Contributions of NIRF Ranked IIT's in Sponsored Research, Consultancy Project & Executive/Management Development Programs: A study

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Abstract

This paper analyses the Sponsored Research Details, Consultancy Project Details, Executive and Management Development Program which are available in NIRF Database from the year 2021 and 2022. The analysis is about the total contributions of IITs constitutes growth over the period. The brand image of the institute makes extra contribution not only for the institute growth but also for economic growth of the country in the way of micro level. While analysing the factors the IIT's sponsored project and development program rates has decreased during 2022 when compared with 2021. The future NIRF ranking criteria is more likely to be evaluated based on those parameters.

Keywords - NIRF, IITs, Consultancy, Institutional Ranking, Sponsored Research.

INTRODUCTION

A solid definition of ranking is that it is a reputable approach, with consistent methodology and procedures, for exhibiting the qualified procedures of whole institutions or of particular areas of the contributions to the society. Mainstream of NIRF is to compete with world class institutes and placing the Indian Universities in Global environment.

I. 2. NATIONAL INSTITUTIONAL RANKING FRAMEWORK (NIRF)

The National Institutional Ranking Framework (NIRF) was approved by the MHRD and launched by the Honourable Minister of Human Resource Development on 29th September 2015. This framework outlines a methodology to rank institutions across the country. The methodology draws from the overall recommendations broad understanding arrived at by a Core Committee set up by MHRD to identify the broad parameters for ranking various universities and institutions. The parameters broadly cover "Teaching, Learning and Resources," "Research and Professional Practices," "Graduation Outcomes," "Outreach and Inclusivity," and "Perception." India Rankings – 2016, based on this framework, was released on 4th April 2016.

2.1 PARAMETERS OF NIRF RANKING:

There are five parameters of NIRF Ranking
  a.   Teaching, Learning & Resources (TLR)
  b.   Research and Professional Practice (RP)

c.   Graduation Outcomes (GO)

d.   Outreach and Inclusivity (OI)

e.   Peer Perception (PR)

II. 3. SPONSORED RESEARCH

The institute has extensive facilities for both basic and applied research. A large number of R&D projects at IIT's are sponsored by Government agencies. The institute conducts continuing education programmes for professionals from industry and other Government organisations, and trainers from other technical institutions. Consultancy for a variety of clients is an important activity of the Institute lecturers.In addition to close collaboration with global universities, IIT's has active linkages with academic / research organisations in Austria, Belgium, Canada, France, Japan, Malaysia, Nepal, The Netherlands, Russia, Singapore, Switzerland, Thailand, UK and the USA.

III. 4. CONSULTANCY PROJECT DETAILS

Consultancy activities are mainly testing, analysis, design and troubleshooting.These assignments are carried out on specific requests from industry and these are time bound and have well defined deliverables. Some of the industries also retain the faculty as consultants and also work with the Institute as joint partners in development of technologies. Several Technologies developed by IIT's have been transferred to industry for commercialization. These include energy saving devices such as fluid energy mills, high-speed drilling machines, grinding wheel abrasives, prestressed concrete sleepers, superplastic forming of alloys, etc. Technologies developed, in partnership with industries, through Technology Development Mission, an innovative scheme introduced by the Government of India, have been transferred to partner industries in the areas of New Materials and Energy Efficient Technologies and Devices. For each of these moments of consultation, there are three types of skills need to be concentrated: technical, interpersonal, and consulting skills. (Block, 2011).

IIT's has a well laid framework to carry out these consultancy and sponsored research programmes. The Dean, Industrial Consultancy & Sponsored Research is responsible for implementing the policies framed by a Board, constituted under his Chairmanship. This Board consists of members of the Institute who are active in consultancy and sponsored research programmes. The policy guidelines recommended by the Board is approved by the Director and implemented as the rules of the Institute for carrying out projects.

A. 5. EXECUTIVE MANAGEMENT/ DEVELOPMENT PROGRAM

Industry supports the Institute for improving laboratory facilities. A number of multinational companies have helped the Electrical Engineering and Computer Science & Engineering Departments to create new facilities for teaching and researchprogrammes. It has established commendable progress through specific interactions like industrial consultancy, user-oriented programmes and continuing education programmes. The graduates and post-graduates of the Institute are making a significant contribution to the growth of the Indian industry.Over the years, such interactions have generated funds for augmenting and upgrading the facilities of various departments. Organizations and associations such as Confederation of Indian

Industry, Chambers of Commerce and Industry have also been playing a catalytic role in promoting this interaction through joint programmes.

IV. 6. REVIEW OF LITERATURE

Moed, H. F. (2020) described the user's insight into the value and limits of world universityrankings, a comparative analysis is conducted of five ranking systems: ARWU, Leiden, THE,QS and U-Multi rank. It links these systems with one another at the level of individualinstitutions, and analyses the overlap in institutional coverage, geographical coverage, howindicators are calculated from raw data, the skewness of indicator distributions, and statisticalcorrelations between indicators. Four secondary analyses are presented investigating nationalacademic systems and selected pairs of indicators. It is argued that current systems are still onedimensionalin the sense that they provide finalized, seemingly unrelated indicator values ratherthan offering a dataset and tools to observe patterns in multi-faceted data. By systematicallycomparing different systems, more insight is provided into how their institutional coverage,rating methods, the selection of indicators and their normalizations influence the rankingpositions of given institutions.

Sivakumaren, K. S. (2021) examined the publications of IndianInstitute of Management (IIMs), which have been indexed in Web of Science, Scopus and IndianCitation Index databases. The data for the study have been extracted from the website ofNational Institutional Ranking Framework (NIRF) under publications. A total of 939publications have been indexed in these databases and over all 1996 citations have been receivedfor its publications. Among 939 publications, 203 papers have been highly cited by others. It isfound from the results that a greater number of publications have indexed in Scopus (65.50%), it isfollowed by Web of Science (20.55%) and Indian Citation Index(13.95%).Generally, it isobserved that old institutes have been produced a good number of publications than the institutesestablished in recent years.

Muscanel, Muscanell, Utz&Utz (2021) examined the usage andutility of ResearchGate (RG), which is a social networking site where scientists disseminate theirwork and build their reputations. The authors employed an online survey approach to targetscientists who have an active RG account. The study found that most academics who have an RGaccount did not use it very heavily. Users did not perceive many benefits from using the site, andRG use was not related to career satisfaction or informational benefits, but was related toproductivity and stress. Study also suggested that RG needs to increase user engagement.

Yu,Wu, ALhalabi, Kao & Wu (2020) focused on research, ResearchGate metrics and firstlycompared with those that Research Excellence Framework (REF) and Quacquarelli Symonds(QS) World University Rankings to assess the quality of UK universities and global universitiesrespectively. 300 ResearchGate members from the supply chain management field were selected.The study utilized correlation analysis to examine whether ResearchGate metrics demonstrateeffectiveness on the researcher level in comparison with SciVal metrics. ResearchGate score canbe an effective indicator for measuring individual researcher performance.

Aithal, P.S.,Shailashree, V.T., & Suresh Kumar, P.M (2020) The institutions of higher education inIndia are in need of infusion of quality and clarity on the approach of building worldclasseducational institutions in the Indian context and environment. Recently, the Ministryof Human Resource Development, Govt. of India has identified various criteria andparameters that have global appeal e.g. research output, research impact, learningenvironment, etc. This framework called National Institutional Ranking Framework. Thispaper has analyzed "National Institutional Ranking System" for higher educational institutionsas a novel performance evaluation system using our recently developed analyzingframework called ABCD technique. Based on four constructs Advantages, Benefits,Constraints and Disadvantages, this system considers all determinant issues in key areas throughanalyzing the major issues and identifying the critical constituent elements.

Mandhirasalam, M(2020) ranking of Higher Education Institutions (HEIs) in the world is a common practiceamong many organizations across the globe. Unfortunately, no Indian institutions figure in thetop 200 of many global rankings. To encourage is in India to develop their ability to compete inthe international level, the MHRD launched the 'National Institutional Ranking Framework(NIRF)' in 2015. This paper reports the salient features and various parameters of NIRF in briefand analyses the ranking positions of engineering institutions in Tamil Nadu in detail. This paperanalyses only the rankings of engineering institutions among the five categories of institutionswhich are ranked separately in the 'NIRF India Rankings 2016'.

Taylor, P., & Braddock, R.(2019) described some of the theoretical and methodological issues underlying internationaluniversity ranking systems and, in particular, their conceptual connection with the idea ofexcellence. It then turns to a critical examination of the two best-known international universityranking systems the Times Higher Education Supplement (THES) World University Rankingsand the Shanghai Jiao Tong Academic Ranking of World Universities. It assessed the variouscriteria used by the two systems and argued that the Jiao Tong system, although far from perfect,is a better indicator of university excellence. Based on our assessments of these two systems, itsuggested how an ideal international university ranking system might look, concluding withsome comments on the uses of ranking systems.
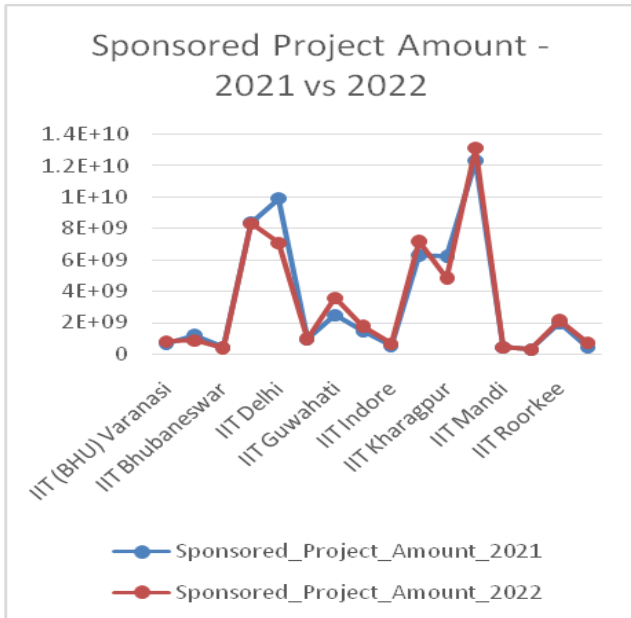
Clarke, M. (2020) described two recent effortsto rank the quality of higher education institutions in Australia and New Zealand. After a briefdiscussion of goals, methods, and results, the author evaluated each ranking using the followingquestions: Does this methodological approach achieve its objective? Can other countries use themethodology by extension? What can we learn about a country's higher education system usingthis approach? The aim is to provide readers with a framework for thinking critically aboutrankings, and about the role they might play in measuring and influencing higher educationquality on a global scale.

V. 7. DATA ANALYSIS & FINDINGS

The below data has been collected and calculated for 2021 and 2022 all IIT universities overall Sponsored research project, Consultancy project and Executive/Management development programs amount.

University Name	Sponsored_Project_Amount_2021	Consultancy_Project_Amount_2021	Executive /Management_ Dev_Annual_E arnings_2021	Sponsored_Project_A mount_2022	Consultancy_Project_A mount_2022	Executive /Management_ Dev_Annual_E arnings_2022
IIT-BHU Varanasi	665329886	340034751	0	806998867	397370376	0
IIT-Indian School of Mines	1183044939	496168445	63059427	884060816	324883199	43967442
IIT-Bhubaneswar	404817182	86958988	0	408400071	119988706	0
IIT-Bombay	8361327625	2031800000	150628953	8339485816	1931300000	147169724
IIT- Delhi	9896430688	1052127137	197602041	7102740152	1165627871	169919545
IIT-Gandhinagar	946188360	136359425	0	991473802	133150137	0
IIT-Guwahati	2479900000	278300000	350000	3569100000	281900000	22500000
IIT-Hyderabad	1444295552	145220012	57565000	1788363640	178189900	63265000
IIT-Indore	533530240	18357482	0	657724235	30907234	0
IIT- Kanpur	6292492779	902867022	95586000	7195336000	845394800	75360000
IIT-Kharagpur	6224871104	1064954952	177733833	4854664723	986175846	151672164
IIT-Madras	12303940195	4169755138	270718965	13137475449	4868543063	346743764
IIT-Mandi	436015326	13118544	0	415282581	16787315	2627878
IIT-Patna	293117127	49560941	0	299243391	63539864	0
IIT-Roorkee	1964040824	1641631557	26181928	2152311160	1656568460	38674736
IIT-Ropar	422987072	34399020	0	709873796	73279066	0

Based on the above data the line graph has been drawn to analyse the increase or decrease in Sponsored research project amount, Consultancy Project amount and Executive/Management development program amount for all IIT universities that were participated in NIRF 2021/2022.

Sponsored Project Amount - 2021 vs 2022

Exec Development/Management Programs Annual Earnings - 2021 vs 2022

Consultancy Project Amount - 2021 vs 2022

From the sponsored research project amount analysis, even though IIT Madras shows the peak amount but still it shows only 6.77% increase in amount in 2022 year when compared with the 2021-year wherein IIT Ropar has increased its earnings to 67.82% in 2022 when compared with previous year - shows the highest among other IITs. But IIT Delhi shows -28.22% amounts in 2022 when compared with previous year which is the lowest among other IITs.
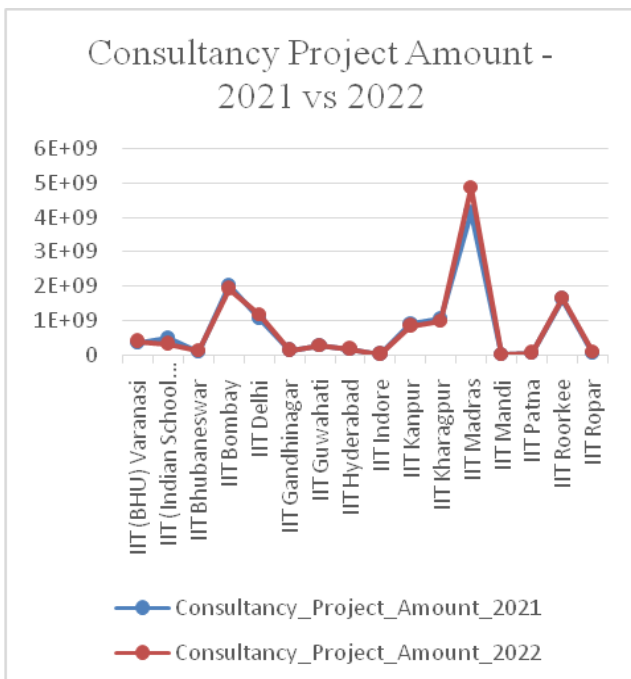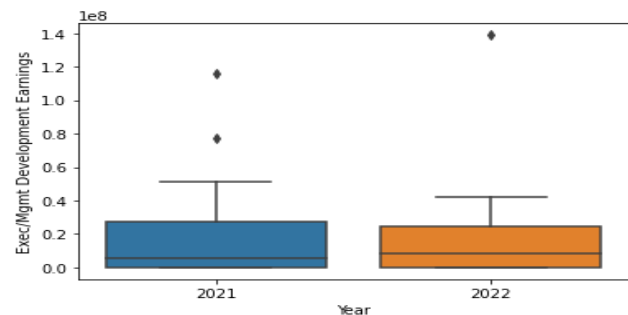
From the consultancy project amount analysis, even though IIT Madras shows the peak amount but still it shows only 16.75 % increase in amount in 2022 year when compared with the 2021-year wherein IIT Ropar has increased its earnings to 113.02% in 2022 when compared with previous year - shows the highest among other IITs. But IIT-(Indian School of mines) shows -34.52% amounts in 2022 when compared with previous year which is the lowest among other IITs.

From the Executive/Management development program amount analysis, even though IIT Madras shows the peak amount but still it shows only 28.08 % increase in amount in 2022 year when compared with the 2021-year whereas IIT

Guwahati has increased its earnings to 6328.57% in 2022 when compared with its previous year - shows the highest percentage of increase among other IITs. But IIT-(Indian School of mines) shows -30.27% amounts in 2022 when compared with its previous year which is the lowest among other IITs.

The below analysis shows that the overall IIT universities Sponsored Research Project amount and Executive/Management Development programs for 2022 has been reduced when compared with 2021-year amount but Consultancy Project Amount has been increased in 2022.

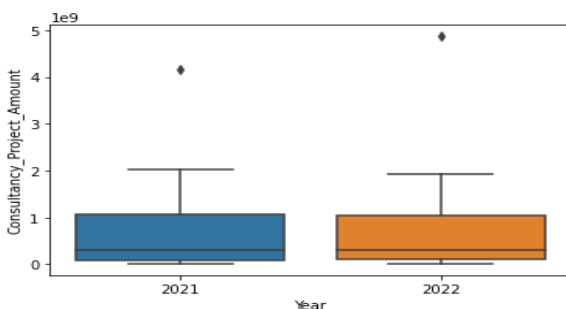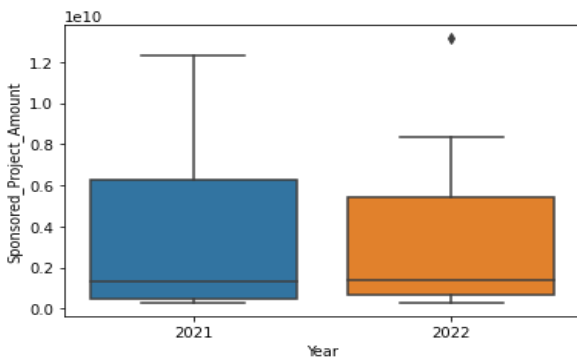| Year	Sponsored Project Amount	Consultancy Project Amount	Executive/ Management Development Program Earnings
2021	53852328899	12461613414	356831170
2022	53312534499	13073605837	314588147

CONCLUSION

When comparing the Sponsored Research Project amount, Consultancy Project amount and Executive/Management Development program amount for IIT Universities 2021 and 2022 data, the study shows that Consultancy Project amount is increased by 4.91% over the period but other two are decreased 1% in Sponsored Research Project amount and 11.83% in Executive/Management Development program earnings. When individually comparing each IITs 2022 data with its previous year, IIT Delhi and IIT (School of Mines) has decrease in amount but IIT Ropar and IIT Guwahati shows positive growth.

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