Laptop for students with integrated assistive technology software
  - Built-in tools for reading, writing, study skills and test taking, available to download on laptops
- East Carolina University - The Supporting Transition and Education Through Planning and Partnerships Program offers academic, social, and life-skills help to students with learning disabilities

Best practices

- Several top ranked Indian universities have adopted infrastructure for physically challenged students such as ramps, specialized seating arrangements in classrooms, dedicated washrooms, living facilities and more
- However, the adoption of technology in catering to students with learning disabilities, provision of customisable learning track pathways and personalized counselling support is still progressing in Indian HE
- Indira Gandhi National Open University (IGNOU) assists persons with disabilities through orientation and sensitization programs for all faculty members, procurement of assistive technology devices for learning disabilities and a grievance redressal mechanism for students with disabilities

Sources: Ministry of Education webpages, UGC, Primary interviews, National Institute Ranking Framework, Adelphi Univ., websites, EYP analysis

Challenges to be addressed for inclusivity in India

Limited female representation in higher education leadership and STEM employability

Only ~7% female vice-chancellors in HE, low female representation at top-ranked public-ranked universities, India 19th in the world, in employing women in STEM despite producing second highest female STEM graduates.

Limited inclusivity measures for the LGBTQIA+ community

Most initiatives for the LGBTQIA+ community are taken up by student-run associations; lack of administrative action to establish dedicated cells/ groups, with lower ranked universities seeing limited student action as well.

Insufficient support for students with learning disabilities

Despite improvements in physical infrastructure, exam assistance and flexibility in learning pathways, most institutes struggle to provide students with disabilities access to technology support, counselling services and high-quality learning outcomes.

Sources: India Education Forum report, UNESCO, British Council, Association of Indian Universities

KEY RECOMMENDATIONS

PRIORITY *Indicates recommendations to be prioritized in the next 12 months*

Stakeholders	Recommendations
Government actions	Increasing female representation in higher education leadership is a key step for promoting female inclusivity – UGC can incentivize government institutes to appoint a minimum of 20% to 25% of females in leadership positions of Vice-Chancellor, Deans, Directors and other senior management
	Defining comprehensive guidelines for LGBTQIA+ students to promote the setup of gender-inclusive hostels, student/ staff LGBTQIA+ networks, specialized counselling support and seminars on gender and sexuality PRIORITY
HEI actions	Higher education institutions need to introduce specialized leadership development programs for female faculty to promote female advancement in institute management positions PRIORITY
	Higher education institutions must invest in assistive technology equipment, provide dedicated counselling services, create customised learning track pathways and train faculty in adopting inclusive pedagogies to cater to students with disabilities PRIORITY

Sources: Primary interviews, EYP analysis

Conclusion

With India having one of the largest higher education systems in the world, the landscape of Indian higher education is complex and diverse. The National Education Policy 2020 aims to transform higher education in India by laying down a vision for improving access, equity, and quality of the sector. It is essential to break down this long-term vision into shorter quantifiable and achievable plans and focus on the immediate steps that need to be taken in the next five years to eventually reach the planned goals by the 100th year of India's independence in 2047.

The reforms in the higher education sector are already underway, such as flexible and multidisciplinary curriculum, focus on skilling to improve graduate employability, capacity building of faculty, technology integration and initiatives to improve research and innovation. However, in comparison with several developed economies, the Indian higher education system faces many constraints such as inadequate funding, staff shortages and industry linkages. Stakeholders across the higher education ecosystem need to undertake targeted efforts to overcome these constraints and begin to tread on the path towards excellence.

Key action points for the next 12 – 36 months

Theme	HEIs	Government	Industry
Quality education	▶ **Launch PhD programs for working professionals** ▶ **Align online course offerings with NHEQF and establish equivalence** ▶ Top ranked HEIs to expand global footprint	▶ **Introduce dedicated policy for technology usage in higher education** ▶ Creation of RPL policies to facilitate entry into higher education for students with no high school education based on skills assessments	▶ **Allow employees flexibility to pursue part-time PhD programs, facilitate knowledge sharing through regular employee visits to HEIs**
Industry alignment	▶ **Faculty support** ▶ **Curriculum audits to ensure industry relevance** ▶ **Industry secondments to faculty** ▶ **Faculty training by industry professionals** ▶ **Alumni engagement for student mentoring and job opportunities** ▶ **Offer work related and practical learning opportunities for students** ▶ **Ensure industry participation in institute governance** ▶ **Onboard Professors of Practice** ▶ **Establish support facilities such as Corporate Relations Office or Technology Transfer Cell**	▶ Industry-government joint sponsorship programs to set up Centres of Excellence and specialized manufacturing facilities at HEIs	▶ **Offer work related learning opportunities for students (internships, live projects, etc.)** ▶ **Offer expertise for curriculum development and delivery**

Theme	HEIs	Government	Industry
Research and Innovation	▶ **Shift focus from quantity of research outputs to quality** ▶ Increase spending on R&D	▶ Increase spending on R&D in line with other developed economies ▶ Facilitate Industry-University partnerships through a centralized database matching university research projects with interested industry partners ▶ **Appoint innovation mentors for lower tier institutions**	▶ Establish industry-government co-funded programs to boost research initiatives at higher education institutions
Inclusivity	▶ **Introduce leadership development programs for female faculty to launch them into leadership tracks** ▶ **Invest in assistive technology to support students with disabilities**	▶ Incentivize government HEIs to increase the share of women in leadership positions ▶ **Defining comprehensive guidelines to create an inclusive atmosphere for LGBTQIA+ students**	

Note - Recommendations to be prioritized in the next 12 months have been highlighted in bold

Methodology

In conducting this study, both primary and secondary research methodologies were used to collect data and generate insights. The first step of the process involved conducting an extensive secondary analysis of the HE sector that led to developing a hypothesis towards the sector's key current state, challenges, and recommendations.

Detailed interviews with 9 HEIs in India were conducted to gain first-hand understanding of the current state of the Indian higher education ecosystem. Unique insights were garnered from these experts who are leading figures of various institutions in India.

Exhaustive secondary research

Secondary research using government websites such as

- UGC
- AISHE
- NIRF
- Ministry of Education
- Department of Science & Technology
- Website publications and research papers

Global best practices benchmarking

- Different education parameters like PhD enrollments, faculty-student ratio, placement rates, R&D expenditure as a percentage of GDP, percentage of female students, etc., shortlisted to benchmark best practices at a global level
- Secondary research using government websites, government published reports, university web pages, databases like World Bank, etc.

In-depth structured primary interviews

9 in-depth interviews conducted with key leaders in the HE space in India

Data Analysis

Data collected from various HEIs to gauge current outlook in promoting high-quality education, industry partnerships, research progress and inclusivity measures

This report would not have been possible without the support and guidance of several individuals who in one way or another contributed and extended their valuable time and assistance in preparation of this report. We would like to express our deepest gratitude to all the stakeholders from different HEIs, who provided us an opportunity to gain immense insights of the HE ecosystem in India. Our sincere gratitude to FICCI team for their full co-operation, guidance and support during the entire timeline of writing this report.

Acknowledgement

Higher Education Institutes	Name and designation
Ajeenkya DY Patil University	**Prof. Hrridaysh Deshpande** Vice-Chancellor
Birla Institute of Technology and Science	**Prof. V. Ramgopal Rao** Vice-Chancellor
Marwadi University	**Prof (Dr.) Sandeep Sancheti** Provost (Vice-Chancellor)
Pandit Deendayal Energy University	**Dr. S. Sundar Manoharan** Director General
Sathyabama Institute of Science and Technology	**Dr. T Sasipraba** Vice-Chancellor
Shiv Nadar University	**Dr. Ananya Mukherjee** Vice-Chancellor
Thapar Institute of Engineering and Technology	**Prof. Padmakumar Nair** Director
UPES	**Dr. Ram Sharma** Vice-Chancellor
Vellore Institute of Technology	**Dr. Partha Sharathi Mallick** Pro Vice-Chancellor

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Glossary

AI	Arificial Intelligence
ABC	Academic Bank of Credits
AICTE	All India Council for Technical Education
APEL	Accreditation of Prior Experiential Learning
EDP	Executive development program
ESCS	Economically and Socially Challenged Students
GDP	Gross Domestic Product
GER	Gross Enrollment Ratio
GERD	Gross Domestic Expenditure on Research and Development
HE	Higher Education
HEI	Higher Education Institute
IBC	International Branch Campus
LGBTQIA+	Lesbian, Gay, Bisexual, Transgender, Queer/Questioning, Intersex, Asexual
MEA	Ministry of External Affairs
MDP	Management Development Program
MOOC	Massive Online Open Course
NEP	National Education Policy
NSF	National Science Foundation
PG	Post Graduate
PhD	Doctor of Philosophy
PPO	Pre Placement Offer
R&D	Research and Development
RPL	Recognition of Prior Learning
STEM	Science, Technology, Engineering, and Mathematics
UG	Under Graduate
UGC	University Grants Commission
VET	Vocational Education and Training

About EY-Parthenon's Education Sector Practice

EY-Parthenon, EY's strategy arm consists of a team of 50+ partners and 1000+ consultants in India and ranks 4th in the Vault Consulting 50 list of top consulting firms. EY-Parthenon is the leading strategic advisor to the education sector globally, with our education team completing 300+ projects annually.

The EY-Parthenon education consulting strategists help clients negotiate the changing currents in the sector so that they not only adapt but also adopt strategies in terms of globalization-driven skill sets and new collaborations.

With broad experience and deep sector knowledge, the education strategy consulting professionals at EY-Parthenon are helping leaders overcome challenges with bespoke, all-encompassing growth strategy plans, due diligence services and implementation support.

We have dedicated consultants in the following five segments of the sector:

Governments & Foundations	Pre-K & K-12 School Chains	Higher Education Institutions & TVETs	Indian & Global Ed-Tech Companies	Global Investors
Our clients include Central and State Ministries of Education, supporting organizations and foundations. We have supported in developing short term and long-term growth strategy plans to reform systems.	Our teams provide services such as market needs assessment, strategic planning, performance analytics, operational improvement, financial advisory and organizational redesign.	Our teams help HEIs identify opportunities for differentiation through various modes, using our insights from global best practices. We also help TVETs formulate end-to-end strategies and help with executing the same.	We provide competitive landscaping, market analyses, go-to-market strategies, support on organic and inorganic growth like fundraising, acquisitions, partnerships, joint ventures or divestments.	We provide due diligence services to investors. From the pre-contract stage through the eventual integration or separation, we help guide decision-making and provide execution assistance.

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About FICCI

FICCI Higher Education

Over the past two decades, FICCI has emerged as a prominent catalyst in shaping India's higher education landscape. Grounded in thorough research and strategic partnerships, FICCI has transformed into a potent advocate for pivotal policy changes. The skilful interconnection of higher education institutions, businesses, and government bodies by the FICCI Higher Education Committee has not only cultivated dynamic forums for critical discourse but has also propelled the sector forward through progressive dialogue, vibrant knowledge exchange, and robust policy advocacy for strategic reforms.

Key areas of work

Research and Knowledge Creation: The Higher Education Committee publishes a diverse array of industry reports, policy briefs, and papers that intricately capture the evolution and progress within the higher education sector. These include knowledge papers such as 'Vision 2030 for Higher Education,' 'State-focused Roadmap to India's Vision 2030,' 'Future of Jobs and its Implications in Indian Higher Education,' 'Higher Education in India: Vision 2047,' and 'Leapfrogging to Education 4.0.' Notably, the influential 'Higher Education Vision 2030' paper significantly influenced the design of the National Education Policy 2020.

Policy Advocacy: The Education committee also collaborates with key stakeholders in the Indian government and industry, actively identifying opportunities and addressing gaps. Through intensive consultations with a diverse array of stakeholders, this collaborative effort unfolds across various conferences, discussions, events, and forums. Brimming with shared wisdom and expertise, these engagements has proven pivotal in propelling the education sector forward in India.

International Delegation of Higher Education Leaders: The Committee annually coordinates an International Delegation of Higher Education Leaders, comprising distinguished Indian educators. This delegation travels to diverse countries, engaging with top-tier institutions to absorb global best practices, forge collaborative partnerships, understand policy reforms, and immerse themselves in the research and innovation ecosystems of those nations.

Higher Education Summit (HES): The Higher Education Committee also hosts the Annual Higher Education Summit (HES), a global gathering attended by leading universities worldwide. Established in 2004, the summit is a hub for discussions on the transformation of global higher education, promoting engagement, collaboration, and innovation. Since its inception in 2004, the summit has also drawn thousands of participants, including education luminaries, policymakers, scholars, and experts, converging on a common platform to shape the future of higher education in India.

Annual Roundtable Discussion: In pursuit of a dynamic synergy between industry and academia, this strategic gathering serves as a prelude to the Higher Education Summit, bringing together influential figures from government, academia, and industry. This collaborative platform is designed to identify challenges, chart a comprehensive roadmap for fulfilling the ambitions of the higher education sector, and unleash the untapped potential within Indian higher education institutions.

Higher Education Excellence (HEE) Awards: The Education Committee hosts the Annual FICCI Higher Education Excellence (HEE) Awards alongside the Higher Education Summit. Launched in 2014, these awards recognize institutions and individuals contributing significantly to the quality of higher education in India. They commend achievements in teaching, research, education delivery, capacity development, technology integration, and internationalization. The HEE Awards play a crucial role in motivating top performers and promoting a culture of ongoing improvement, serving as a catalyst for excellence and innovation in India's higher education sector.

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Federation of Indian Chambers of Commerce and Industry (FICCI) Established in 1927, FICCI is the largest and oldest apex business organization in India. Its history is closely interwoven with India's struggle for independence, its industrialization, and its emergence as one of the most rapidly growing global economies.

A non-government, not-for-profit organization, FICCI is the voice of India's business and industry. From influencing policy to encouraging debate, engaging with policy makers and civil society, FICCI articulates the views and concerns of industry. It serves its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, reaching out to over 2,50,000 companies. FICCI provides a platform for networking and consensus building within and across sectors and is the first port of call for Indian industry, policy makers and the international business community

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