

## Five Years of India Rankings (2016 – 2020): An Evolutionary Study

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### ABSTRACT

India Rankings i.e. National Institution Ranking Framework (NIRF) started in 2015 and completed its fifth year of yearly exercise in 2020. This article is based on evolutionary study of India Rankings. The study highlights the life cycle of India Rankings including different disciplines and their framework. It also focuses on how the framework is being matured year by year on the basis of availability of data in Institutions. There were several changes / deviations that happened due to non-availability of data or garbage data entered by the Institutes.

**Keywords:** NIRF; India rankings; RPC; Ranking; Research outcome; Benchmarking

### 1. INTRODUCTION

India has the largest set of higher education institutions which are contributing in academic, research and social services to society. Each institute has given contribution in their specific subject domain, interdisciplinary and multidisciplinary subject domain. The Indian higher education system is concentrating teaching as well as the research and innovation sector to enrich with tremendous research output and outreach its innovation to the society. Since the research is a continuous process, the assessment plays an important role for betterment of the institute in specific areas.

The Govt. of India has taken several initiatives to assess and evaluate the institute performance in a periodic manner. The Ministry of Education (formerly Ministry of Human Resource Development) has set up accreditation agencies for assessment of institutes and accreditation of technical courses two decades ago. The National Assessment and Accreditation Council (NAAC) was established for accreditation of the non-technical colleges and universities in 1994. The National Board of Accreditation (NBA) was also set up for accreditation of professional diploma, under-graduate and postgraduate technical courses specially in engineering, pharmacy, management and architecture, etc. The NAAC and NBA have used a peer-reviewed accreditation framework based on data submitted by institutions. The accreditation score is measured based on absolute measurement for each predefined criteria of framework.

The Ministry of Education launched the National Institutional Ranking Framework (NIRF) to rank higher educational institutions in 2015. The aim of India Ranking is to identify capabilities as a world-class university among 900+

universities and 50,000+ standalone institutions. The NIRF was designed by implementation of the Core Committee (ICC) constituted by the Ministry of Education. It was decided to rank institutions in two categories of institutions such as 'Research and Teaching' and 'Teaching' in various subject domains such as Engineering, Management, Pharmacy, Architecture, University and Colleges. The comprehensive framework was prepared with major five parameters such as 'Teaching, Learning & Resources', 'Research and Professional Practice', 'Graduation Outcomes' and 'Outreach and Inclusivity' and 'Perception' along with identified 15 to 17 sub parameters with respect to ranking criteria.

The various important changes have been made based on expert committee and institution feedback as identified during implementation of each ranking exercise. The committee has to accept the changes in ranking framework due to various factors like unavailability of data, authenticity and reliability of data, etc. This study produces the historical development of National Institutional Ranking Framework since inception of implementation.

### 2. LITERATURE REVIEW

The academic ranking of world universities (ARWU) was started in June 2003, after that in 2009 it is a fully independent organisation on the higher education world ranking. It's also known as Shanghai Ranking. Shanghai Ranking uses six objective indicators for the ranking i.e. the number of alumni and staff winning Nobel Prizes and Fields Medals (alumni-10 % & staff-20 %), number of highly cited researchers selected by Clarivate Analytics (20 %), number of articles published in journals of Nature and Science (20 %), number of articles indexed in Science Citation Index - Expanded and Social Sciences Citation Index (20 %), and per capita performance of a university (10 %). Shanghai Ranking also published

subject-wise world university ranking under “Global Ranking of Academic Subjects”. Natural Sciences; Engineering; Life Sciences; Medical Sciences And Social Sciences are the main subject categories, under these around 50 plus sub-subject world university ranking published. Furthermore, more than 1800 world universities are ranked by Shanghai Ranking every year<sup>1</sup>.

The QS world university rankings is the reputation global ranking system in the world. It was earlier known as times higher education QS world university rankings. Times Higher Education (THE) and QS (THE-QS) published jointly until 2009. Later in 2010, both started to declare their versions then QS chose to still use the pre-existing methodology and Times Higher Education adopted a new methodology for the rankings system. The ranking system is using six performance indicators for the ranking i. e., Academic Reputation (40 %); Faculty/Student Ratio (20 %); Citations per faculty (20 %); Employer reputation (10 %) and International faculty/student ratio (5 % each)<sup>2</sup>.

Times Higher Education (THE) World University established in 2004. It is the most widely considered global ranking system for higher education systems. As mentioned earlier, it had been published jointly with the QS ranking system till 2009. In 2010 THE world ranking system published a new ranking methodology for higher education individually. It considers 13 separate performance indicators for the ranking. These indicators mainly analyse teaching, research, knowledge transfer and international outlook<sup>3</sup>. Round university ranking (RUR) Rankings system was established in 2013 as an independent agency based in Moscow, Russian Federation. This ranking system is one of the leading ranking systems of

the university. It measures the performance of 1100+ leading world universities from 82 countries through 20 separate indicators<sup>4</sup>.

The National Institutional Ranking Framework (NIRF) is the higher education institutional ranking system. It is also known as India Ranking. This ranking system was adopted by the Ministry of Education, Government of India in 2015<sup>5</sup>. NIRF is an effective ranking system for India higher education.

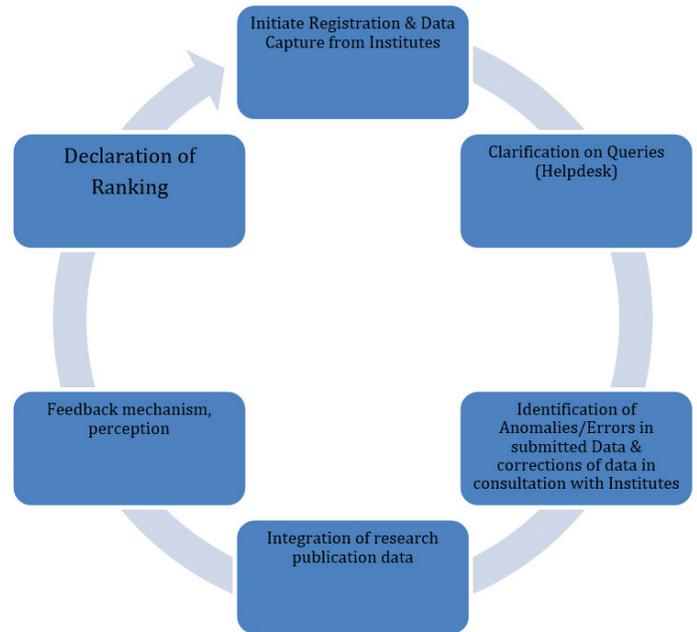


Figure 1. Life cycle of NIRF yearly exercise.



Figure 2. NIRF event calendar.

### India Rankings: Participation

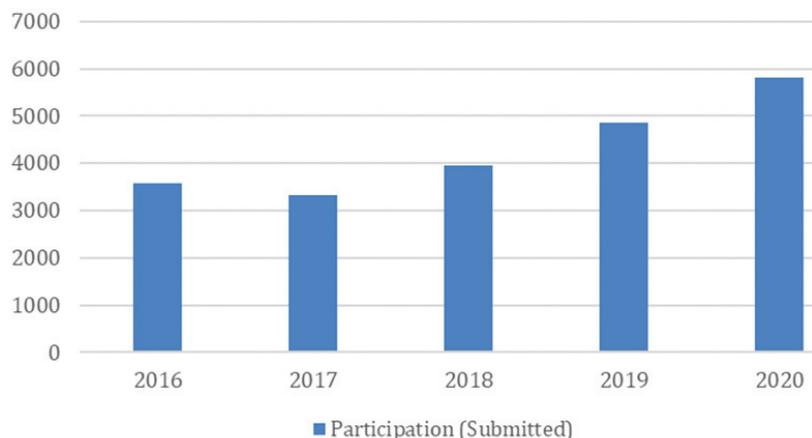


Figure 3. NIRF institutional participation.

It encourages institutions to compete and improve their performance<sup>6</sup>. This ranking system has gained momentum and confidence among the public, and it helps to provide factual information about the institutes in India<sup>7</sup>.

### 3. OBJECTIVES OF THE STUDY

The objectives of the study are to explore the following:

- India Rankings and its yearly exercise
- Study on framework with respect to parameters
- Process of ranking from Registration to Score / Rank
- Changes/deviations in parameters/indicators with respect to Indian context.

Table 1. NIRF ranked disciplines

India rankings	Disciplines	Remarks
India rankings 2016	University Engineering Management Pharmacy	Due to data inconsistencies, Category-B institutions were not ranked. Architecture and General Degree Colleges were also not ranked Due to non-representative participation.
India rankings 2017	Newly added along with IR-2016 disciplines. Overall Colleges	Due to non-representative participation Architecture, Law, Medical were not ranked.
India rankings 2018, 2019	Newly added along with IR-2017 disciplines. Law Medical Architecture	
India rankings 2020	Newly added along with IR-2019 disciplines. Dental	

Table 2. Weightage of parameters

Discipline	Main- Parameter				
	TLR	RP	GO	OI	PR
Engineering					
Overall	0.3	0.3	0.2		
Pharmacy					
Management					
College	0.4	0.15	0.25	0.1	0.1
Medical	0.3	0.3	0.2		
Architecture	0.4	0.2	0.2		
Law	0.4	0.15	0.25		
Dental					
Agriculture	0.3	0.3	0.2		

### 4. INDIA RANKINGS: PROCESS OF YEARLY RANKING EXERCISE

India rankings is an annual exercise that ranks institutions of higher education in India in various categories and subject domains using National Institutional Ranking Framework (NIRF), released by the Ministry of Education (Formerly Ministry of Human Resource Development), Government of India in September 2015. The framework was used for the maiden edition of India Rankings in the year 2016 as well as for all its subsequent annual editions from 2017 to 2020 for ranking of HEIs in various disciplines.

The ranking framework provides for evaluation of institutions on five broad generic groups of parameters, i.e. Teaching, Learning and Resources (TLR), Research and Professional Practice (RP), Graduation Outcomes (GO), Outreach and Inclusivity (OI) and Perception (PR).

The new educational Institutions registered themselves on NIRF Portal to participate in the ranking process and existing Institutes, who have already participated in earlier years, do

**Table 3. Weightage of sub-parameters**

		Eng.	Overall	Phar.	Manag.	Coll.	Medi.	Arch.	Law	Dental
TLR	A. SS	20	20	20	20	20	20	20	20	15
	B. FSR	30	30	30	30	30	30	30	30	30
	C. FQE	20	20	20	20	20	20	20	20	20
	D. FRU	30	30	30	30	30	30	30	30	35
RP	A. PU	35	35	35	40	70	40	60	50	40
	B. QP	40	35	40	40	30	40	20	30	40
	C. IPR	15	15	15	NA	NA	10	NA	NA	NA
	D. FPPP	10	15	10	20	NA	10	20	20	20
GO	A. GPH	40	NA	40	40	40	30	40	40	35
	B. GUE	15	60	15	20	40	30	30	15	30
	C. GMS	25	NA	25	40	20	NA	30	25	NA
	D. GPHD	20	40	20	NA	NA	30	NA	20	NA
	E. GSS	NA	NA	NA	NA	NA	10	NA	NA	NA
	F. GPG	NA	NA	NA	NA	NA		NA	NA	35
OI	A. RD	30	30	30	30	30	30	30	30	30
	B. WD	30	30	30	30	30	30	30	30	30
	C. ESCS	20	20	20	20	20	20	20	20	20
	D. PCS	20	20	20	20	20	20	20	20	20
PR	A. PR	100	100	100	100	100	100	100	100	100

Abbreviations:-

SS - Student Strength

FSR - Faculty-Student Ratio

FQE - Faculty's Qualification and Experience

FRU - Financial Resources and their Utilisation

PU - Combined Metric for Publications

QP - Combined metric for Quality of Publications

IPR- IPR and Patents: Published and Granted

FPPP - Footprint of Projects, Professional Practice Practice and Executive Development Programs

GPH - Combined Metric for Placement, Higher Education

GUE - Metric for University Examinations

GMS - Median Salary

GPHD - Metric for Number of Ph.D. Students Graduated

RD - Region Diversity

WD - Women Diversity

ESCS - Economically and Socially Challenged Students

PCS - Facilities for Physically Challenged Students

PR - Perception

pre-registration. The Data Capturing Process starts after the registration. A full-fledged team as a help-desk (general and technical help-desk) deployed to answer the queries raised by the educational Institutes and hand-hold them in filling the data online. Figure 1 depict the same.

Soon after the completion of the data capturing process, the process of ranking started. The data of research publications and patent are incorporated in the ranking module of NIRF. Another parallel exercise starts i.e. removal of data anomalies (information provided by the institutes were inaccurate).

The NIRF also opened the platform to take the feedback on data entered by the Institution. As per framework, every

institute has to upload their entered data in pdf format on their website. So that anyone can comment / verify, if required. The exercise of perception module where peers and employers participated also starts parallel to data verification / corrections. After incorporation of perception and publications data, ranking announcements (Fig. 2).

## 5. PARTICIPATION

The NIRF is one of the flagship initiatives of Govt of India. The participation in NIRF is being increased year by year. There are so many other govt schemes where the weightage of NIRF is being given.

As per Fig. 3, the participation during IR 2017 was less compared to IR 2016, it was due to methodology / framework change. IR 2017 onwards, participation is being increased. It includes IITs, IIMs, NLUs, IISER, etc.

## 6. RANKING DISCIPLINES: 2016-2020

India Rankings started ranking of Institutions in four disciplines, namely University, Engineering, Management and Pharmacy. It was released in April 2016 i.e. India Rankings 2016. Over the years, new disciplines were added as per Table 1.

## 7. RANKING INDICATORS: 2016 TO 2020

Indian Rankings are prepared for different disciplines so the framework defines different parameters of individual disciplines based on importance of parameters in Indian context. The weightage of each five parameters such as Teaching, Learning and Resources (TLR), Research and Professional Practice (RP), Graduation Outcomes (GO), Outreach and Inclusivity (OI) and Perception (PR) are mentioned in Table 2.

The major changes are seen in TLR and RP. The framework for college, Law and architecture having more weightage of TLR and less weightage of RP. Similarly, weightage of graduate outcomes is more in College and Law disciplines.

The weightage of sub-parameter is also defined in the Table 3.

## 8. CHANGES/DEVIATIONS IN RANKING PARAMETERS AND THEIR CONSIDERATION

Based on issues and pit-falls brought to the notice of Implementation Core Committee (ICC) related to data collection, verification, authentication and interpretation, there are several deviations in ranking parameters, as mentioned in framework, came in sub-sequent years. Ranking indicators were also dropped due to such reason. All five year of ranking having deviations in Annexure I.

## 9. CONCLUSIONS

The entire historical development has been accepted by the Implementation of Core Committee based on several pilot studies for specific sub parameters executed by implementing agencies. The India Rankings released ranking based on NIRF with consideration of one year time window for many parameters. The fifth year ranking exercise has been announced with an increase of time window for three for the majority of parameters. The Google Scholar and Indian Citation Index has been declined for research parameters permanently. The Public Perception sub parameter has been removed for ranking exercise under the fifth Perception parameter. It has been found that NIRF is increasing its coverage of disciplines / subject domain. Moreover, framework is more matured in Indian context. The maturity came on the basis of past experience and accordingly adding / removing of few indicators subject to availability of authentic data.

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She has provided research data related to publication, citation, and highly cited papers.

**Annexure I**  
**Deviations on parameters / thresholds**

Rankings	Parameters / Thresholds	Changes / Deviations	Remarks
NIRF 2016		Indian Citation Index (ICI) was adopted as one of database to retrieve the data of publications and citations in place of Google Scholar for all disciplines.	Google Scholar does not support searching of publications by names of institutions.
	Research and Professional Practice (RP),	Publications provided by individual institutions were not considered because of incomplete, wrong and misleading bibliographic information.	Authentic source of data used. Publication from Scopus & web of Science were considered.
		The calculation of publications per faculty was based on FSR ratio or actual faculty whichever is higher.	
	Graduate Outcomes	Public examination and university examination were two indicators under parameter “graduate outcomes”. However, university examination was considered only.	
	Thresholds	<ul style="list-style-type: none"> <li>• Below mentioned category of institutions were not part of ranking:</li> <li>• Engineering Category A (having approved intake less than 200 for UG programme);</li> <li>• Engineering Category B (having approved intake less than 350 for UG programme);</li> <li>• Architecture Institutions</li> <li>• General degree colleges</li> <li>• Open universities</li> </ul>	
	Thresholds	Normalized Citation Impact (NCI) has non-analyzed data; therefore, due to this, it was not considered for each institution.	
	Graduate Outcomes	Entrepreneurship data (provided by the Institutions) was not considered because it was not as per NIRF framework.	
		Graduating students admitted into top universities was one of the metrics which was not recognized due to absence of provable data.	
NIRF 2017	Perception	Competitiveness metric was not recognized because absence of provable data.	
	Thresholds (Log base formula used)	logarithmic metrics were devised and applied to effect better differentiation between highly different data points / value.	
	Thresholds	<ul style="list-style-type: none"> <li>• The concept of “Overall Rank” came from NIRF 2017 framework. The qualifying criteria for this category is institution should have at least a 1,000 registered students, and graduated a minimum of three batches.</li> <li>• The Architecture, Law, Medical and Arts/Science Faculties (Departments) were not ranked due to institutes’ non-representative participation.</li> </ul>	
	Combined metric for Quality of Publications (QP)	Top 25% Field-Weighted Citation Impact (FWCI) and 25% Highly-Cited Papers (HCP) from within India were considered.	
NIRF 2018	Research Institutes	Few institutions widely perceived as research institutions have been empowered with a deemed to be university status to enable them to grant degrees to their doctoral students. They have very few (mainly doctoral) students, and very large budgets due to the very nature of their mandate. These were left out of the reckoning for rankings in any category. However, a few of these have excellent performance on few parameters. They have, therefore, found an honourable mention in India-Rankings-2018.	

Rankings	Parameters / Thresholds	Changes / Deviations	Remarks
NIRF 2019	Research and Professional Practice (RP),	The faculty's citations have also been normalized in Overall, Engineering, Pharmacy and Medical categories.	
	Footprint of Project and Professional Practice (FPPP)	It appeared publications in the top 25 percentile of cited publications globally (instead of India) for a given discipline was taken as sub-parameter.	
NIRF 2020	Perception	Number of beds in a medical institutions / colleges has also been incorporated as a sub-parameter for "Foot-prints of Professional Practice" for ranking of Medical institutions;	
	Teaching, Learning and Resources	NBA and NAAC-accreditation score as an extended parameter	
	Outreach and Inclusivity	Participation in MOOCs (SWAYAM) considered as sub-parameter	
		Participation in Unnat Bharat Abhiyan as an extended parameter	