Technical Education System & Quality Assurance By NBA-India

A Presentation by NBA India Team

Agenda

- Higher Education System in India
- Technical Institutes in India
- Technical Education in India
- NBA – Structure and Key Highlights
- NBA – Steps for Permanent Membership of Washington Accord

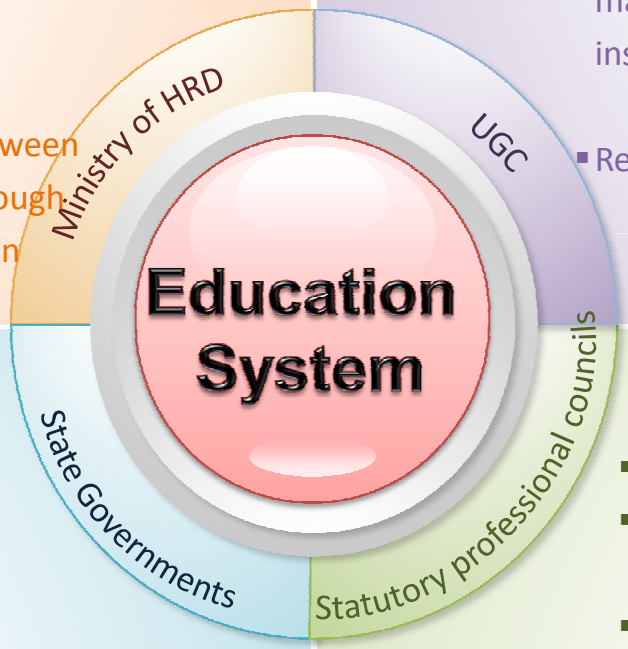
Higher Education System in India

Department of Higher Education

- Regulation and coordination of education in India, including higher and technical education.
- Coordination and cooperation between central and state governments through Central Advisory Board of Education (CABE) and direct interaction.

University Grants Commission

- Coordination, determination and maintenance of standard in institutions of higher education.
- Release of Grants.

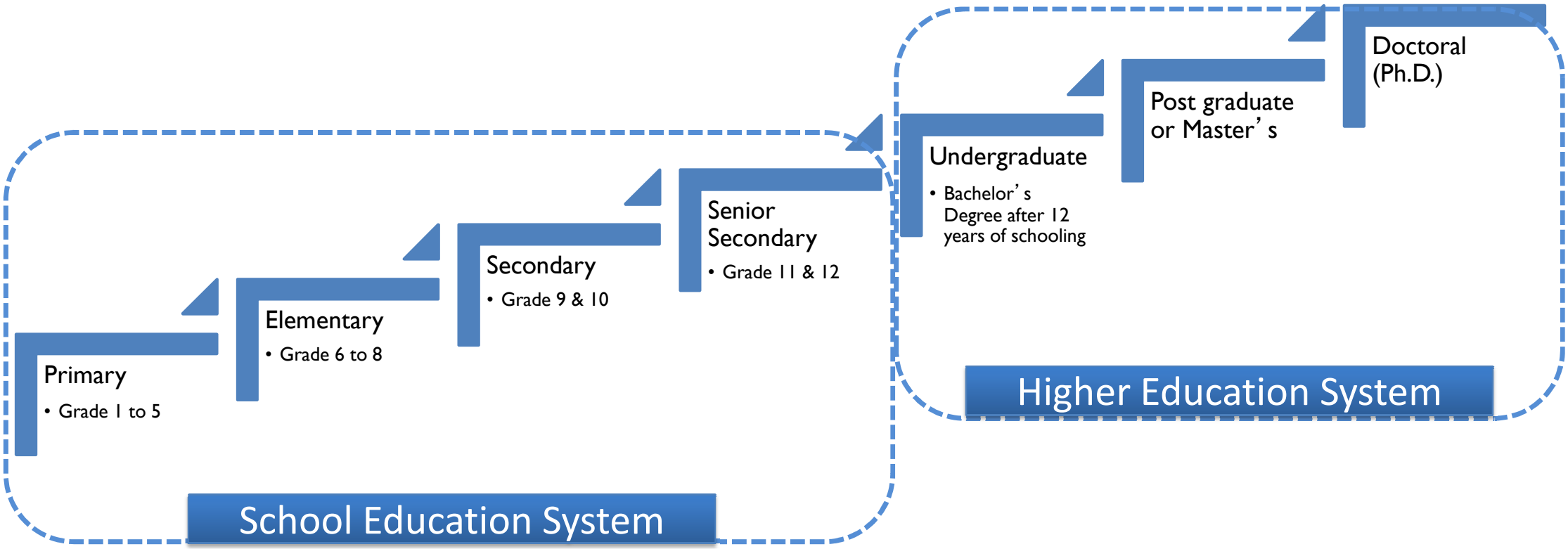


- Play a role in funding Higher Education.
- Determine administrative and operational matters.

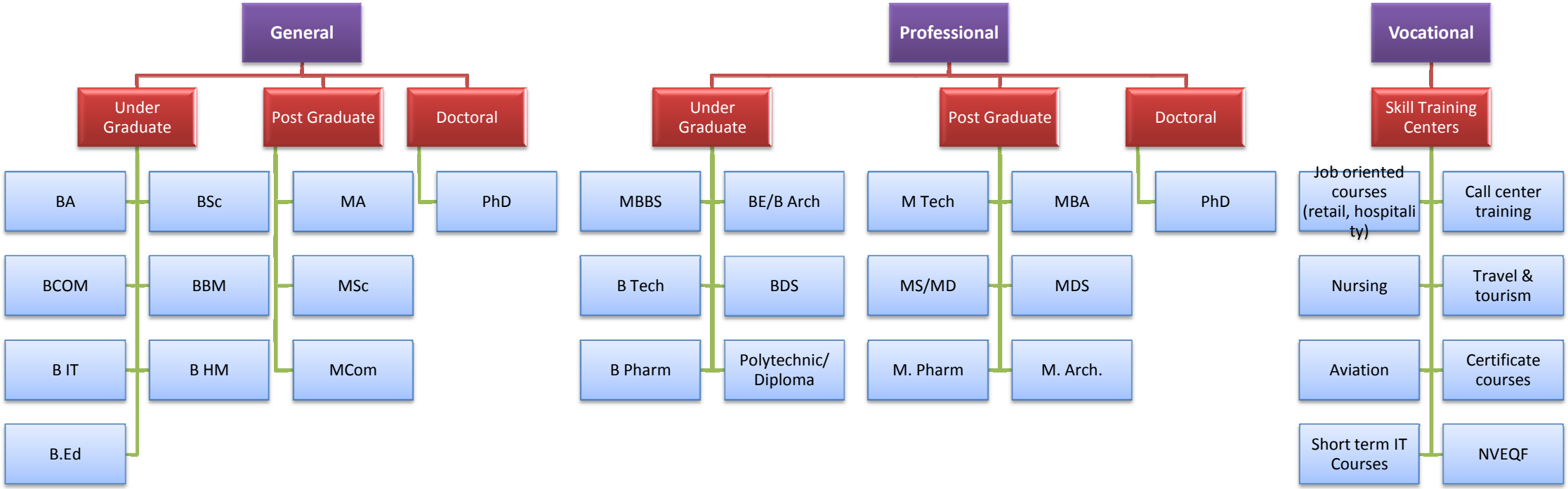
- Recognition of courses
- Promotion of professional institutions
- Providing grants and awards

- All India Council of Technical Education (AICTE)
- Medical Council of India (MCI)
- National council of Teacher Education (NCTE)
- Dental Council of India (DCI)
- Pharmacy Council of India (PCI)
- Indian Nursing Council (INC)
- Bar Council of India (BCI)
- Council of Architecture
- State Councils of Higher Education

Education System in India



Categorization of Courses



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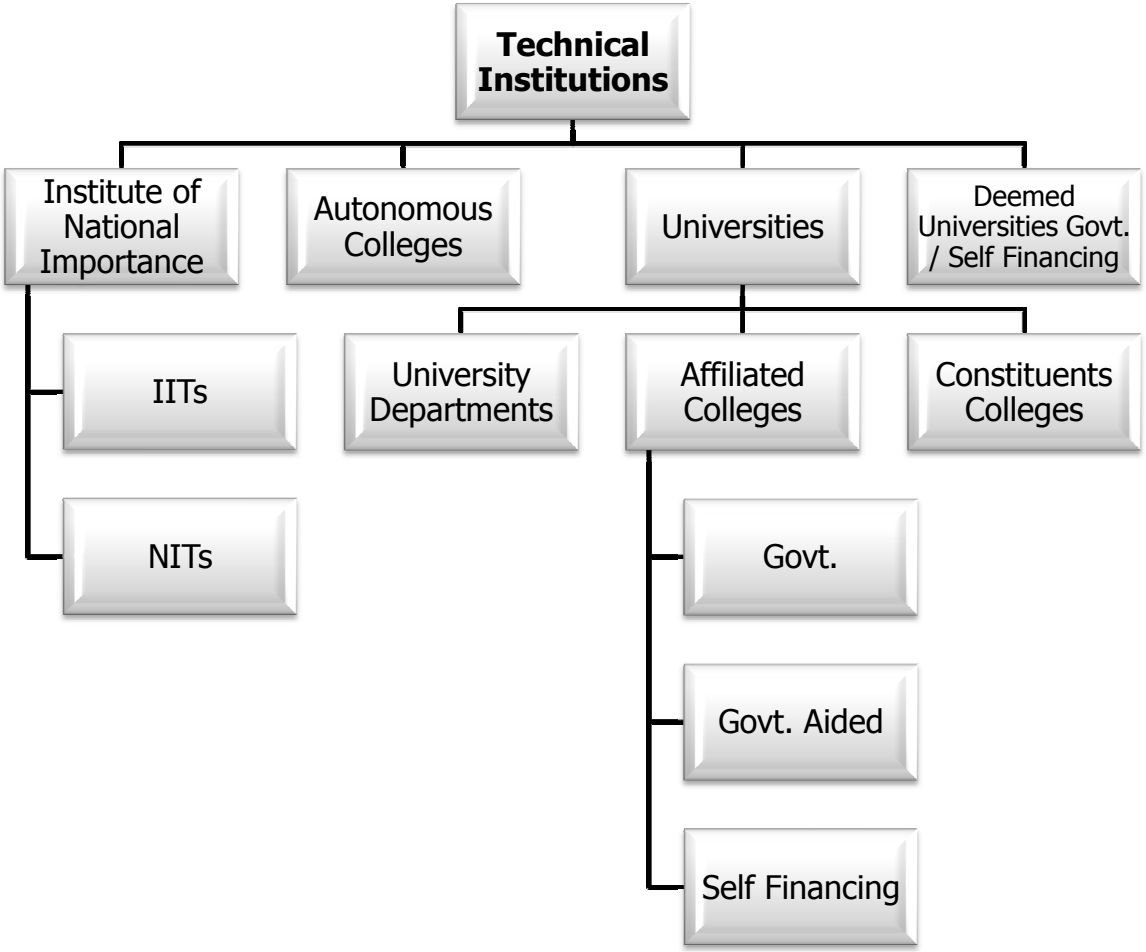
Technical Education Institutions in India



Technical Institutions - IITs

- Institutions of National Importance through an Act of Parliament.
- Indian Institutes Of Technology(IITs): Started in 1950.
- First IIT established in Kharagpur in 1951.
- Other IIT's set up in Kanpur, Bombay, Madras and Delhi between 1953 - 1961.
- There are 16 IITs in the country at present.
- The respective Senates have full control of their curriculum, conduct their own examinations and issue their own degrees.
- Fully autonomous each having an independent Board of Governors.

Technical Institutions - NITs

- National Institutes of Technology (NITs): Started in 1959 as Regional Engineering Colleges (REC): as joint ventures of Govt. of India and the respective state Governments.
- The first REC was established at Warangal.
- RECs re-designated as NITs and are now fully funded by the Central Govt.
- There are 30 NITs in the country at present.
- NITs are controlled by NIT Council enacted through an Act of Parliament, similar to those of the IIT's.
- The respective Senates have full control of their curriculum, conduct their own examinations and issue their own degrees.

Technical Institutions - Universities

- There are Central/State Govt. funded universities with many different academic programs including technical programs.
- There are also exclusive technical universities in the state Govt. sector conducting engineering programmes.
- Some universities also have affiliated colleges under their academic control for curriculum, examination and granting of degrees.

Technical Institutions - Deemed Universities

- There are Govt. and Self financing deemed universities.
- Indian Institute of Science, Bengaluru and School of Planning & Architecture are two examples of centrally funded deemed universities.
- There are more than 100 Self financing deemed universities - These universities do not receive Government funding and depend on tuition fees and other resources for funding.
- Both Government and Private universities have their own curriculum, conduct their own examinations and issue their own degrees.
- These universities do not have affiliating power.

Technical Institutions - Autonomous Institutions

- These institutions have limited affiliation with state universities.
- Have full control on their curriculum, examination and also enjoy financial autonomy.
- The degrees are awarded by the State universities.
- There are more than 60 such autonomous institutions in the country.

Technical Institutions - Affiliated Institutions

- There are 177 Government, 54 Government aided and 3073 Self financing colleges in the country offering programs in Engineering which are affiliated to state universities.
- Govt. institutions are funded by the State/Central government.
- The State universities control the curriculum, conduct the examination and award the degrees.

Technical Institutions

Govt. aided institutions

- These institutions are managed by a society/trust and are funded by State Government for recurring expenditure.
- The State universities control the curriculum, conduct the examinations and award the degrees.

Self financing institutions

- These institutions are established by private Societies/Trusts and the companies registered under section 25 of Companies Act.
- These institutions do not receive any financial assistance from the Government. However, they are eligible for special grant on a competitive basis.
- The State universities control the curriculum, conduct examinations and award the degrees.

Technical Institutions - Diploma Level Institutions

- These institutions are known as polytechnics.
- These institutions are in Government, Government-aided and Self financing sectors.
- They offer diploma programs and are controlled by State Boards of Technical Education for curriculum, examinations and award of diplomas.
- There are 3417 institutions offering diploma programs.

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Technical Education System - AICTE

All India Council for Technical Education (AICTE)

Set up in 1945 as an Advisory body to advise the Government of India on a planned and coordinated development of all aspects of technical education at the diploma, undergraduate and post-graduate levels including research.

AICTE was accorded a Statutory status by an Act of Parliament on 23 December 1987.

Role of AICTE in Technical Education

- Grant approval for starting new technical institutions, for introduction of new courses or programmes.
- Formulate schemes for promoting technical education for women, handicapped and weaker sections of society.
- Promoting innovations, faculty, research and development, by providing grants to technical institutions .
- Coordinate the development of technical education in the country at all levels.

Entry Qualification

Entry Qualification

Diploma

- 10 years of schooling with Science & Math

Under Graduate

- 12 years of Schooling with Physics, Chemistry & Maths OR
- Diploma holders are eligible for admission in 2nd year of Under Graduate Programs (Lateral Entry Scheme)

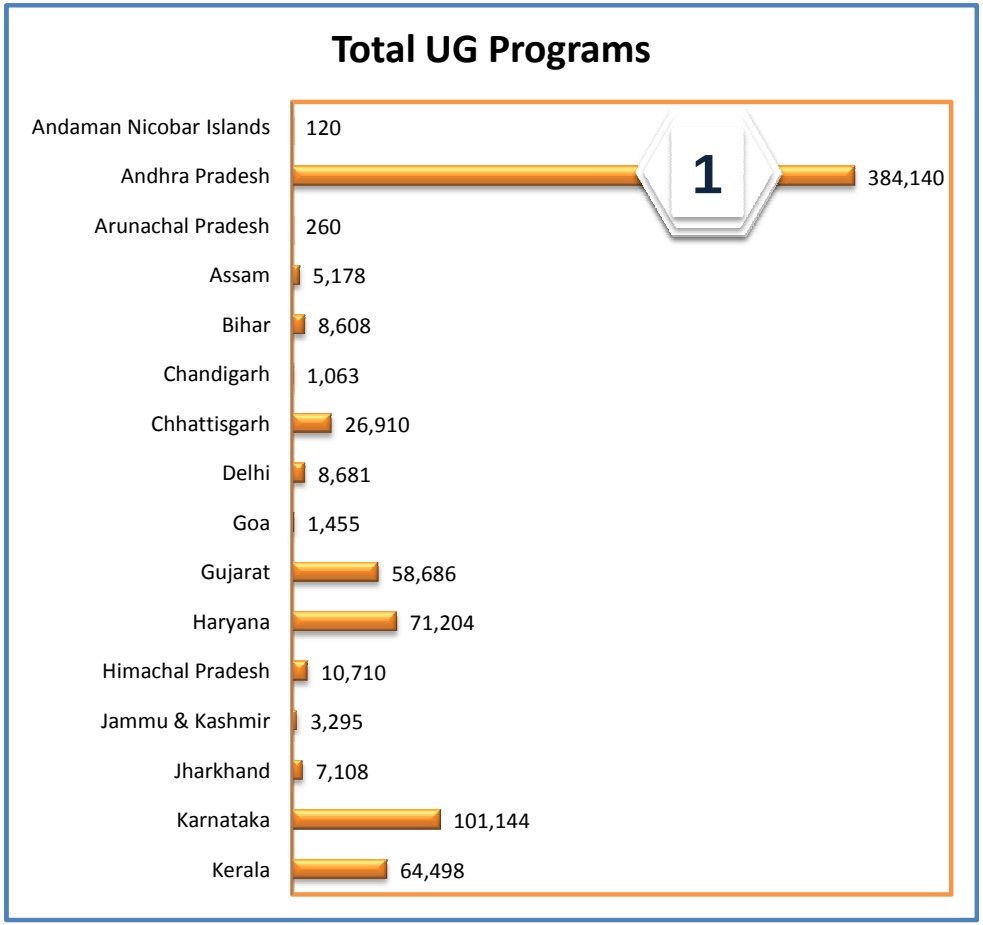
Post Graduate

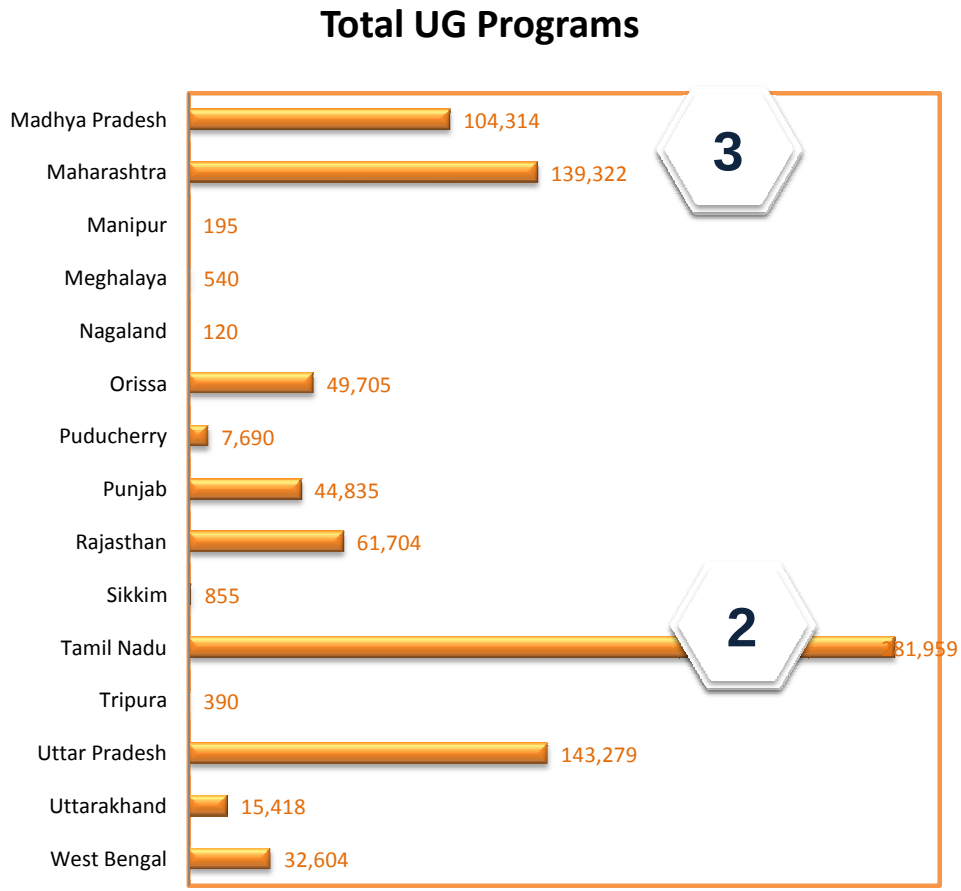
- Under Graduate Degree

Doctoral

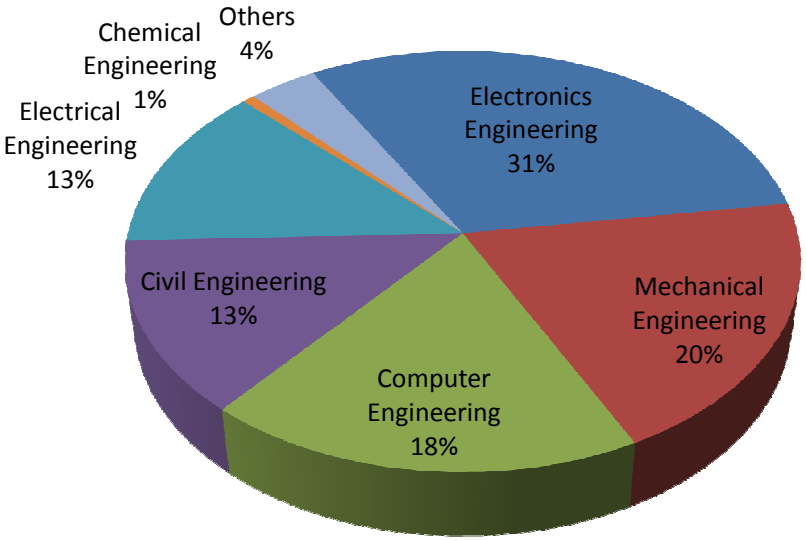
- Typically a post-graduate degree

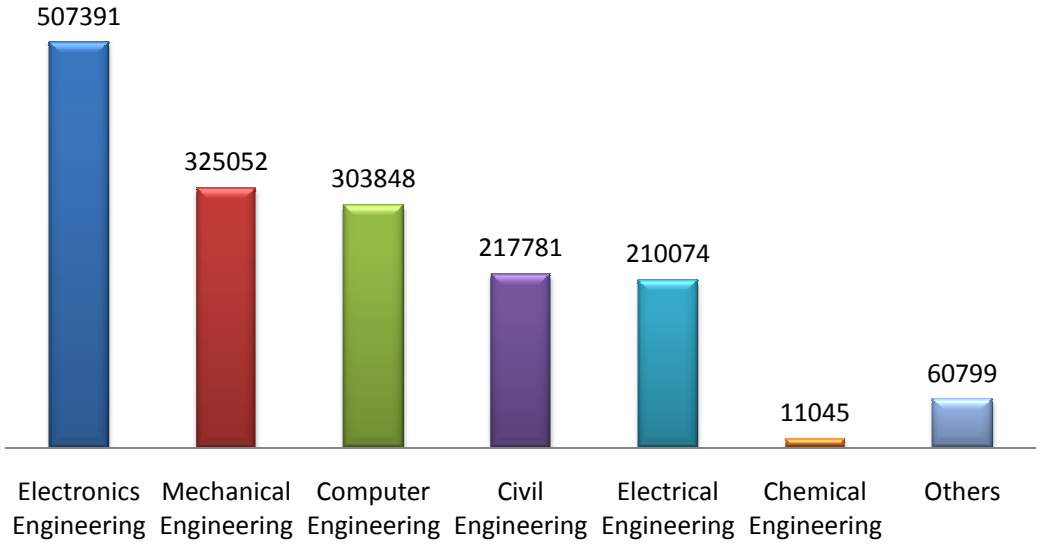
State Wise Approved Intake Of UG Engineering Program 2013-14





Course Wise Approved UG Engineering Intake For The Year 2013-14



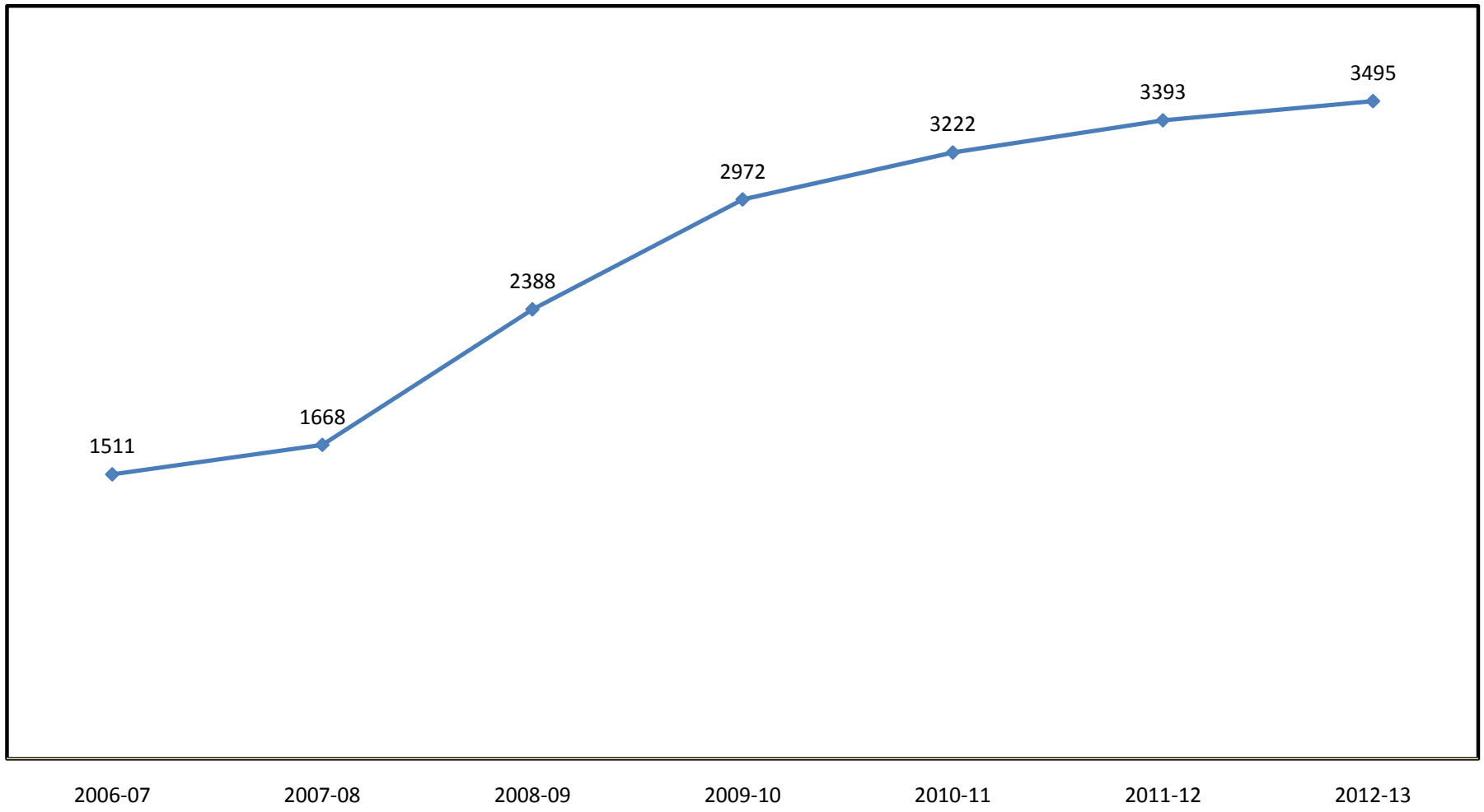


Total Intake – 1.64 Million

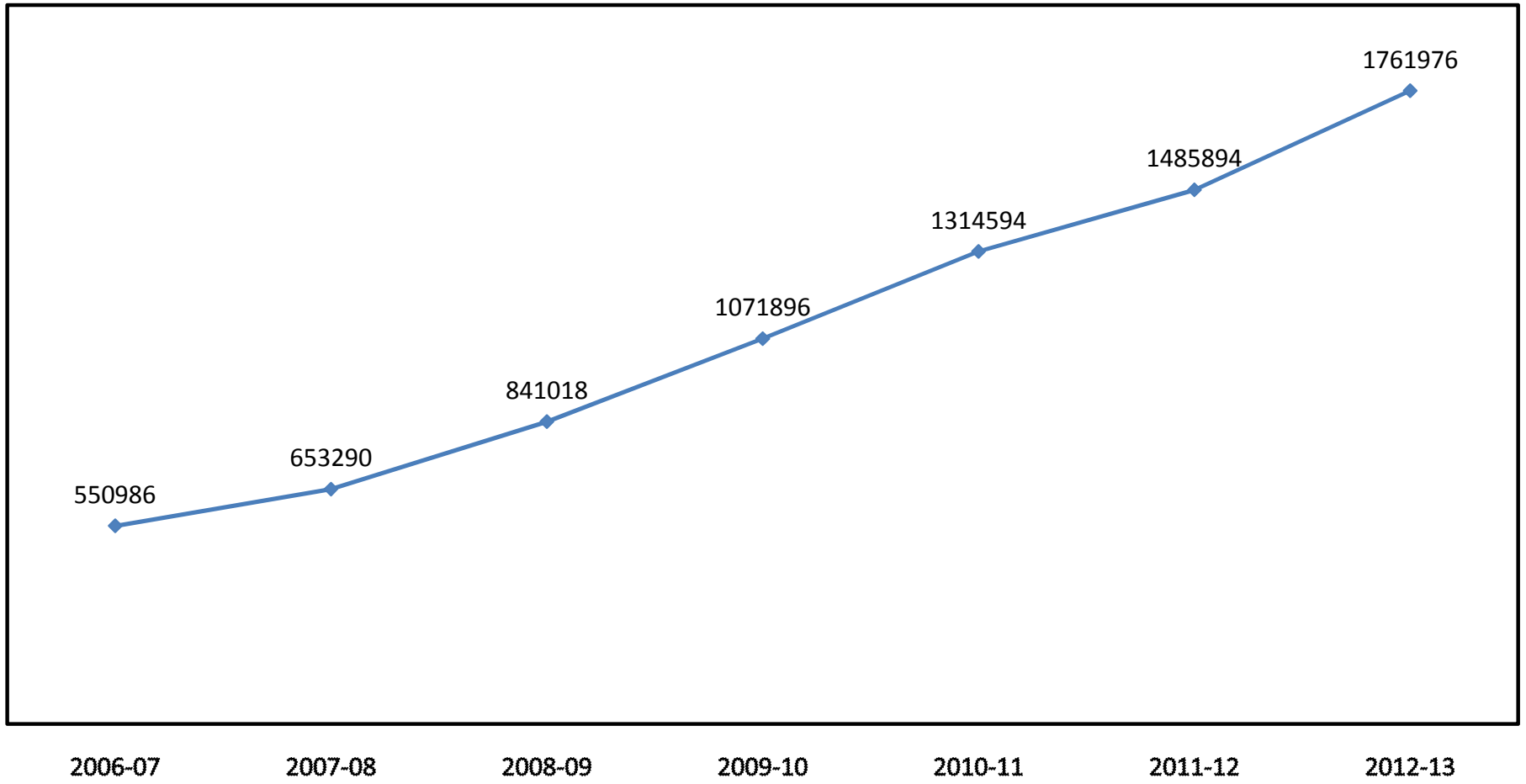
Faculty for UG Engineering Programs

- ~0.5 Million faculty members are involved in technical institutions offering UG programmes
- 65% Male Faculty
- 35% Female Faculty
- Andhra Pradesh has the highest number of faculty members (~97,000) followed by Tamil Nadu & Maharashtra
- Kerala has the highest number of female faculty members (~46%)

Growth Of AICTE Approved Technical Institutions

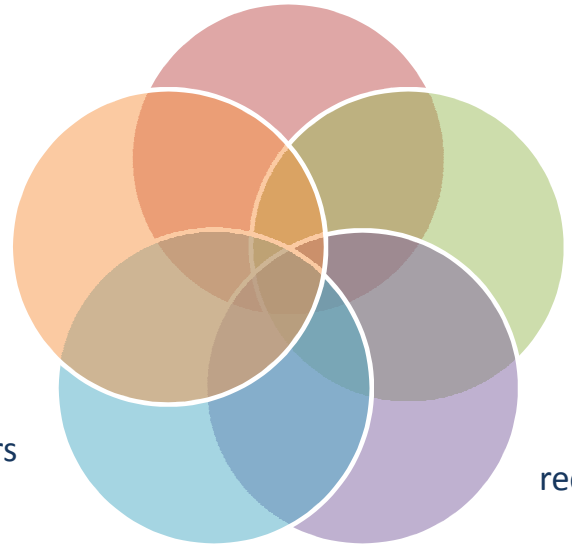


Growth Of intake in AICTE Approved Institutions in Last Five Years



Summary - Overall Picture of Engineering Education

1. A complex multi-tiered, multi-layered system; from internationally renowned IIT and equivalent systems to colleges focussing on UG education.



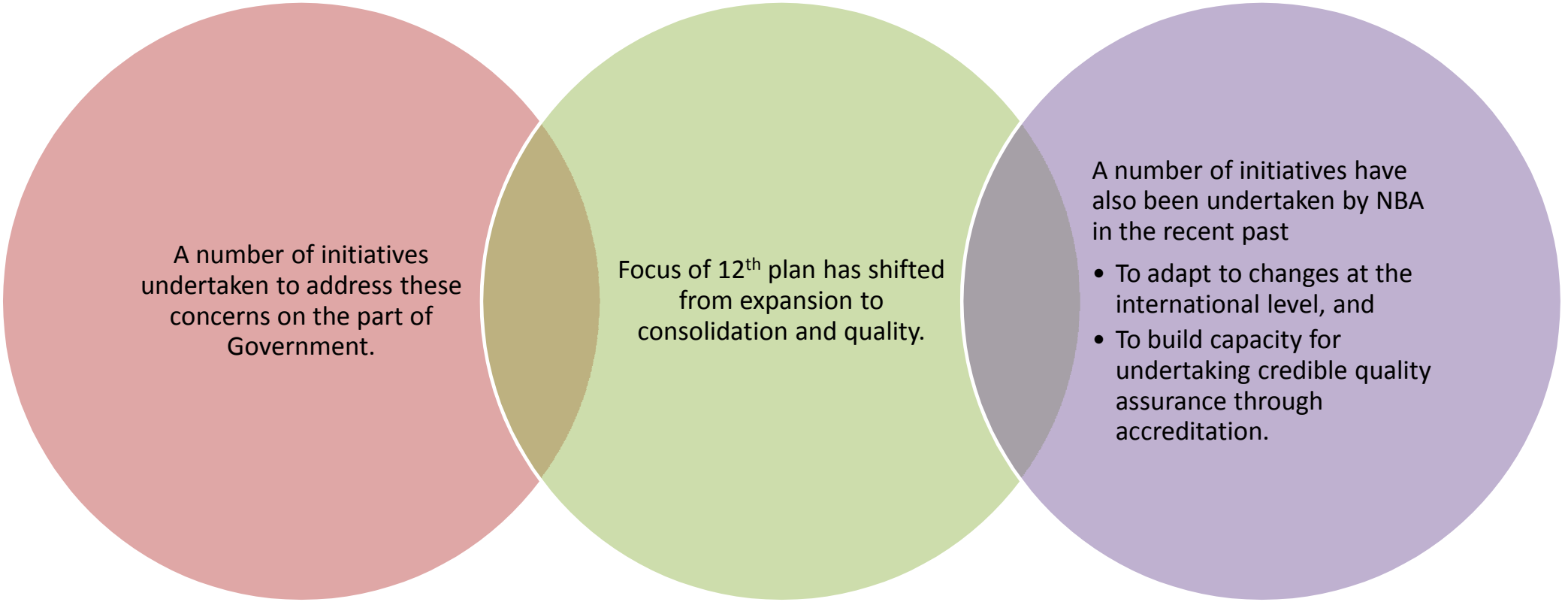
2. A Very large system.

3. A large part of relatively recent vintage. Some definitely suffering from resource crunch, leading to infrastructure issues, but fast improving.

4. Faculty numbers and quality improving, but remain an area of concern.

5. Offers challenges to Government, and also to quality assurance organisations like NBA.

Summary - Overall Picture of Engineering Education



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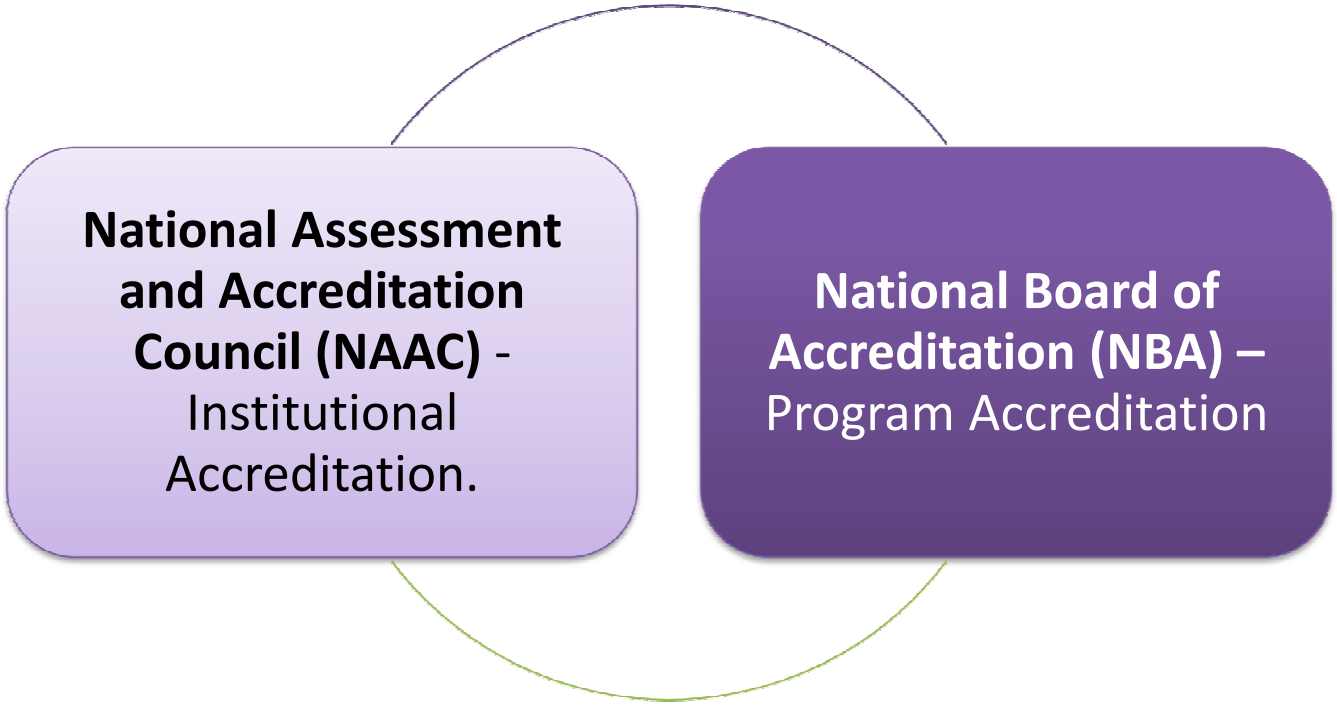
Quality Assurance in Higher Education

Two main accreditation bodies for higher education system:



About NBA

Established in the year 1994 under Section 10 (u) of AICTE Act.

NBA became Autonomous in January 2010 and in April 2013 the Memorandum of Association and Rules of NBA were amended to make it completely independent of AICTE, administratively as well as financially.

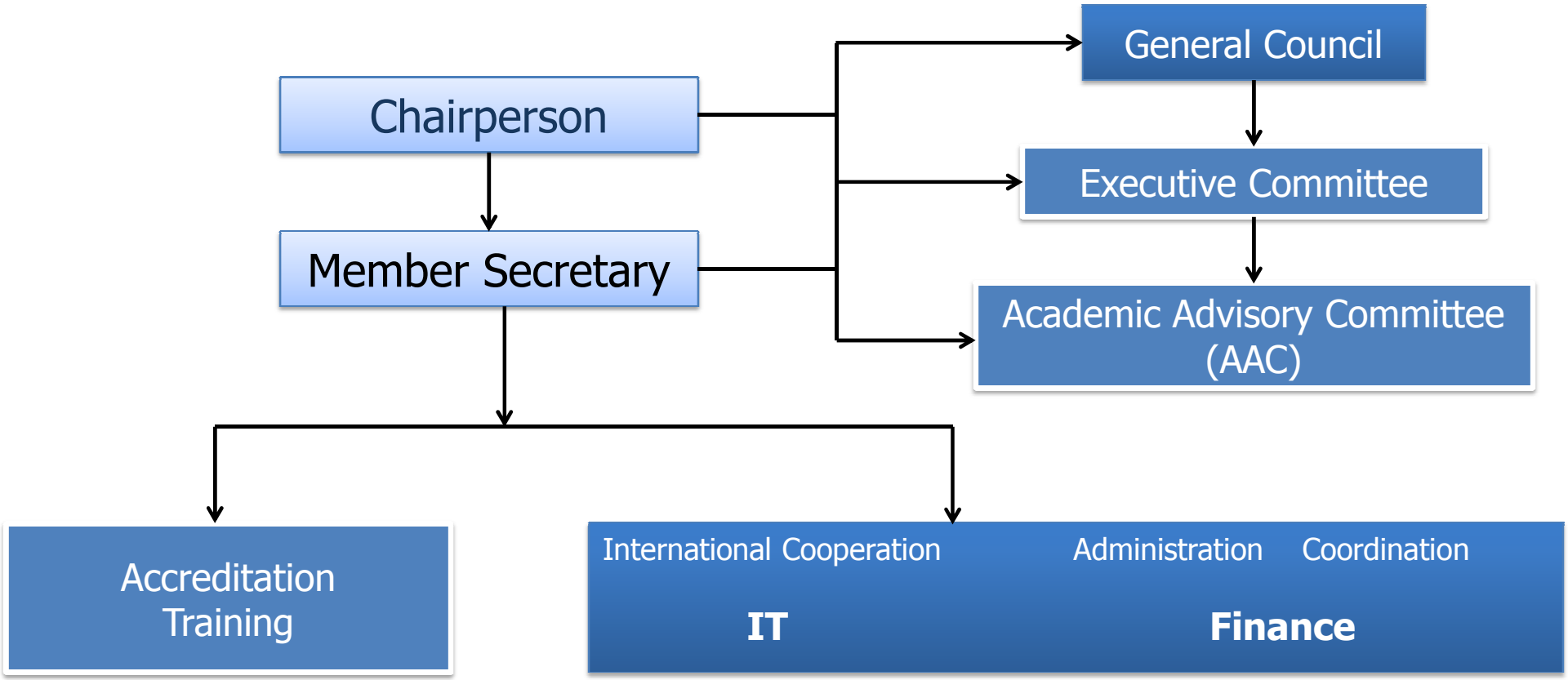
NBA is now independent in its functioning, decision making as well as financially: does not receive any grant either from the government or from any regulatory body of technical and higher education.

NBA Vision and Mission

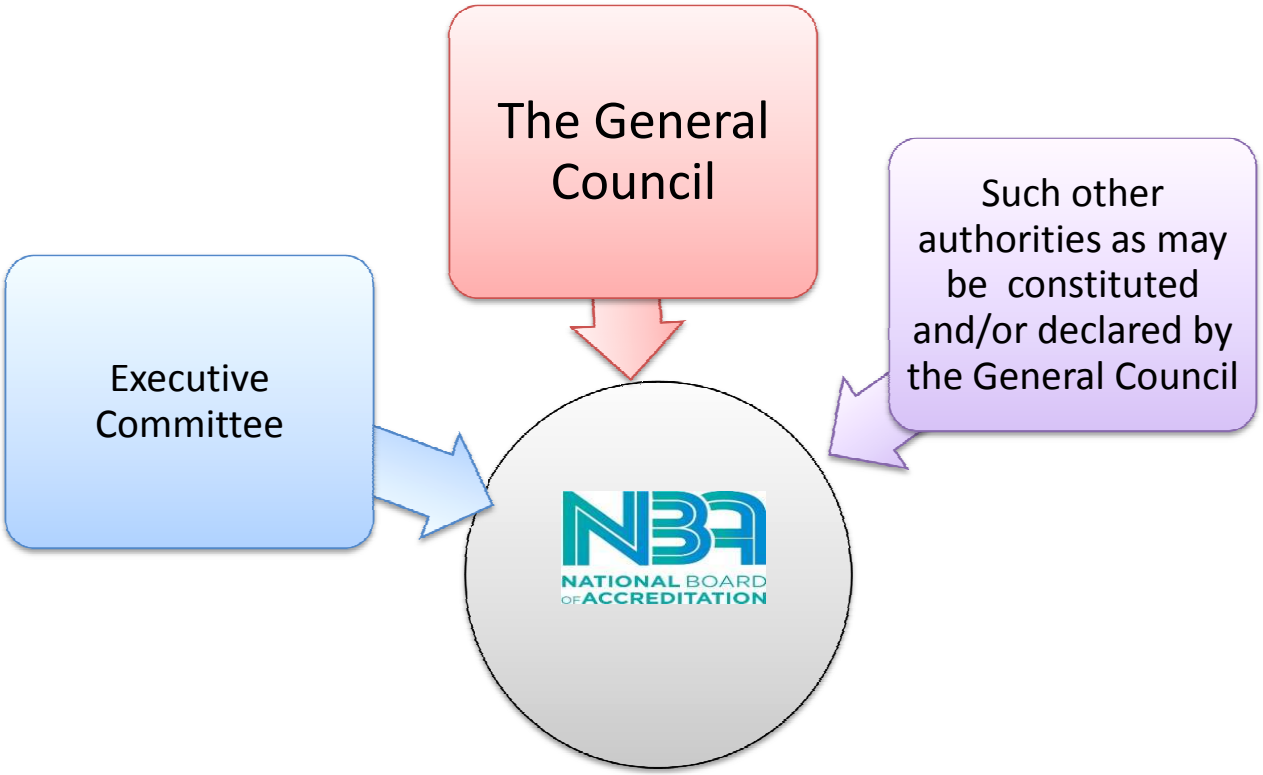
To become an accrediting agency of International repute and credibility in assurance of quality and relevance of professional education and come to the expectations of its stakeholders, viz., academicians, corporate, educational institutions, government, industry, regulators, students, and their parents."

To stimulate the quality of teaching, self–evaluation, and accountability in the higher education system, which help institutions realize their academic objectives and adopt teaching practices that enable them to produce high-quality professionals and to assess and accredit the programs offered by the colleges or the institutions, or both, imparting technical and professional education."

Organizational Structure of NBA



Authorities of the NBA



NBA - The General Council

Principal authority of NBA.

Gives policy direction/guidelines to the Executive Committee which is responsible for managing the activities of NBA.

Members of the General Council

At present, there are 25 members of the General Council, including the Chairman, NBA and the Member Secretary.

Meetings presided over by the Chairman, NBA.

NBA – Executive Committee

The affairs of the NBA are managed, administered, directed and controlled as per Rules and By-laws approved by the Executive Committee and ratified by the General Council.

At present, the Executive Committee has 24 members including the Chairperson, NBA and the Member Secretary, NBA.

The Executive Committee generally carries out and pursue the objectives of the NBA as set forth in its Memorandum of Association.

The power to oversee the management of all the affairs and funds of the NBA for this purpose vests in the Executive Committee.

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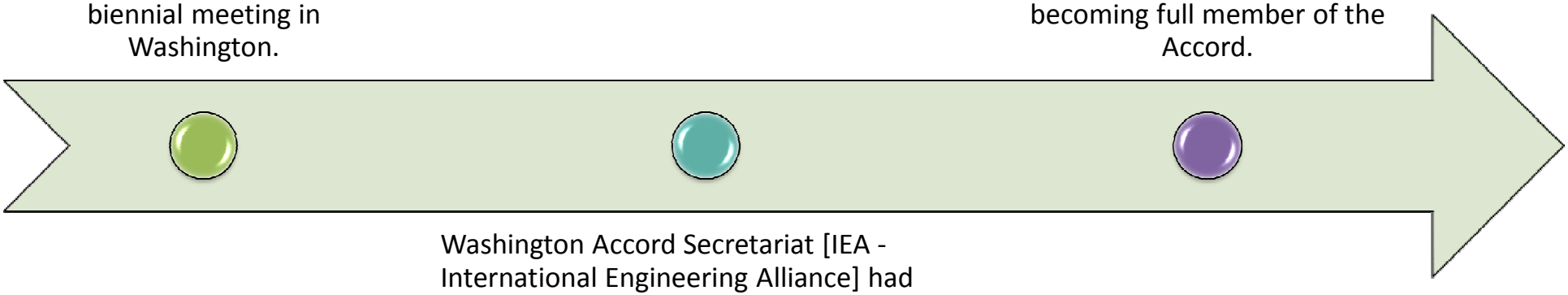
Washington Accord- Background

NBA, India was accorded Provisional membership on June 20, 2007 in the 8th biennial meeting in Washington.



Washington Accord Secretariat [IEA - International Engineering Alliance] had nominated following two mentors in '08:

- Prof. Kai Sang Lock, Past Chairman, Engineering Accreditation Board, Institution of Engineers, Singapore
- Prof. Raman Menon Unnikrishnan, Dean, College of Engineering and Computer Science, California State university, Fullerton, USA

These mentors were nominated to provide support, advice and guidance to NBA to help it position itself to be eligible for becoming full member of the Accord.

Washington Accord-Background

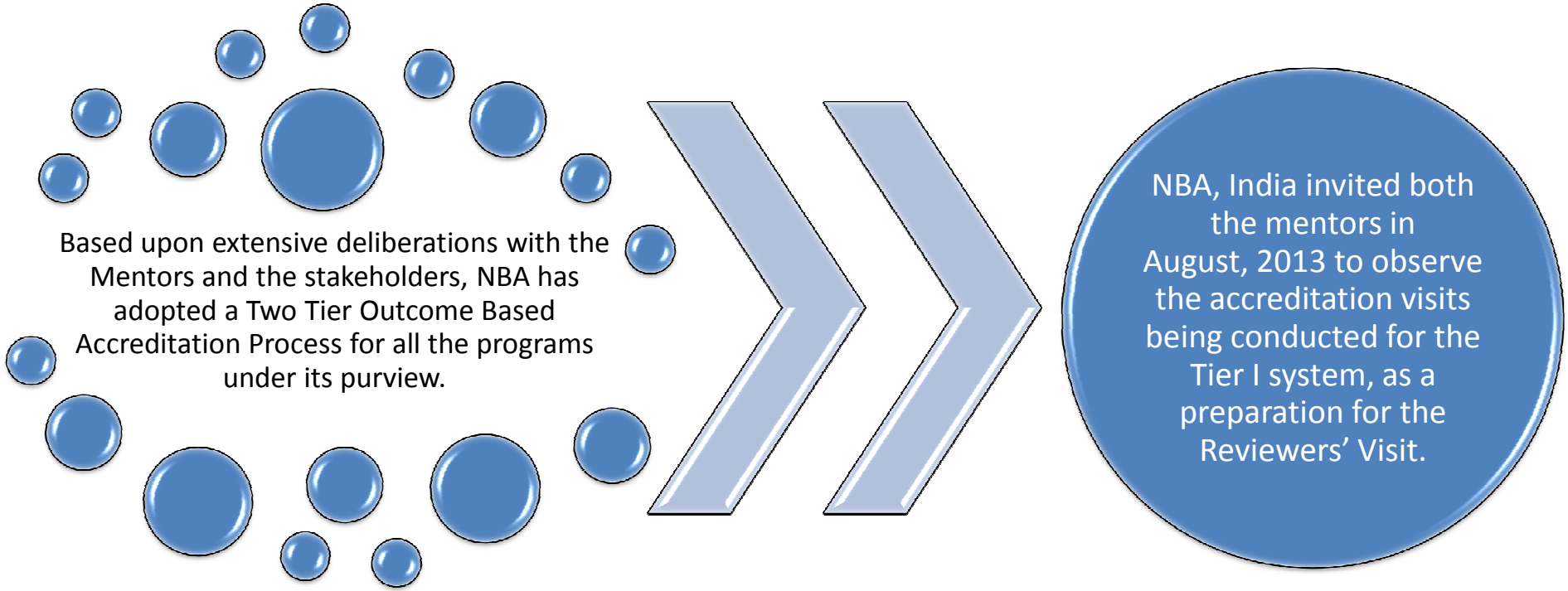
Mentors have visited NBA India five times, starting with first visit during 16-22 Feb' 09.

They have closely observed the system, offered valuable inputs, which have gone into reshaping of our system and processes.

After 5th visit to India, mentors recommended to IEA secretariat that NBA's Accreditation framework is sufficiently robust and mature to be reviewed by Washington Accord for consideration of full signatory status.

The Washington Accord Secretariat set up a Review Team to visit NBA as a part of Washington Accord Signatory application after the IEM Meeting held at Seoul in Jun' 13.

Major Changes



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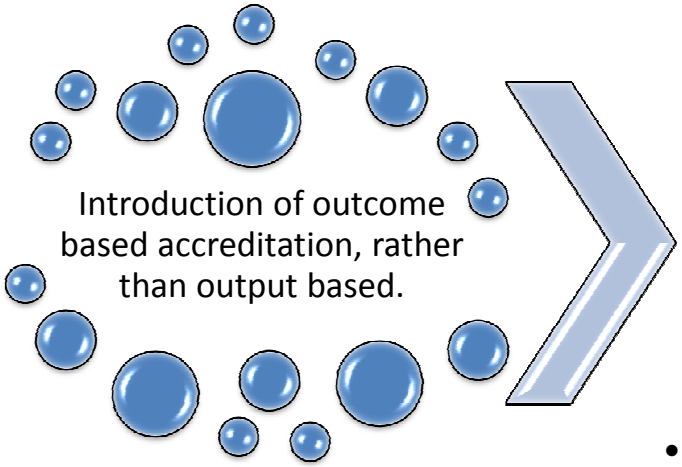

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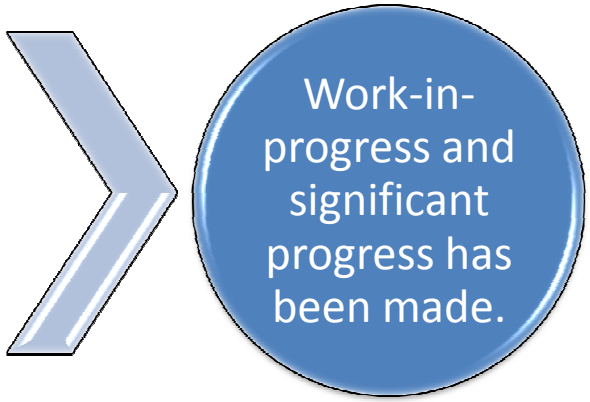
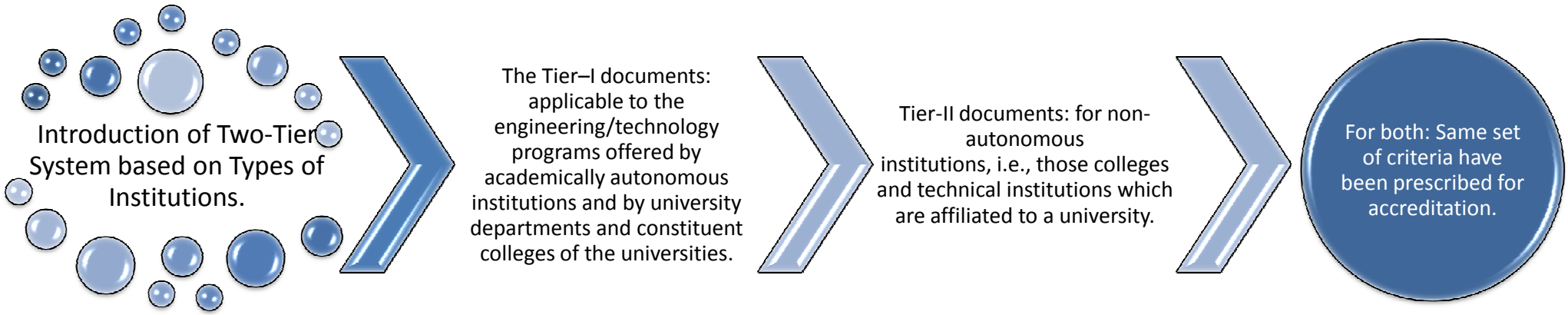


- Understanding of this changed methodology
- Rewriting all the documents to conform to the new system
- Training institutions to reposition their internal processes to effect self-evaluation on the new system.
- Training and mentoring evaluators who would form the evaluation teams, and important committees of NBA.

Major Changes



Evaluation of TIER-I and TIER-II Institutions

Evaluation for TIER-I institution focused on program outcomes and program educational objectives.

For TIER-II institution focus remains, as before, on student performance, facilities & technical support and continuous improvement.

TIER-I: Technical Programs Offered by

Institutions of National Importance

- Indian Institutes of Technology (IITs),
- Indian Institute of Science (IISc),
- Indian Institutes of Information Technology (IIITs),
- Indian Institutes of Science Education and Research (IISERs)
- National Institutes of Technology (NITs)
- Universities / Deemed Universities / Private Universities
- Autonomous Institutions

Universities Eligible Under TIER I

- Central Universities offering programmes of Technical Education in their campus itself.
- State Universities offering programmes of Technical Education in their campus itself and not in affiliated institutions.
- Deemed Universities.
- Private / Self Financing Universities established under State Legislations.

TIER-II: Technical Programs Offered by

Colleges affiliated to universities not enjoying the privileges of full academic autonomy

Deliver programs prescribed by universities to which they are affiliated

Only universities empowered to examine the enrolled students for award of degrees

TIER II institutions are not eligible to apply in TIER I category until and unless these institutions either get Autonomous status or declared Deemed Universities/Universities

Web Register

- Separate Web registers have been prepared for TIER I (WA) institutions and TIER II (Non WA) institutions.
- NBA will provide login ID and Password to authorities of all the signatory countries for inquiry about TIER I institutions.

Conclusion

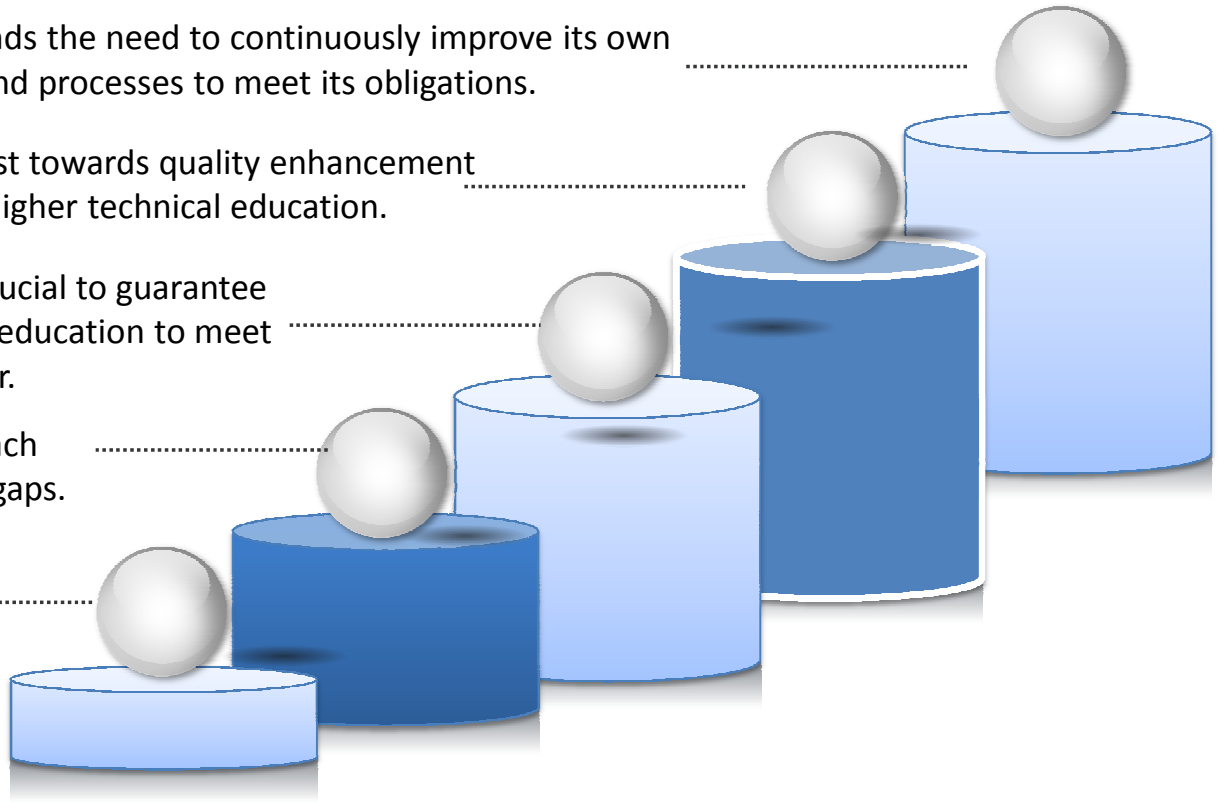
NBA understands the need to continuously improve its own organisation and processes to meet its obligations.

NBA sees itself as a catalyst towards quality enhancement and quality assurance of higher technical education.

Need for quality assurance agencies crucial to guarantee basic minimum standards of technical education to meet industry demand for quality manpower.

Has a complex, multi-layered structure, with each layer playing a very important need and filling gaps.

Indian Higher Education Scene: Very dynamic and undergoing rapid strides in quality improvement.



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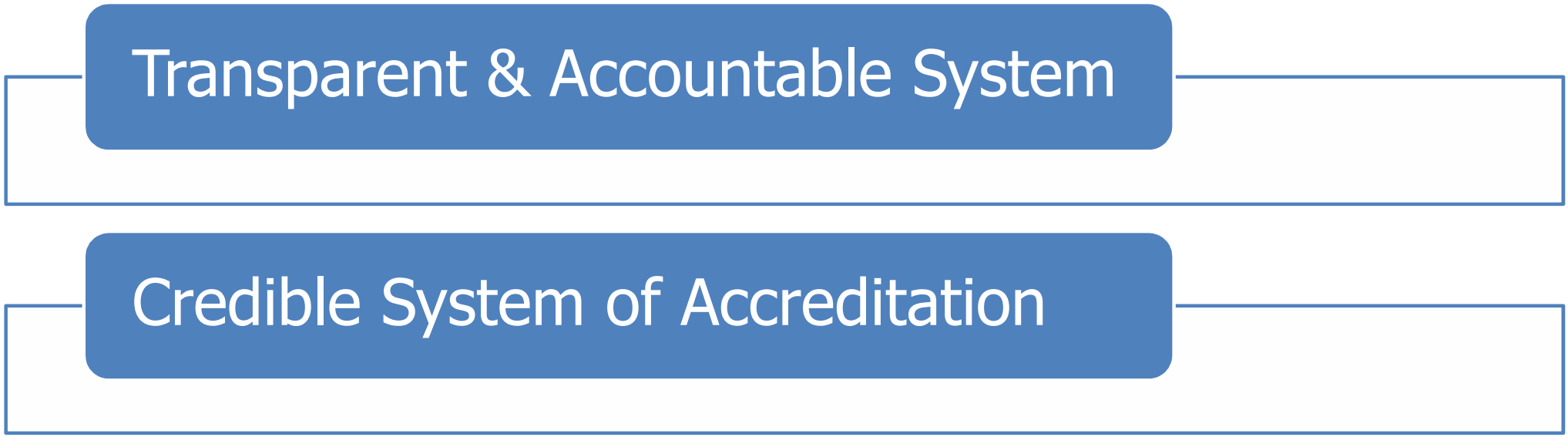
NBA's Accreditation Process



NBA's Accreditation Process

Transparent & Accountable System

e-NBA
A complete e-Office solution for transacting business with its stakeholders

- –Electronic file management system
- –Secured (access driven) individual dashboards for transacting business

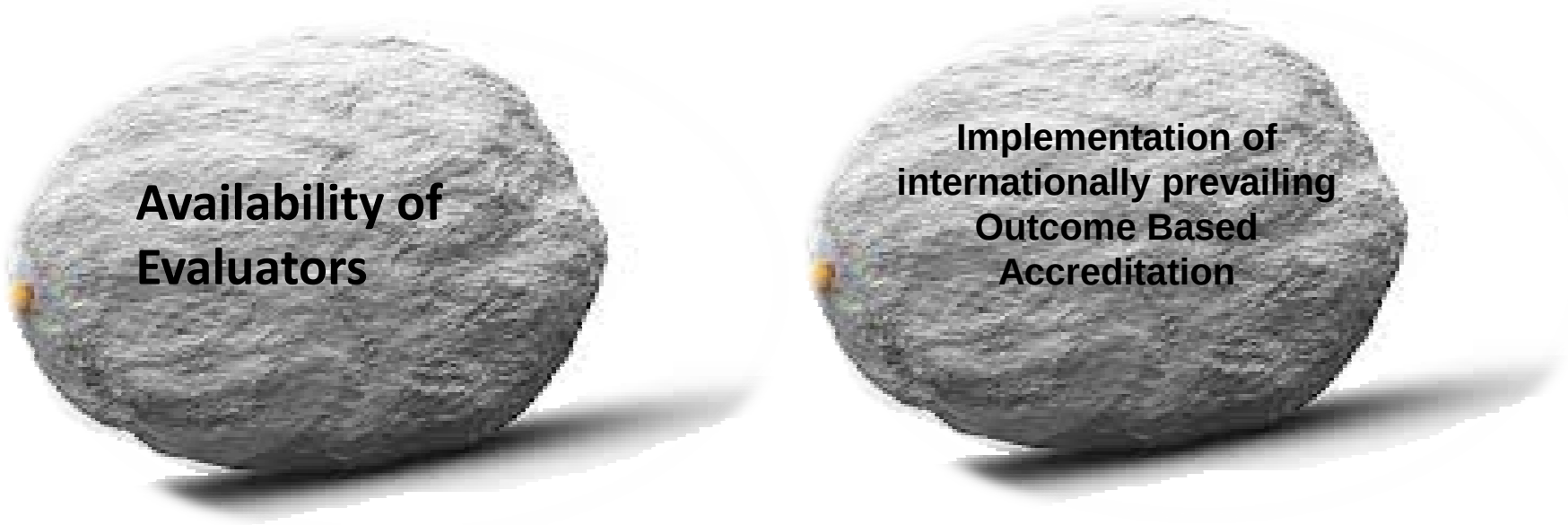
Publicly Available Information

- –Embedded Video Conferencing & Webinar Solution
- –Comprehensive and real time public website
- –Dissemination of information through our Nodal Centers by providing various printed publications of NBA

NBA's Accreditation Process

Credible System Of Accreditation

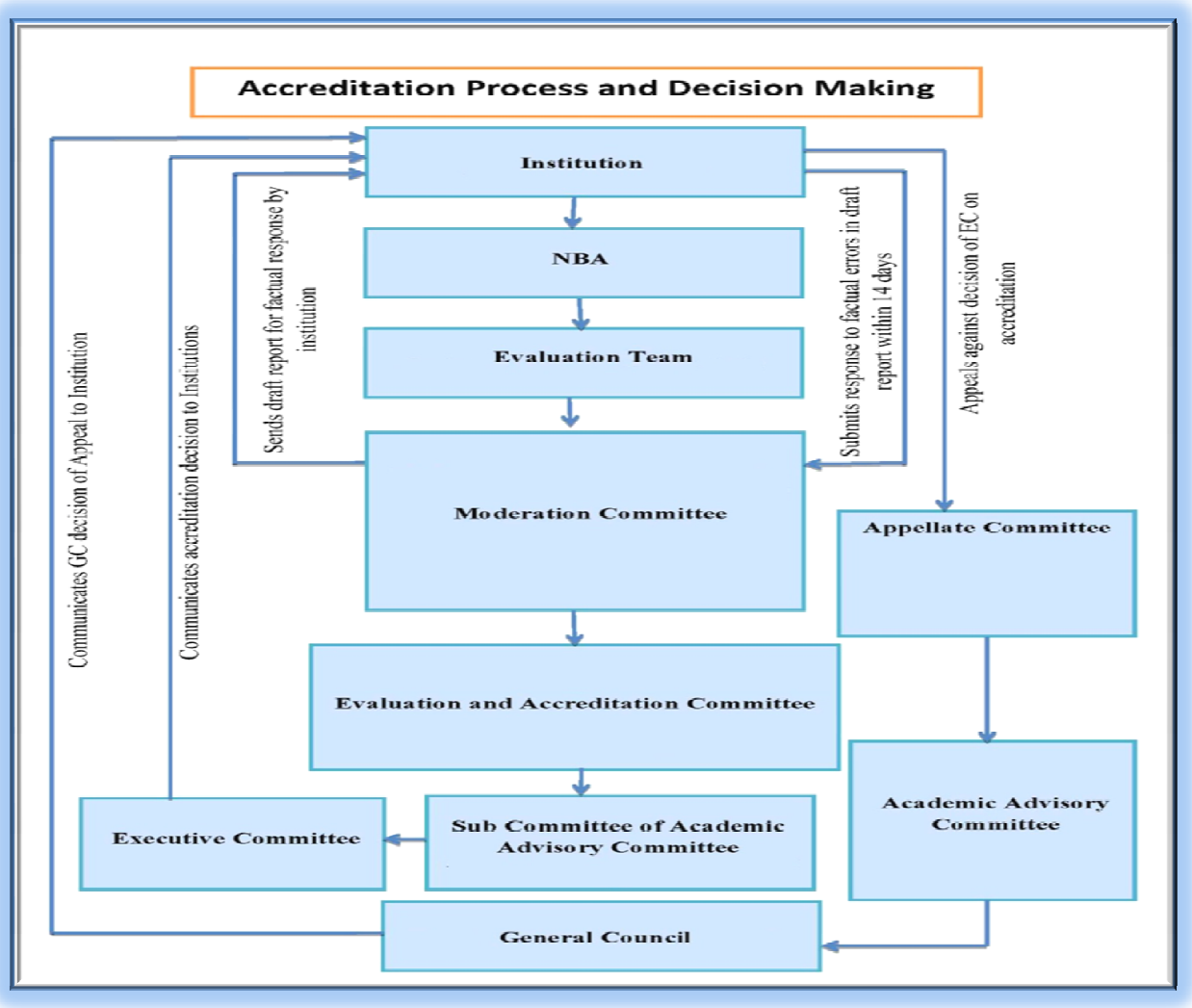
Credibility of accreditation process largely lies in the integrity, honesty, expertise, and professionalism



General Policies on Accreditation

- ✓ Programs, and not Institutions, are considered for Accreditation
- ✓ Programs from which at least two batches of students have graduated will be considered
- ✓ Programs should be offered by an educational Institution, which has been formally approved as an educational Institution by concerned regulatory authority
- ✓ Programs are considered for assessment and accreditation only at the written request of the educational institution and after agreeing to abide by the NBA's accreditation manual, rules, regulations and notification issued from time to time

NBA – Accreditation Process and Decision Making

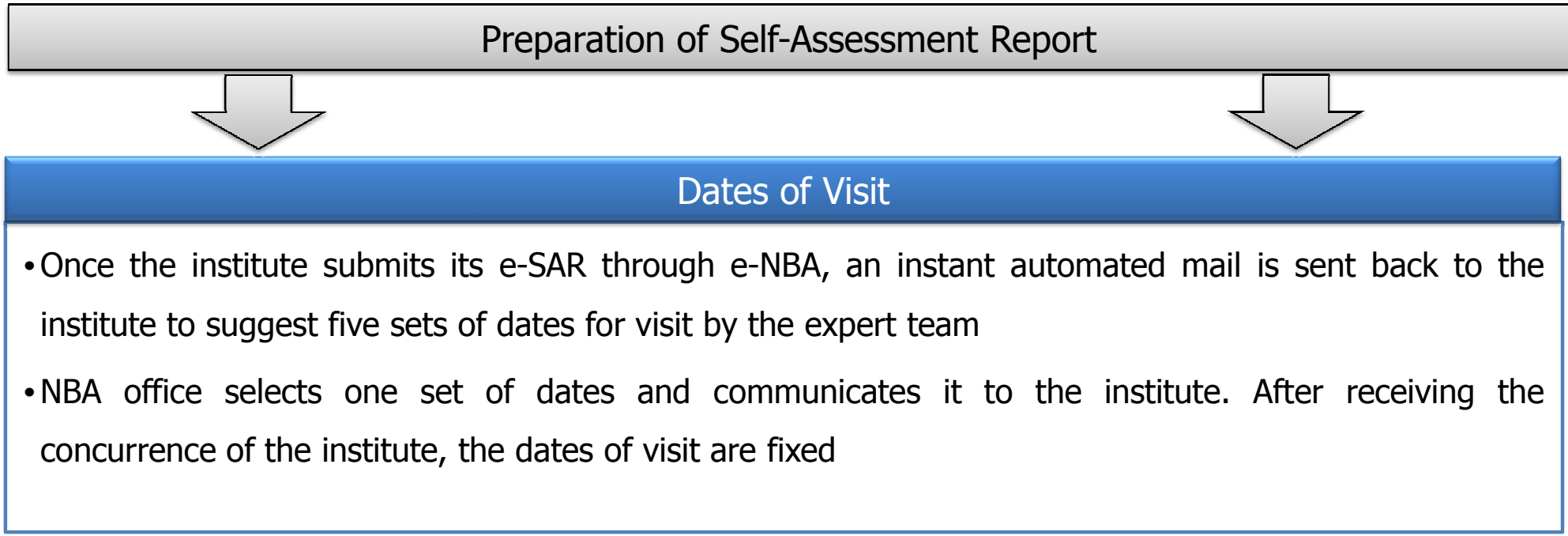


Accreditation Process

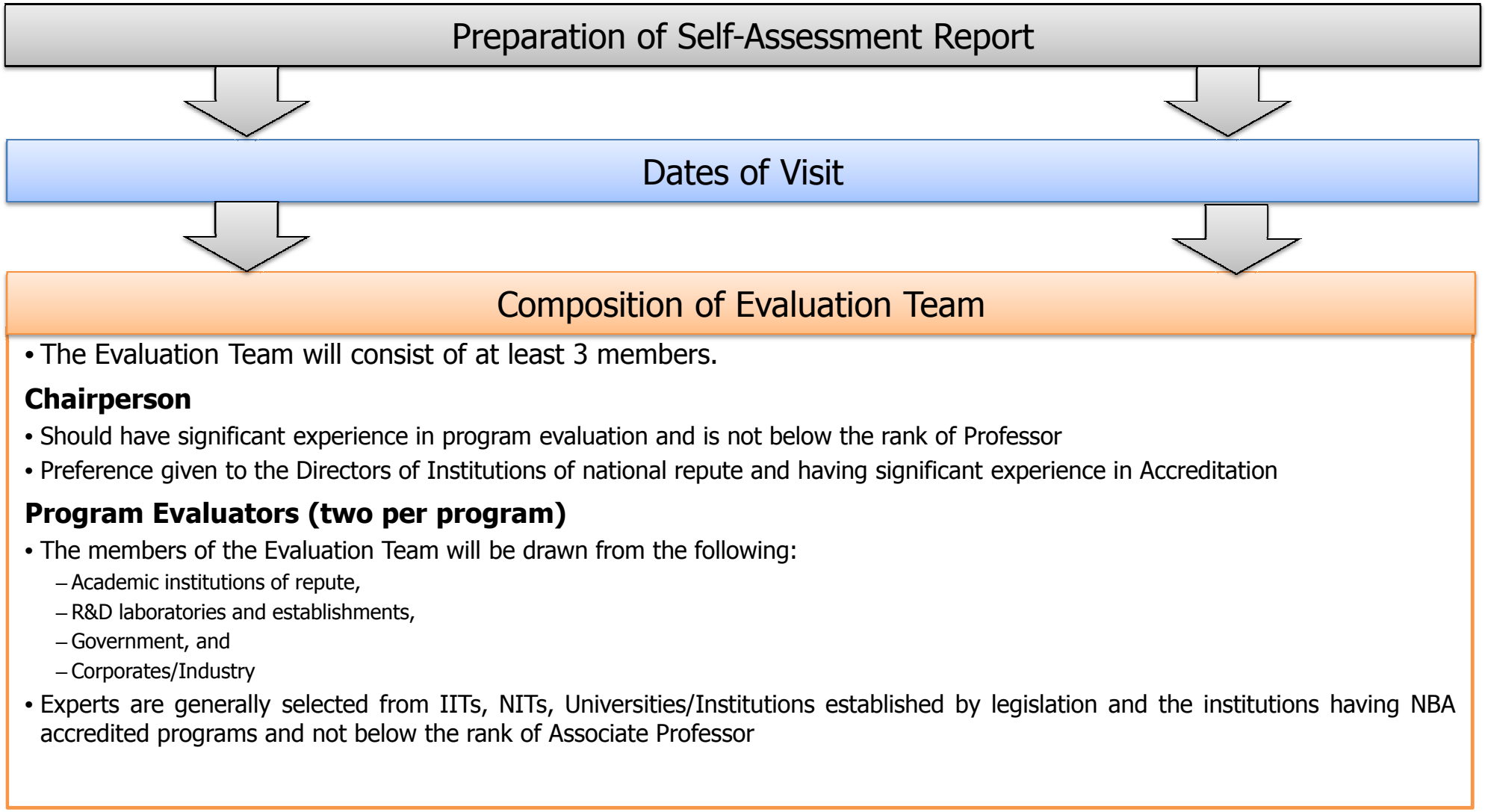
Preparation of Self-Assessment Report

- The SAR consists of two parts:
  - Part-A - Institute and department / program information
  - Part-B – Program information based on 9 broad criteria
- As per the recommendation of mentors firm guidelines have been issued regarding the information to be provided in SAR
- The SAR has been converted into e-SAR (Electronic Forms) where the data is being captured online

Accreditation Process



Accreditation Process



- The Evaluation Team will consist of at least 3 members.

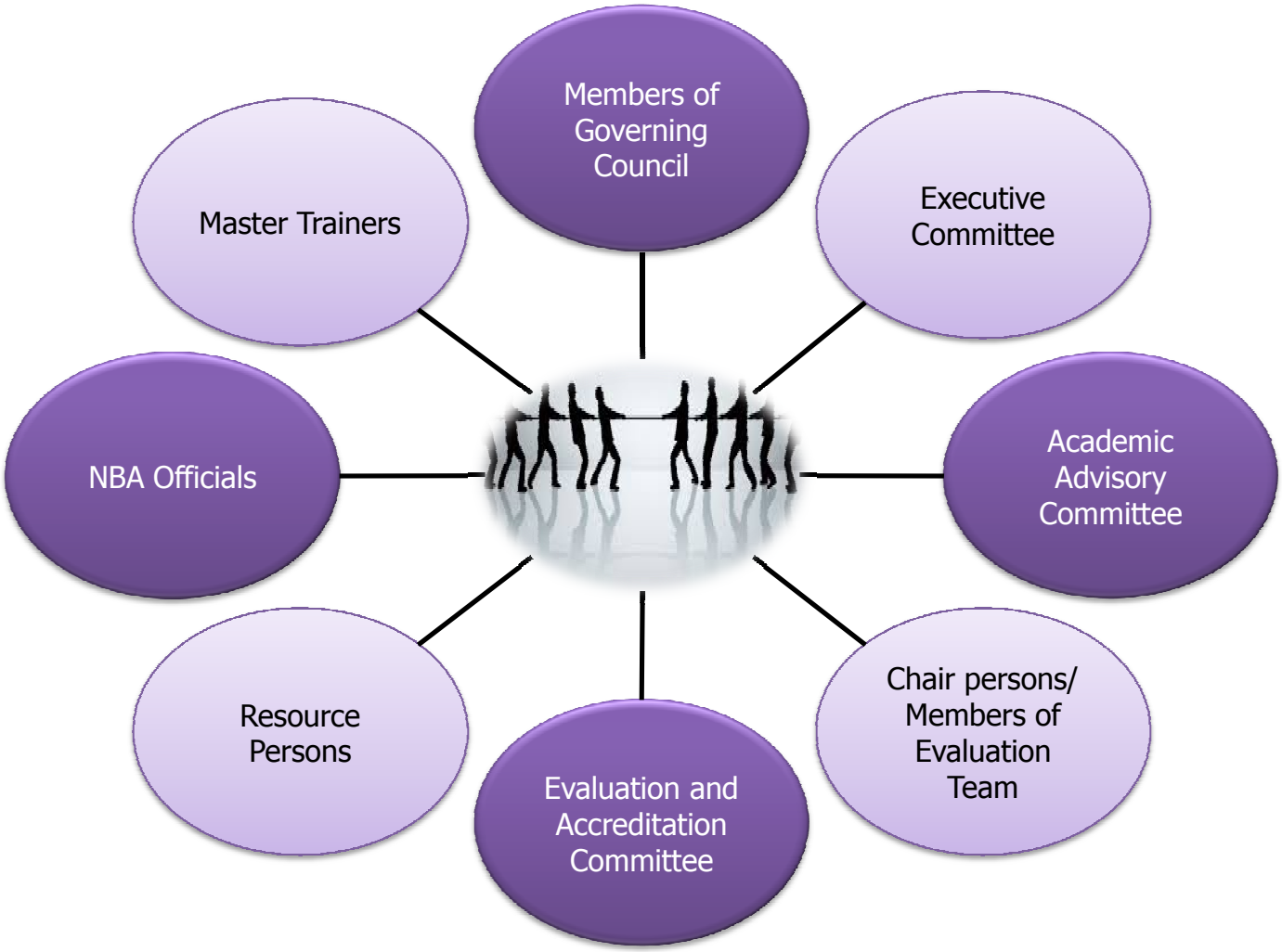
Chairperson

- Should have significant experience in program evaluation and is not below the rank of Professor
- Preference given to the Directors of Institutions of national repute and having significant experience in Accreditation

Program Evaluators (two per program)

- The members of the Evaluation Team will be drawn from the following:
  - Academic institutions of repute,
  - R&D laboratories and establishments,
  - Government, and
  - Corporates/Industry
- Experts are generally selected from IITs, NITs, Universities/Institutions established by legislation and the institutions having NBA accredited programs and not below the rank of Associate Professor

Persons Required to Declare Conflict of Interest



VISIT

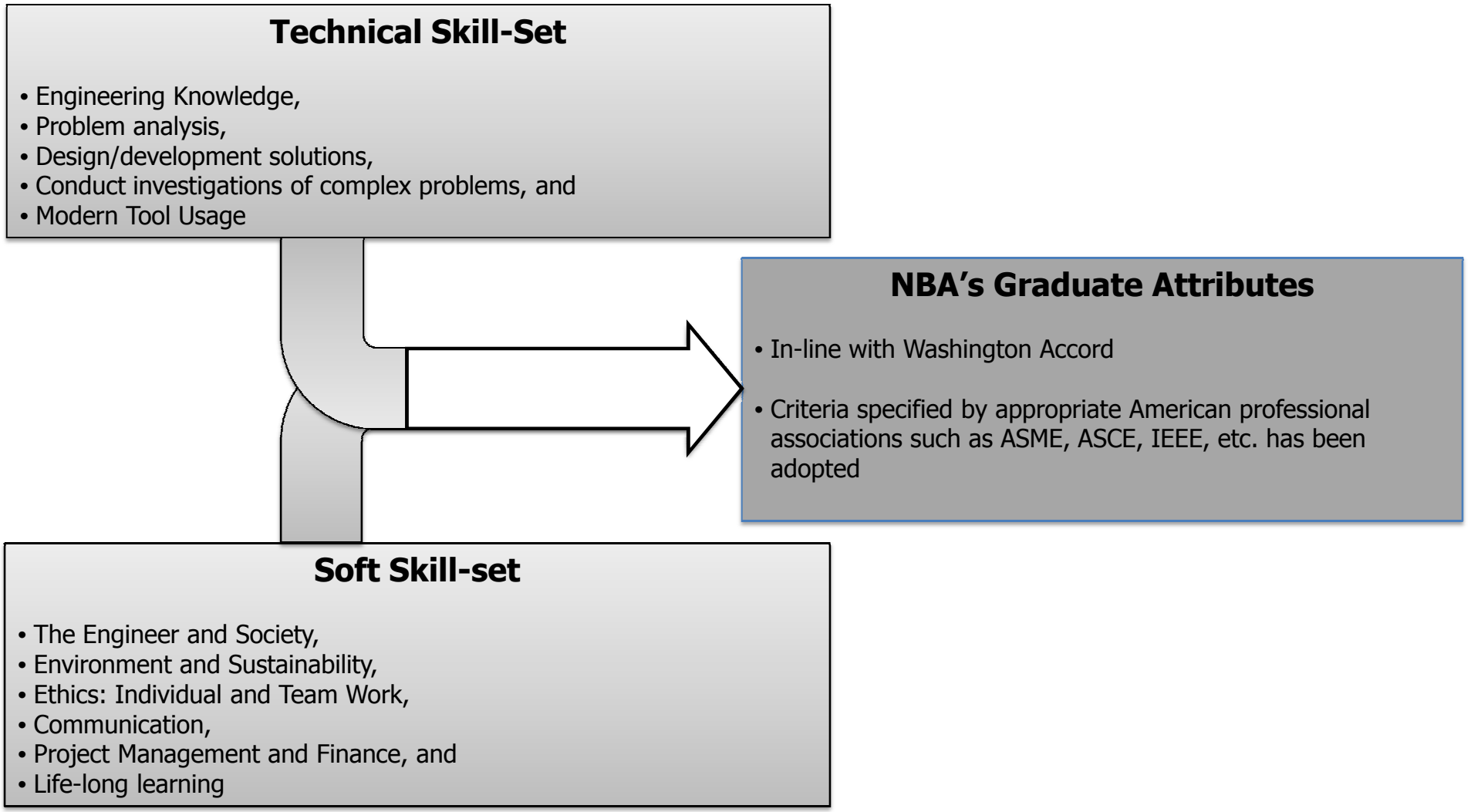
- The Evaluation Team visits the institution seeking accreditation of its program(s).
- The Team evaluates and validates the assessment of the institute / department through the SAR of the program concerned as per specified accreditation criteria.
- The evaluators may obtain such further clarification from the institution as they may deem necessary.

Visit Continued

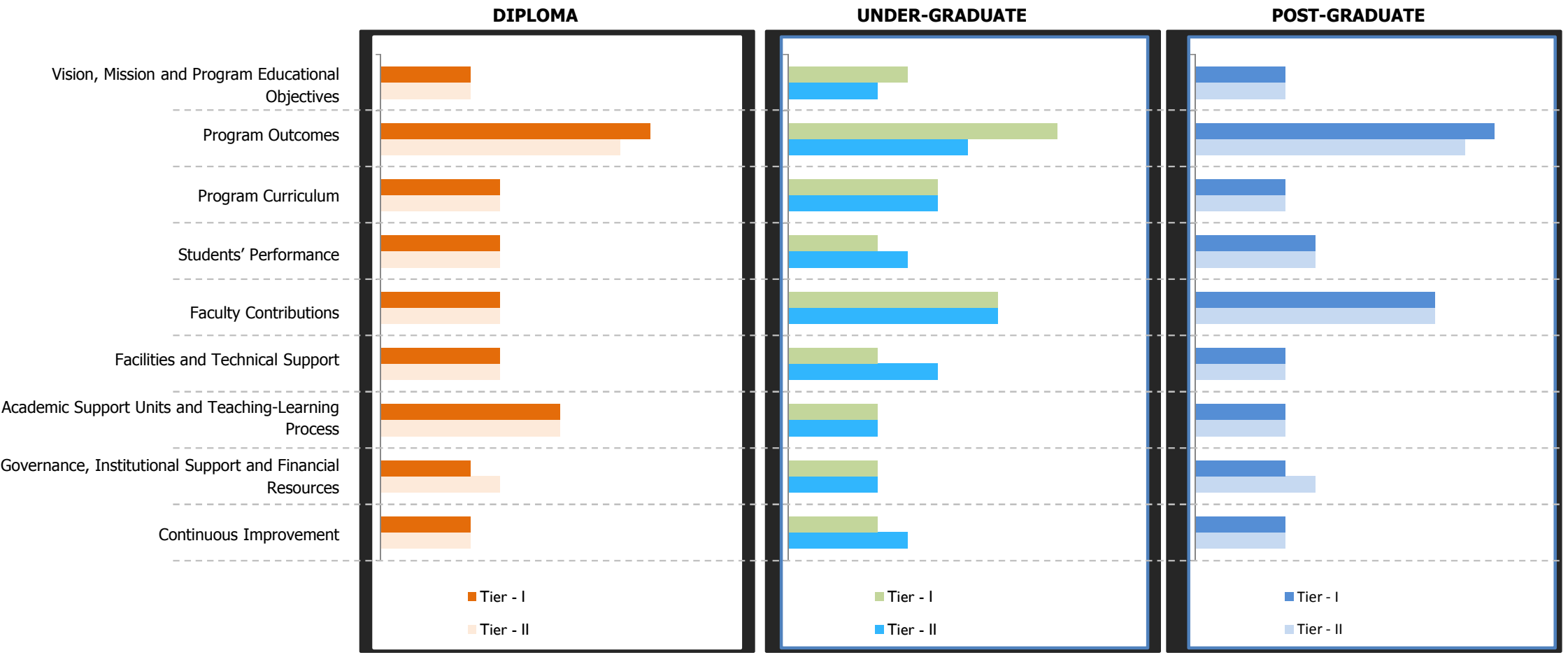
- **During the two and a half day visit, the team has discussions with**

- The Head of the Institute/ Dean/ Head of Departments / Program and course coordinators
- A member of the management (to discuss how the program fits into the overall strategic direction and focus of the Institution, and management support for continued funding and development of the program)
- Faculty members
- Alumni
- Students

Accreditation Parameters



Accreditation Criteria (Weightage of Tier-I and Tier-II)



Tier I : For programs conducted by academically autonomous institutions and by university departments/ constituents of the universities

Tier II : For non-autonomous institutions, i.e. affiliated colleges which do not enjoy academic independence

Full Accreditation
1. Full Accreditation of the program for five years If there is no deficiency or weakness in any of the criteria laid down by NBA and concerns in not more than two criteria, then EC on the recommendations of EEAC and Engineering Sub Committee of AAC may accord Full Accreditation for five years to the programme concern. **2. Accreditation of the program may be considered after three months** In case, there is no deficiencies and weaknesses in not more than two criteria in a programme that may be overcome within a short period of three months, the institution may be given three months time to rectify the same. The institution is required to submit a compliance report to NBA describing action taken in response to the weakness (es) and concerns identified. The institution compliance report will be placed before EEAC to take a view. If EEAC is satisfied, it can make its recommendation to the Sub Committee of AAC for final recommendation regarding accreditation of the programme concerned to the Executive Committee.

Provisional Accreditation

Provisional Accreditation of the program for two years

In case the programme under consideration has deficiencies in no more than two criteria, and has full compliance in not less than three criteria laid down by NBA, EEAC may recommend to the Engineering Sub Committee of AAC to consider the programme for Provisional Accreditation for two years. However, a deficiency in Criterion - V (Faculty Contributions) may not be recommended for accreditation. In all such cases, the institute may submit a compliance report after one year and request for a re-visit to assess compliance.

No Accreditation

If the program has deficiencies in more than two criteria laid down by NBA, it may not be recommended by EEAC for Accreditation.

Appeal against the Accreditation Status

- There is a provision for appeal against the accreditation status conveyed by the NBA within 30 days
- Institution has to submit a return request to consider appeal with proper justification along with documentary evidence to substantiate their claim

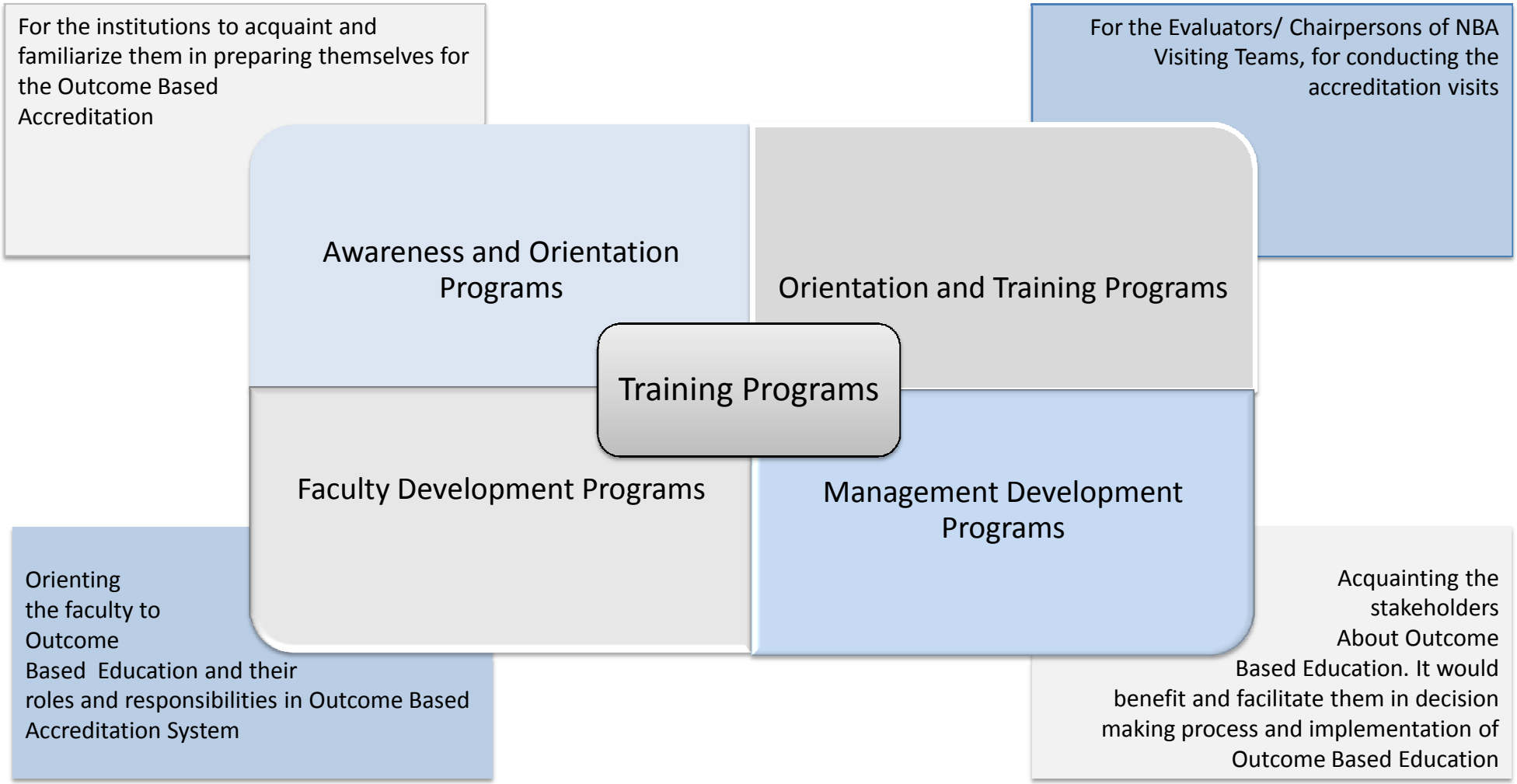
Follow-Up Action

- As a process of Follow up Action to accreditation, the institutions are expected to submit their annual self-assessment report to NBA
- If any aspect of the program is found to be sufficiently unsatisfactory and/or does not comply with norms, the NBA reserves the right to revoke the accreditation

Training Programs on Outcome Based Accreditation

NBA has switched over to Outcome Based Accreditation with Outcome Based Education as a prerequisite

This is a new concept and needs orientation of the stakeholders and also creating awareness amongst them

24 Nodal Centers have been opened for training

Types of Training Programs