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Examining the State of Accreditation for Engineering Programs in India: Insights, Challenges and Future Directions

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Abstract—The National Board of Accreditation (NBA) offers program level accreditation for the higher technical education space in India. Accreditation by the NBA is a mandatory requirement for program-level expansion and the initiation of new programs. The All-India Council for Technical Education (AICTE) mandates that all institutions must have 60 percent of their eligible programs accredited by the NBA to receive approval to operate beyond 2024. Given the necessity for institutions to have their programs accredited by the NBA, it would be expected that many institutions would have completed the accreditation process. However, an analysis of the penetration of NBA accreditation across India based on several parameters indicates otherwise. In this paper, we examine the potential reasons for the low penetration of NBA accreditation across institutions and suggest measures to improve the penetration of program-level accreditation moving forward.

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Index Terms—Accreditation, Higher Education Institutions, Quality Assurance

1. Introduction

Improving the quality of technical education is imperative for India as it seeks to sustain and accelerate economic growth. The higher technical education sector in India is not only expected to assure a steady supply of trained manpower for industry and businesses, but also produce graduates with critical thinking and the capacity to innovate as future entrepreneurs. However, ensuring quality in a rapidly expanding sector that caters to a large, young population remains extremely challenging [AIU General, 2020]. Authors in [Philip G Altbach 2009] contend that India, like China, lacks a robust quality assurance system capable of providing comprehensive monitoring. The challenge lies in completing accreditation cycles for institutions on a large scale within a short period of time. While quality is subjective, many accrediting agencies define it as a tangible reality; a combination of inputs measured through both quantitative and qualitative indicators, along with continuous development toward enhanced outputs. This observation holds true today as currently Indian accreditation agencies struggle with large backlogs and delayed accreditation cycles for institutions, exacerbated by pandemic-induced delays. Accreditation serves as a pivotal mechanism to improve quality in self-financing technical

institutions in India [Durga Prasad et al., 2019] While quality is subjective, many accrediting agencies

define quality as a tangible reality; a combination of inputs measured by quantitative and qualitative measures, as well as continuous development toward enhanced outputs. Some studies, such as [Manuela Brusoni et al 2014], have regarded curriculum quality, teaching-learning, resource availability, degree of research, student skill enhancement, and level of students' learning outcomes and achievements to be metrics of continuous improvement and excellence. Outcome-based education aims to achieve desired results (in terms of knowledge, skills, attitudes, and behavior) both at the conclusion of a program and at the level of each course. This comprises a consistent approach for determining outcomes and measuring them against program outcomes that are compatible with the program's objectives. Initially, outcome-based accreditation carried out by the National Board of Accreditation was based on an 'Input - Process - Output' model, focusing on the availability of resources/facilities and their results. In 2009, NBA aligned its methodology with international benchmarks and began certifying programs based on outcomes. It maintains that educational quality should be judged by outcomes rather than input/output. Outcomes are influenced not only by inputs but also by the methods that an organization employs to convert inputs into defined outcomes. Outcome-Based Accreditation (OBA) is an evaluation of a program's performance in relation to the accreditation criteria established in terms of objectives, outcomes, and other relevant components. Accreditation serves two primary functions: ensuring the quality of the program and assisting in the improvement of the program.

In a country as diverse as India, it is important to define some common norms to ensure minimum standards. Several programs such as computer science and engineering have a direct bearing on the growth of the IT sector in India, which accounts for almost USD 100 billion dollars in exports annually or approximately 8 percent of the GDP. It is in the national interest to ensure that graduates from specific programs meet industry requirements and can contribute meaningfully to the expansion of the industry and nation-building. Some of the cogent reasons why program-levelaccreditation needs to be broad-based in India include:

1) Standardization of evaluation and assessment of program outcomes to ensure minimal variations in the knowledge and skill levels of graduate students across programs and regions.

2) Ability to benchmark specific programs on national/international criteria/parameters.

3) Push implementation of academic best practices in programs/institutions at scale impacting societal and national outcomes.

4) Facilitate institutions to undertake transformation and reforms for program-level quality improvement.

5) Ensure health of individual programs by allowing institutions to grow accredited programs.

6) Incentivize accredited programs by offering additional privileges such as research-related funding etc.

7) Inform and assure stakeholders in the ecosystem (regulators, ranking agencies, students, parents, corporates, prospective employees, and institution partners) about program-level compliance with basic quality norms and standards, allowing them to make informed decisions.

Given the mandatory requirement for institutions to obtain NBA accreditation for their programs, it is logical to assume that many programs being offered by institutions would be already accredited by the NBA. However, a cursory review of the accreditation data available on the NBA website indicates that a large majority of the programs across India remain unaccredited. This would imply that many programs/institutions would cease to operate beyond 2022-23, which would be a catastrophic outcome. There is a need therefore to understand why NBA accreditation remains under-penetrated in the Indian Higher Technical Education space, given its importance as a regulatory requirement? These insights can help make the necessary changes in the policy/process to facilitate quality improvement across institutions and bring them under the ambit of accreditation.

Globalization has introduced isomorphic pressures on Indian higher education institutions, reshaping pathways for academic autonomy [Bhalerao et al., 2023]. In recent times there is a lack of literature which offers fact-based analysis of NBA

penetration across India. Clearly insights are needed to mainstream program-level accreditation and make it an instrument of real quality improvement rather than a tool for compliance alone. This research paper analyzes the NBA accreditation data on multiple parameters and criteria to derive insights into the under-penetration of NBA accreditation. Accreditation trends are examined and discussed in detail. Challenges in broad-basing NBA accreditation are analyzed and presented. Finally, ideas on improving the scope and reach of NBA accreditation are presented.

2. Literature Review

Lee [Molly NN Lee. 2004] defines accreditation as the status of an institution or program that meets certain minimum standards. Accreditation is defined by [Nguyen Thi Bich Ngoc et al] as both a process and a status. In this context, the procedure is to review HEIs and programs by measuring their educational quality against set standards, and status is the result of that process. According to [John C Bittick 2003], an accreditation procedure allows for a thorough examination of all processes and the resolution of problems that have gone undiscovered for a long time. According to

[ST Walters et al 2007] accreditation may be marketed as a mark of excellence since accreditation audits are unbiased and specific, and standards are reviewed/revised by professionals. The bene- fits of accreditation are clearly visible in credit transfers of students from one accredited institution to another, higher acceptance of degree qualifications to pursue further education around the world, benchmarking with other institutions and adoption of best practices, continuous improvements in overall processes and funding availability, among others.

The national mission on improving quality and conforming to quality standards gained prominence in the last 2 decades with the National Assessment and Accreditation Council (NAAC) and National Board for Accreditation (NBA) driving quality improvement through accreditation. With concerted efforts of all stakeholders, the penetration of accreditation has improved significantly in the last few years. While NAAC focusses on institutional accreditation, the NBA with its program-level accreditation model for technical education is the premier accreditation body in the sector. Tools like the NAAC Student Satisfaction Survey are critical for institutional quality assurance in higher education [Patil and Kulkarni, 2022]. The role of the NBA gained prominence after India became a signatory of the Washington Accord and the program-level accreditation was deemed a major requirement for establishing program equivalence and facilitating global migration of technical talent. With the All-India Council for Technical Education (AICTE) making NBA accreditation mandatory for program expansion, introducing new programs and even obtaining extension of approval to operate, institutions across the country became serious in pursuing NBA accreditation for their programs [All India Council for Technical Education (AICTE). 2021]. As per the AICTE Approval Process Handbook 2023, institutions will need to have at least 60 percent of their eligible programs accredited by the NBA to receive AICTE approval beyond 2023. An outcome-based assessment of engineering programs can significantly enhance quality assurance and accreditation outcomes [Beena and Suresh, 2021]

There is a need to evaluate the effectiveness of the NBA accreditation process so that it can be broad-based and any obstacles to its adoption by the respective institutions ad- dressed. Whether quality assurance is perceived as actually being capable of promoting quality is still a question. After analyzing a large volume of literature on accreditation,

[Sónia Cardoso et al 2016] classifies quality in accreditation context into three different views – quality as culture, as compliance, and as consistency. He concludes that most of the institutions opt for accreditation for compliance rather than committing wholeheartedly to quality improvement [Accreditation Target, 2022].

Bagga et. al. [Taruna Bagga, 2017] carried out a study to understand the awareness level and perception of the stakeholders regarding accreditation system in India, painting a dismal picture with regards to institutional capability and poor investment in academic processes and faculty development. Strategic management practices have increasingly penetrated Indian higher education institutions, enhancing institutional effectiveness [Sawhney et al., 2020].A comparative analysis highlights significant gaps between the Indian quality assurance models and international accreditation standards [Kumaravelu and Suresh, 2021]. Developing a roadmap for achieving excellence in engineering education requires a systematic approach to accreditation and

quality practices [Siddapuram et al., 2024] The regulatory hurdles including an inflexible one-size-fits-all model approach are also highlighted as challenges. The absence of autonomy at the institution level and the expertise level of the review team are identified the possible barriers for improvement of the quality of the higher education even after successful accreditation status in [Huong Pham, 2018]. Sinha in [Vishal Sinha et al 2013] had also pointed key issues in the accreditation process resulting in the low penetration of NBA accreditation in the country recommending improvements in the accreditation process, while Prasad et. al. [G. Prasad et al 2010] have critically reviewed the reasons behind the sparse level of accreditation work completed by the National Board of Accreditation. They had cited the evaluation criteria and the scoring mechanism as the major drawbacks in the entire accreditation system, though the accreditation process was later overhauled in the year 2014 after India became the permanent signatory of the Washington Accord. The research by [M. U. Aswath et al 2015] highlights challenges and opportunities in engineering education quality assurance in India. [Y. Dave et al 2019] analyze stakeholder perspectives on engineering accreditation's impact in India. [S. Chattopadhyay et al 2020] critically assess technical institution accreditation in India, identifying areas for improvement. [C. Patel et al 2017] [R. Singhal et al 2016] review accreditation practices, emphasizing its role in program excellence and industry alignment in Indian engineering education. Still research exploring the impact of NBA accreditation and the outcomes attained is nascent with not enough studies existing.

3. Research Methodology

The research methodology for this study involves the following steps:

- Collection of primary data from the NBA website: The primary data was collected from the official website of the National Board of Accreditation (NBA) using web scraping techniques. The data collected included information on the accredited institutions, programs, duration of accreditation, type of the institution etc.

- Collection of secondary data from NAAC and NIRF: The secondary data was collected from the official websites of the National Assessment and Accreditation Council (NAAC) and the National Institutional Ranking Framework (NIRF). This data was used to analyze the correlation between NBA and NAAC/NIRF status of institutions.

- Analysis of primary and secondary data using descriptive and inferential statistical techniques: The collected data was analyzed using descriptive and inferential statistical techniques. Descriptive statistics

was used to summarize the data and inferential statis- tics was used to make inferences about the population based on the sample data.

- Analysis of qualitative data collected through inter- views using content analysis techniques: Qualitative data was collected through interviews with stake- holders involved in the accreditation process. The interviews were conducted using a semi-structured interview guide that allowed for open-ended responses from the participants. The responses were then analyzed using content analysis techniques.

- Review of relevant literature on higher education accreditation and the accreditation process: A review of relevant literature on higher education accreditation and the accreditation process was conducted. This helped in arriving at a theoretical framework for the study and in interpreting the findings.

- Interpretation of findings and presentation of results: The findings were interpreted and presented in the form of tables, graphs, and charts. The results were discussed considering the relevant literature and the research objectives.

Overall, this research methodology employed both quantitative and qualitative analysis techniques to provide a comprehensive understanding of the accreditation process in higher education institutions in India.

4. Program Coverage Insights

A. NBA Penetration

An analysis was conducted on the data available through the National Board of Accreditation website to determine the characteristics of accredited engineering programs and institutions with NBA accreditation [NBA India 2020]. Prior to 2018, obtaining NBA accreditation was a voluntary process.

However, it became mandatory for institutions to have 60 percent of their engineering programs accredited by NBA to continue operating beyond 2022 as per the All-India Council of Technical Education.

Since its inception in 1994, the NBA has accredited at least one program in 1053 institutions across the country. These institutions include engineering programs operating in universities, autonomous institutions, and affiliated institutions. Over the course of 1994 to 2020, the total number of NBA-accredited programs (non-unique) in such institutions stands at 7334. This indicates that 68 percent of engineering colleges in the country have not volunteered for the accreditation of their programs (AICTE).

Therefore, the penetration levels of NBA accreditation remain low at only 32 percent in terms of institutions having at least one NBA-accredited program between 1994 and 2020. The study conducted an analysis of the accreditation status of 1053 engineering institutions and found that only 53 percent of them were able to re-accredit their programs under the new Outcomes-Based Education (OBE) norms. Out of the total accredited programs, only 558 institutions had at least 1 NBA accredited program, while the remaining 495 institutions had no NBA accredited programs. This represents a 70 percent decrease in the total number of accredited programs. NBA has also categorized the engineering institutions into Tier I and Tier II based on their affiliation status with universities. Tier I institutions include all universities and autonomous institutions, while affiliated institutions fall under Tier II. Figure 1 shows the distribution of the 558 accredited institutions across the Tier I and Tier II categories.

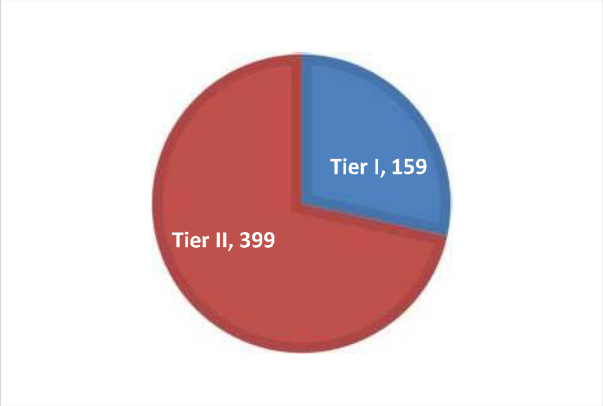


Fig. 1 : Pie chart depicting NBA accredited programs among Tier I & Tier II higher education institutions. Data Source: NBA Website

The accreditation status of the 558 institutions was further analyzed based on their affiliation status with universities. Among the 159 Tier I accredited institutions, only 37 are government institutions or universities, while the remaining are private institutions that have been granted autonomy by the University Grants Commission (UGC). On the other hand, out of the 399 Tier II institutions, only 27 are government institutions, with the majority being private institutions.

Interestingly, Tier II institutions make up a significant

72 percent of all institutions with NBA accredited programs, which could be attributed to the fact that NBA accreditation is not mandatory for state universities seeking program expansion [AICTE. FAQ approval process 2022-23]. The number of currently accredited programs in Tier I and Tier II institutions are 786 and 1486, respectively.

B. Duration of Program Level Accreditation

To ensure quality education, the NBA accredits engineering programs for a period of either 3 or 6 years based on predefined norms and outcomes achieved. Before 2016, the accreditation period was 5 years. Interestingly, the NBA has also provisionally accredited programs for a duration of 2 years, which is not mentioned in their policy framework. The accreditation data available on the NBA website reveals that Tier I (159) and Tier II (399) institutions have been accredited for varying durations, as illustrated in Figure 2.

To analyze the duration of accreditation for 2272 ac- credited programs, it was found that 1426

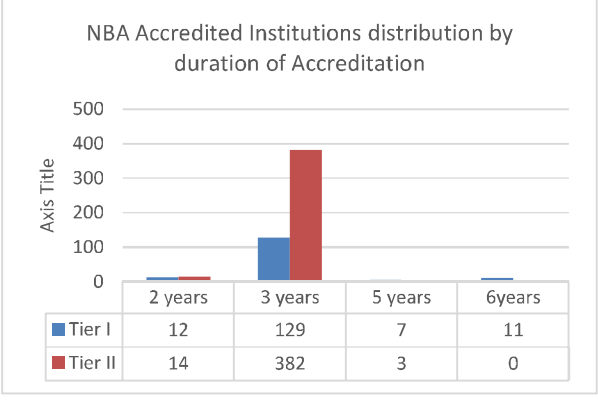


Fig. 2 : Distribution of Tier I and Tier II accredited institutions based on duration of accreditation. Data Source: NBA Website

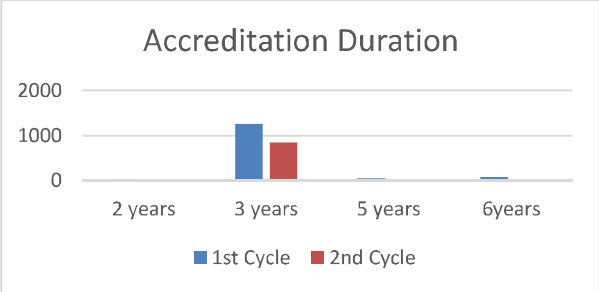


Fig. 3 : Distribution of accredited programs based on du- ration of accreditation cycle. Data Source: NBA Website.

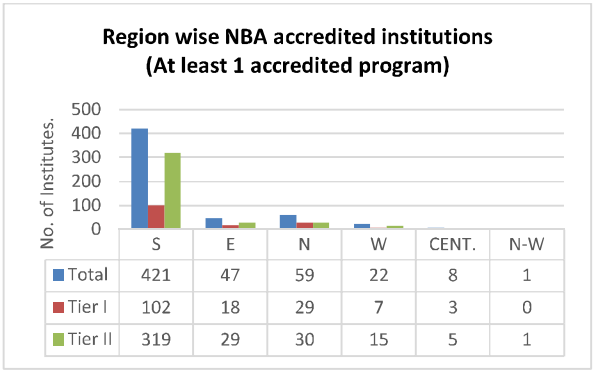
programs were accredited during the first cycle while 846 programs under- went re-accreditation during the second cycle. Surprisingly, only 80 programs out of the 1426 accredited programs received the coveted 6-year accreditation, indicating the difficulty of meeting the rigorous criteria for this accreditation period. None of the institutions that applied for re-accreditation received the 6-year accreditation status, suggesting that institutions struggle to improve their performance post-accreditation to achieve this status in the sub- sequent accreditation cycle. The distribution of programs according to their accreditation duration during the first and second cycles is illustrated in Figure 3.

The above figure also indicates that institutions do not fare better in the second cycle of accreditation and that a vast majority of institutions do not volunteer for the second cycle of accreditation immediately upon expiry of the validity of NBA accreditation status.

C. Region level penetration of program level accreditation

The analysis of program-level accredited institutions across different regions indicates that the South Indian region currently has the largest number of accredited institutions (421), followed by North (59), East (46), West (22), Central (8), and North-West (1) regions, with at least one program accredited by NBA. This suggests that the South Indian region has a higher adoption rate for NBA accreditation compared to other regions. Figure 4 presents the distribution of accredited institutions by region.

This regional imbalance of NBA penetration across the country is majorly because of the following reasons:



	S	E	N	W	CENT.	N-W
Total	421	47	59	22	8	1
Tier I	102	18	29	7	3	0
Tier II	319	29	30	15	5	1

Fig. 4: Region wise NBA Accredited institutions. Data Source: NBA Website

a. The institutions in the South India were established much earlier than their Northern counterparts and hence are more mature in terms of their academic processes [University Grants Commission, 2008].

b. Government policies in South India were more supportive to cater to many institutions and students, resulting in institutional growth and sustainability [New education policy 2020].

c. The Gross Enrollment Ratio (GER) in large South Indian states is much higher than those in North India, reflecting in higher admissions and more resources [Ministry of Education 2016].

d. In South India higher education is considered essential for securing the future and parents tend to make extraordinary efforts in supporting their children.

D. Demographic Profile of Accredited Institutions

1) Age of the Institutions: The age profile of NBA accredited institution is given below in the Table I, located immediately after the references section.

The age analysis of current institutions with NBA ac- credited programs reveals interesting insights. While NBA allows institutions to apply for program level accreditation after 2 batches graduate, institutions which have been in existence for close to 20 years are the ones which have currently accredited programs. Younger institutions it seems are having a hard time in meeting accreditation norms. For Tier-I institutions the average age is more than double that of Tier-II institutions. The plethora of private state universities created in the last 15-20 years have largely remained outside the purview of NBA. The

following institutions are eligible for Tier I NBA accreditation for undergraduate engineering and technology programs:

1) Nationally significant institutions (Indian Institutes of Technology (IITs), Indian Institutes of Science (IISc), and Indian Institutes of Information Technology (II- ITs), among others).

2) National Institutes of Technology (NITs).

3) Universities in the Center (Universities established by or under Act enacted by Parliament of India).

4) State Universities (Universities created by or under legislation adopted by the relevant state legislatures).

5) Private Universities (Universities created by or under legislation issued by the State government but pro- moted by private trusts, organizations, or companies as defined in Section 8 of the Indian Companies Act).

6) Deemed-to-be-Universities (Institutions declared as Deemed-to-be-Universities by MHRD) (Institutions declared as Deemed-to-be-Universities by MHRD).

7) Institutions that have been proclaimed autonomous by a competent and empowered authority.

These institutions have complete academic autonomy as well as the freedom to conceive, develop, and update courses.

2) NAAC Accreditation: Upon retrieving the NAAC accreditation data for the 558 NBA-accredited institutions from the NAAC website, it was discovered that 544 of them were also accredited by NAAC, indicating a strong correlation. Only 13 institutions with NBA-accredited pro- grams did not have NAAC accreditation, and they were all tier II institutions. Analysis of NAAC grades revealed the following insights:

1) Out of 544 institutions, 327 institutions were accredited with graded either A, A+ or A++.

2) 105 institutions were accredited with a grade of B, B+ and B++

3) And 102 institutions had either earned C/D or their accreditation grades were not available.

The NAAC is responsible for assessing and accrediting higher education institutions in India, and has recently up- dated its framework for promoting quality and excellence. The literature and references of various accrediting, rating, and regulatory/signatory authorities were examined to illustrate their impact on higher education institutions (HEIs). Since the NAAC and NBA are the only two certifying agencies in India that examine and accredit institutions and programs, the influence of a few other reputable accrediting and rating organizations has also been considered.

The NAAC assigns approximately 3.5 percent weightage to Industry Connect in direct assessment and emphasizes the importance of industrial connections in the development of curriculum and academic procedures. Institutions that are proactive and have a culture of volunteering for accreditation across different formats tend to have a higher proportion of NBA-accredited programs. Over 60 percent of current institutions with NBA-accredited programs have NAAC A grade and higher, indicating that only a small percentage of higher education institutions in India have the capacity to obtain multiple accreditations and meet diverse quality standards.

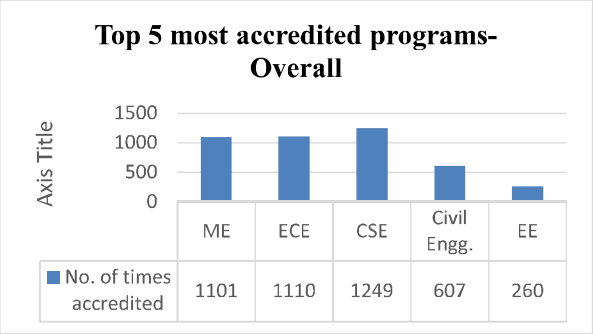


Fig. 5: Top 5 Accredited Engineering Programs across India Since 1994. Data Source: NBA website

3) NIRF Ranking of Accredited Institutions: The study also analyzed the National Institution Ranking Frame- work (NIRF) rank of the 558 NBA-accredited institutions and found that 152 of them were ranked in the University/Engineering category institutions. The remaining 300 institutions with at least one accredited NBA program did not receive a place in the NIRF ranking. However, all the NIRF ranked institutions were NAAC accredited, indicating a strong

correlation between NAAC accreditation and NIRF ranking, while a weak correlation was observed between NBA accreditation and NIRF ranking.

E. Program wise Accreditation Penetration

The dataset of NBA accreditation records since its inception in 1994 reveals that 102 different engineering programs have been accredited by NBA. Among all the accredited programs, Computer Science and Engineering (CSE) has received the highest number of accreditations across the country. This is followed by Electronics and Communication Engineering (ECE), Mechanical Engineering (ME), Civil Engineering (CE), and Electrical Engineering (EE) programs, in that order. The top five accredited programs are depicted in the Figure 5.

The current status of CSE accreditation in the country is concerning as out of 102 different engineering pro- grams accredited by NBA since its inception, CSE is the most accredited program. However, at present, only 399 CSE programs are accredited, and among them, only 165 programs are in their second cycle of accreditation. Moreover, none of the 165 re-accredited programs have received accreditation for more than 3 years. The status of accreditation of other four programs featuring in topmost accredited list is also given in Figure 6:

A region-wise analysis of these 165 re-accredited pro- grams reveals that 133 of these programs are based in institutions located in Southern India, followed by 17 programs in East India, 8 programs in North India, and four programs each in West and Central India. This indicates a stark regional disparity in the accreditation status of CSE programs in the country.

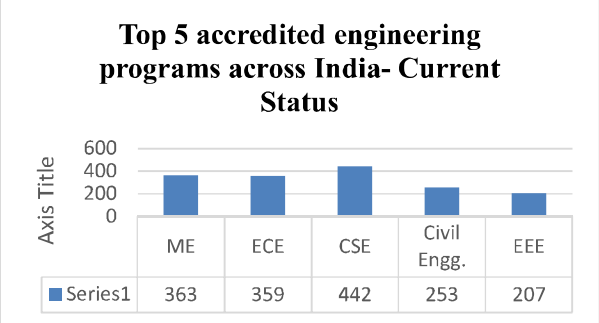


Fig. 6 : Current Status of Top 5 Accredited Engineering Programs across India. Source: NBA website

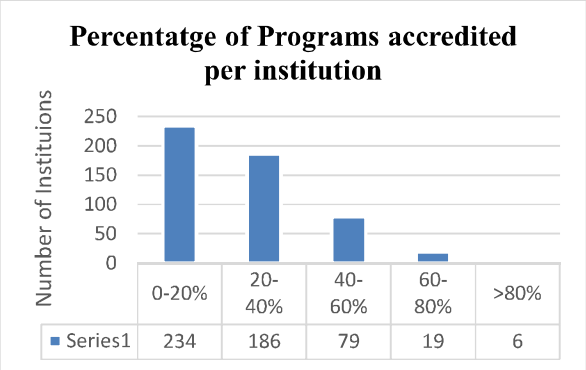


Fig. 7 : Percentage Distribution of Accredited Programs per Institution. Data Source: NBA Website

F. Institution Level NBA Penetration

The study further examined the percentage of programs among 558 accredited institutions and found that only 17 of them had more than 75 percent of their programs accredited by the NBA, while 288 had less than 25 per- cent of their programs accredited. The AICTE mandated that technical institutes have at least 60 percent of their programs recognized by the NBA by 2020, and in 2021, non-compliant institutions were warned that they would not receive the annual e-approval. Figure 7 illustrates the NBA's institution-wide penetration among institutions with at least one accredited program. This clearly shows that the AICTE mandate for institutions to have minimum 60 percent programs accredited by the NBA for obtaining approval to operate beyond 2022 is nowhere close to being achieved. At this stage this mandate seems completely infeasible. A meagre 9 percent of the currently accredited institutions have more than 50 percent programs accredited by the NBA. This would imply that 90 percent of engineering/technical institutions in India would need to shut down post 2022. This is a dire situation and reflects major policy gaps and lack of understanding of the ground realities in the sector by the policy makers and regulators.

G. Re-accreditation carried out by Accredited Institutions

We also reviewed the current 2272 accredited programs to understand the rate of the re-accreditation of programs. It was observed that only 846 programs (40 unique programs) including 317 programs (Tier I) and 529 programs (Tier II) from 149 institutions are currently re-accredited during the second cycle of accreditation. However, it also emerged from the data set that duration of accreditation for these programs

accredited during the second cycle was 2 years (provisional accreditation). In addition to it 1426 programs are currently in their first cycle of accreditation. Moreover, 4968 programs got accredited only once and didn't get re-accredited. The data thus indicates a very low rate of re-accreditation among the accreditation institutions. The primary reason for this anomaly is that NBA accreditation status is immediately used during the AICTE approval process for enhancing intake, adding new programs etc. Once that need is met, the institutions do not feel that volunteering for the re-accreditation process is worth the effort. Thus, NBA accreditation is being used as a tool to meet regulatory requirements for expansion and not perceived as a quality improvement program offering long- term value proposition for the institutions.

5. Challenges In Expanding The Scope Of Nba Accreditation

To understand the challenges involved in NBA accreditation from an institutional perspective we conducted in- formal interviews with 30 institutional leaders from Tier-

II institutions in north, west and east India, regions of relatively lower penetration. Ten of these institutions had at least 1 NBA accredited programs. Four broad themes that emerged from the interviews included management support, faculty attitudes and readiness, training and hand- holding and regulatory challenges. The four themes have been organized and presented in Table II, located immediately following the References section.

In many institutions the management had unreasonable expectations from the Principal's/Director's in obtaining NBA accreditation without the necessary resources being made available. The variations in student enrollments due to state-level regulatory challenges and student preferences for specific branches also left several programs ineligible to apply for NBA accreditation. Finally, institutional and faculty readiness in terms of supporting policies, academic and administrative processes, availability of credible data for last 3 years, faculty awareness and ability to assimilate and practice the OBE methodology also came out as major obstacles in obtaining NBA accreditation. The detailed analysis of some of these challenges is articulated below:

A. Universities vs. Affiliated Colleges

The applicability of NBA accreditation norms varies for universities and affiliated colleges. However, program-level NBA accreditation is not mandatory for universities, but it is for affiliated colleges. This represents a dichotomy in

the design of the NBA accreditation process. This has led to an imbalanced growth with universities, especially in the private sector going on an expansion spree while affiliated colleges could not without fulfilling the accreditation norms. Even post-accreditation the affiliated colleges could only expand the program in a limited manner, whereas the private universities expanded their programs so rapidly, that it impacted the sustainability of the private affiliated colleges in several instances. Clearly, the skewed playing field in favor of private universities has led to existential concerns for several affiliated colleges, impacting their ability to meet accreditation criteria. The monitoring and regulation of private universities in terms of quality and accreditation norms is completely a grey area, as the AICTE has no jurisdiction on making NBA accreditation mandatory for these Universities. As these private universities garner a bigger percentage of students and consolidate, it is evident that a large percentage of student population would graduate from non-NBA accredited programs. This would further impact the penetration of NBA accreditation in affiliated colleges which are facing significant headwinds.

B. Federated Governance an impediment

Private affiliated colleges have always struggled to obtain multiple approvals and clearances from the AICTE, respective State Governments and Affiliating Universities. Lack of Autonomy in admitting students, adopting modern curriculum, revising fees, recruiting faculty and conducting examinations has hampered their ability to keep pace with global trends and industry requirements (Pham, 2018). The direct admission model offered by large private universities have rendered several state level entrance tests redundant. Since, many state govt's insist on admissions through their own entrance tests, the admissions in the affiliated colleges have been badly hit. This has manifested in low admissions in several programs making them ineligible for NBA accreditation, where minimum student enrollment has been specified as an eligibility criterion for applying. According to the International Accreditation

Organization (IAO), an institution's accreditation status might impact an admission aspirant's decision to attend an educational institution because it represents the validity and accept- ability of their degree program. The NBA stressed that the influence of accreditation extends far beyond a HEI's quality assurance. The impact of accreditation is readily visible in the increase in enrollment of prospective students (NBA 2019). Further, faculty is appointed in affiliated col- leges by selection committees controlled by the affiliating universities, making it very tough to appoint Associate Professors and Professors. Thus, many programs across institutions have been rendered ineligible to apply for accreditation.

C. What's in it for the students and the industry?

If the NBA must be critiqued, it has not done enough to articulate its value to the primary stakeholder in thesystem – students. At the end of the day students do not perceive any major difference in graduating from a NBA accredited program versus a non-accredited one. Hence, the perceived value of NBA accreditation is not clearly established in the ecosystem. Students in large private universities do not care whether their programs are NBA accredited. Even institutions view NBA as an endorsement of its projected quality or as a tool used by regulatory agencies to ensure compliance. Its academic value i.e., implementing outcome-based education remains undiscovered by the institutions, faculty, and the students. No wonder majority of the institutions bring in external experts to get through the process. Similar, challenges exist with industry partners hiring from big universities without bothering for the NBA accreditation status of the program. Clearly the industry does not give much credence to the NBA-defined quality standards, opting for their own mechanisms. Some big corporate houses have their own mechanism of accrediting campuses and programs from where they hire graduates on an ongoing basis. Hence, industry engagement is also essential to ensure the success of the program-level accreditation format.

D. Institutional Leadership – Lack of Vision

The quality of promoters in the Indian Higher Technical Education landscape is suspect. It is not surprising that institutions which face challenges, stop investing in building new competencies or effecting turnarounds. Many promoters lack the vision and wherewithal to build institutions. Cutting corners, following malpractices and financial impropriety in the face of challenges exacerbates the challenges rather than addressing them. The major consolidation in the sector is the direct result of dubious promoters bowing out when the competitive landscape changed in the last few years. Even when promoters want to build good quality institutions, challenges remain, and transformation is not guaranteed. Rapid digitization, rising student-expectations and intense competition requires significant efforts and resources to transform institutions and meet international quality norms. [I E Suleimenov et al 2020]

E. Faculty Training

To achieve NBA accreditation, institutions need to continuously invest in training and re-training of faculty members. This is currently a major gap preventing institutions from creating a culture where accreditation processes are institutionalized and implemented daily. Thus, internal capacity and capability is not created. Quality is a journey and a test of the diligence of institutions. Moreover, high faculty attrition in private colleges hampers continuity. A highly motivated central quality assurance cell working with faculty members, new and existing, to reiterate accreditation processes and providing mentoring support [Alpana Gupta 2020] wherever needed is the only way forward for institutions.

F. Low IT Adoption

Institutions have not adopted modern IT tools [Sahil Sawhney et al 2019] and practices for operational efficiency, data collection and management, making accreditation related work manual and tedious. Automating data collection and presentation

[Alpana Gupta 2013] would relieve the faculty members to focus on creating academic value for the students, which is central to any accreditation process. The faculty spends a disproportionate amount of time in administrative and data construction tasks compared to focusing on the Outcomes-Based Education (OBE) aspects of NBA accreditation.

G. Strategy is Destiny

Institutional leadership teams have not adopted strategic management and created plans to address institutional challenges [Sahil Sawhney et al 2020].

Thus, professional management, support structures and enabling environments have been missing in a large majority of the institutions. Institutions which have been successful in attaining higher order outcomes have hired professionals with relevant experience to drive specific operational/functional areas, leaving the academic staff to focus on excelling in teaching-learning.

H. Consultant Model Doesn't Work

Quality cannot be outsourced entirely. Reliance on consultants by institutions to write Self-Assessment Reports (SARs), providing end-to-end guidance and support, results in short-term gains, but does not equip institutions to enhance quality further and meet increasingly dynamic accreditation norms. Such models are not sustainable in the long run.

6. The Road Ahead

This section outlines certain proactive measures which can be taken by the different stakeholders – regulatory agencies, governments, and individual institutions to ad- dress policy imbalances and quality concerns.

a. Level the playing field: If the regulatory bodies are serious about bringing a large number of institutions under the ambit of NBA accreditation, then a level playing field needs to be created and the regulatory jurisdictions need to be applied uniformly. Private universities need to be brought under the ambit of the NBA or the NBA needs to be made voluntary for affiliated colleges.

b. Contextual Accreditation: A one-size fits all approach will not work for a country as diverse as India. The local environment of institutions (State, location, age of institution, fee structure, proximity to industry etc.) need to be factored in and data needs to be normalized to make accreditation meaningful for institutions in smaller towns and cities in India.

c. NIRF Overhaul: The National Institutional Ranking Framework (NIRF) does not consider the accreditation status of institutions, whether it is NAAC or NBA. This is a major flaw in the design of the rankingframework as it does not give credence to its own national accreditation agencies. This allows universi- ties to bypass accreditation norms and still rank higher than institutions which have taken the initiative to gain the accreditation status.

d. Stakeholder Communication and Branding: NBA needs to build a pervasive brand which is recognizable by students, industry, and the larger society. Unless there is buy-in from the broader community, the value perception of such initiatives remains low. There is thus a strong a case for the privatization of NBA on the lines of the ABET (Accreditation Board for Engineering and Technology), USA.

e. Institutional handholding: Training and mentoring of institutions should be major initiative from the NBA. Facilitation of accreditation and raising the overall quality and standards of education should be a stated objective for a country such as India. Hence, an impersonal approach of a standards body should be shunned in favor of a nurturing approach. Use of IT frameworks to automatically track outcomes on a continuous basis and alleviating the tedium of record keeping would be good steps to facilitate wider adoption, making re-accreditation continuous, seamless, and not a big-bang affair.

f. Implementing the New Education Policy (NEP) in spirit: The new National Education Policy 2020 has put forth its vision to transform the Indian Education sector centered around graded autonomy to institutions. Institutions first need to be given free space to express themselves and figure out what works for them. They can then be held accountable to higher standards and outcomes. The current market forces and an intensely competitive landscape are further forcing institutions to transform and build resilience. In 2-3 years, the surviving institutions would be able to meet accreditation norms out of their own volition rather than through coercion with the threat of closure.

Conclusion

A perusal of the program level accreditation analytics across India, indicates that despite making NBA accreditation mandatory for program/course expansion and basic institutional approval, its penetration remains significantly low. This would suggest that a vast majority institutions are not

concerned about their existence/growth or are incapable of meeting accreditation norms. This research paper indicates that many institutions have not systemically invested in building internal capacities in assimilating and implementing the accreditation processes. They have also been hampered by regulatory and statutory hurdles due to varying norms implemented at the State level and affiliating university levels. Further, with the NBA accreditation norms not being applicable to State private universities, the playing field is heavily stacked against private affiliated colleges. This has manifested in dwindling admissions and inability to meet accreditation norms. Thus, to make accreditation meaningful and broad-based, it is imperative that institutions be afforded complete autonomy. Imposing higher order quality norms on institutions having no control over admissions, fees, faulty recruitment, examinations, and curriculum will not yield the desired outcomes as envisaged by the policy makers. The current irony of no norms for institutions having full autonomy (private universities) and stringent norms for institutions having no autonomy (affiliated colleges) seems lost on the higher technical education policy makers in India.

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APPENDIX

Table 1 : Age Profile Of Accredited Institutions

InstitutionType	Average age and Median Age (in years)	Region-wise Average Age	
Tier I	Average - 43.94 Median - 35	South	41.6
		North	54.3
		East	41.5
		West	33.7
		Central	60.6
Tier II	A-22.3 Me-19	South	22.18
		North	24.7
		East	26.85
		West	30
		Central	17.8

Table 2: Thematic Analysis Of Responses From Institutional Leaders

S.No.	Themes	Description	Instances
1	Management support	Lack of support structure	*"Our college had no clear strategy for the preparation of the NBA accreditation. The management decided to go for the accreditation and asked us to prepare for the SAR. With non - availability of the data along those specified areas it became challenging for us to prepare the Self-Assessment Report"* *"It was very difficult to have a deeper understanding of the NBA during this short period of time. Moreover, there was certain key fundamental concepts like calculation of attainment levels which required foundational knowledge of OBE, which we lacked."*
		Misplaced Expectations	*"It was my first attempt towards the NBA accreditation and with the stringent requirements of meeting 50 percent admissions and 40 percent placements it became quite challenging to convince management regarding our inability to apply for the accreditation."*

S.No.	Themes	Description	Instances
			"The management hired external consultants who gave us some reports of already accredited colleges. However, the consultants also lacked the in-depth skills for helping us in getting the accreditation. Not everything can be outsourced."
2	Faculty attitudes and readiness	Preparedness	*"I had set up a core committee comprising senior faculty members to prepare for the NBA accreditation, and it appeared that majority of the faculty lacked expertise and skill set required for accreditation. Faculty members could not read the NBA manual and prepare data, requiring constant hand- holding and guidance."* *"There was no faculty member who developed an end-to-end understanding of the NBA accreditation process. Faculty felt that data collection was the main task of accreditation." "Each faculty required multiple trainings on writing course outcomes, blooms taxonomy, mapping of course outcomes with program outcomes and setting question papers based on the mapping created."* *"Accreditation is a top -down process in our institutions, al - though it should be bottom-up. Faculty members should be able to assimilate and drive the accreditation process. No wonder external experts need to be engaged by the institutions."*
3	Training and hand-holding	Training	*"The training faculty on the program level accreditation was very important to create a strong culture of quality in the department. The IQAC cell in our institution designed several training programs for the core group of faculty and other faculty members. The training sessions were focused on training faculty on the core fundamentals concepts of the accreditation framework in addition to the criteria wise training. The IQAC Cell also helped us in getting exposure through mock peer team visits to get the hands -on understanding of the requirements." "We did not have one master trainer who could guide other faculty members in meeting attaining NBA accreditation. The lackof authoritative training led to confusion among the faculty and lack of direction."*
		Engagement	*"There is a need for constant training and re-training. The faculty after initial trainings were seen implementing the old practices. The faculty has lot of resistance to change requiring consistent follow-up, monitoring, and mentoring"* *"Our institution had implemented a Q uality Management Framework which had automated the entire NBA framework. Hence the faculty members were required to follow some basic steps to ensure compliance with the requirement of the accreditation. This framework enabled the Heads of the Department and the leadership team to engage with faculty members and all the stakeholders using a standardized framework. The overall process was simplified for the faculty."*

S.No.	Themes	Description	Instances
4	- Regulatory challenges	- Eligibility Criteria andFaculty Appointment	*"The student enrollment in the engineering programs has created a challenge for many institutions to function smoothly. The criteria of meeting 50% admission in core branches for average of three years is turning out to be a major hurdle in meeting the pre -requisite for NBA accreditation."* *"We are meeting all requirements including faculty profile, academic results but the poor admissions due to covid during current year and last year has made us ineligible for the NBA accreditation."* *"Removing the criteria for 50% placements shall help colleges like ours in tier-III cities to apply for NBA accreditation" "We are an affiliated college, and the University holds the se- lection committees for appointment of Professors and Associate Professors. It is very tough to meet the criteria expected by the University for appointment of Professors. In many cases Universities consider UGC norms for appointment overlooking the AICTE norms. Hence, having duly selected senior faculty is a major challenge."*