Confederation of Indian Industry

**Recommendations of CII National Committee on
Higher Education on New Education Policy**

(On select themes for consultation on higher education as
enumerated by Ministry of Human Resource Development)

I. Governance Reforms for Quality

II. Ranking of Institutions and Accreditations

III. Improving the Quality of Regulation

IV. Pace Setting Role of Central Institutions

V. Improving State Public Universities

VI. Integrating Skill Development in Higher Education

VII. Promoting Open and Distance Learning and Online Courses

VIII. Opportunities for Technology Enabled Learning

IX. Addressing Regional Disparity

X. Bridging Gender and Social Gaps

XI. Linking Higher Education to Society

XII. Developing the Best Teachers

XIII. Sustaining Student Support Systems

XIV. Promote Cultural Integration Through Language

XV. Meaningful Partnership With the Private Sector

XVI. Financing Higher Education

XVII. Internationalization of Higher Education

XVIII. Engagement with Industry to Link Education to Employability

XIX. Promoting Research and Innovation

XX. New Knowledge

I: Governance Reforms for Quality

In India, governance is more of a misnomer and is generally understood to refer to a framework to avoid any mismanagement by a university or institute of higher learning than a framework to ensure quality improvement. While good governance embodies good practices, it does not provide any advice for transferability. This is where quality benchmarking of best practices needs to step in to ensure autonomy and accountability. With RUSA being implemented across all states and State Higher Education Plans (SHEP) now being the norm, governance reforms need to ensure:

•Accountability - guaranteeing academic quality and standards (University Act)

• Autonomy - allowing institutions to anticipate, manage their funding, resources, implement and monitor governance policies (BOG and governing body to take a call). Also, autonomy for curriculum development and naming of courses

• Annual 25 per cent increase in the number of autonomous institutions

•Information – communication with internal and external stakeholders

• Independent committee to develop rating system of institutes

Quality assurance in higher education is today the top priority of the policy agenda. Post- secondary education needs to prepare graduates with new skills, a broad knowledge base and a wide range of competencies to enter a more complex and interdependent world. Quality is a multi-dimensional concept and several mechanisms for quality assurance and management at individual and institutional level are needed. Systems of accountability and accreditation with a robust regulatory mechanism are essential to the process of sustaining and improving quality. Coordination and determination of standards in institutions for higher education and research and scientific and technical institutions is a constitutional obligation of the central government. It is necessary to involve all stakeholders to institutionalize internal processes in favour of quality as an island

of excellence cannot serve the massive requirement of higher education. Quality has to be the concern of all institutions and excellence will flow from good quality institutions and appropriate governance structures. Higher education (HE) in India has experienced an unprecedented expansion accompanied by diversification of the sector. The unplanned expansion of the sector poses challenges for enhancing and maintaining quality.

The country has established external quality assurance agencies in the 1990s to assure external quality. The National Assessment and Accreditation Council (NAAC) was set up by the UGC in 1994 to accredit universities and institutions of general higher education and the National Board of Accreditation (NBA) was established by the All India Council of Technical Education (AICTE) in 1994 to accredit programmes and institutions. NAAC accredits institutions and certifies for educational quality of the institution based on seven criteria. There is a dire need to undertake reforms in the entire higher education sector beginning with regulatory structures and going down to the institution level. Some of the possible approaches of reform agenda which could be considered are:

- Create independent quality assurance frameworks to address the quality deficit in the higher educational institutions. Setting up of an Internal Quality Assurance Cell (IQAC) is one such mechanism to ensure quality within the institutional framework and linking it with the standards set by the quality assurance agencies.
- A governance structure where in appointment of VC & Professors are through transparent and competitive process
- Restructuring the existing regulatory bodies and relook at their multiplicity in a rationalized manner.

- Autonomy matching with accountability: Need to re-align the regulatory functioning in such a way as to promote autonomy of institutions. This approach envisages that we embrace a paradigm shift from to facilitation rather than regulation; Single point clearances for grants and clearances;

encourage global quality institutions. Autonomy of institutions would also be achieved by conferring degree granting powers to colleges and conferring autonomous status on colleges. In order to ensure horizontal and vertical mobility of students, we need to ensure that uniformity is achieved in terms of syllabi and curricula through a framework; Choice Based Credit System (CBCS) is adopted by all institutions.

- Need to revisit the issue of multiplicity of entrance and eligibility examinations and explore the possibility of a single national test. Can we have a National Testing Service for this purpose, which could be developed through consultations and debate?
- Permitting foreign education providers in India for proper regulation and internationalization of education by enhanced collaborations.
- Norm based funding of higher education rather than subjective demand based inspection governed funding. UGC is the main vehicle of routing funds to central and state Universities and colleges for funding. Adopting a norm based funding approach could be considered for improving efficiency in grant disbursals.
- State universities and their affiliated colleges that account for more than 90 percent of the enrolment suffer from severe fund constraints and poor governance leading to poor quality.
- Autonomy for Central Educational Institutions
- Prevention and prohibition of unfair practices so as to ensure that only merit plays a role in admissions.
- Capitation fees and misleading advertisements to be punished severely.

Questions for discussion

Which of the following reforms will create better governance structures in State Universities?
- Revamp the affiliating system
- Ensure multi-stakeholder governing bodies
- Clearly defined roles for various governing bodies

- Greater accountability through transparency
- Greater academic, administrative and financial autonomy
- The ability of institutions to charge appropriate fees from students who can afford to pay and at the same time having a means blind system for the needy students

> **CII** All six points mentioned above are required to create better governance structures in state universities

Which of the following reforms will create better governance structures in centrally funded institutions?

- Changes in the composition of governing bodies such as having representation from industry, alumni and civil society etc.
- Re-align the regulatory functioning in a way so as to promote autonomy of institutions, with accountability fixed.
- Single over-arching regulatory authority.

> **CII** Number 1 and 2

Is it desirable to shift towards norm-based and outcome-based funding of public funded higher education institutions? If not, why and if yes, why?

> **CII** It is desirable to shift towards a norm-based and outcome-based funding of higher education institutions, whether public or private. For private institutions, this funding can be solely for research activities. This would ensure that performing institutes are adequately empowered and given funds for activities instead of available funds being spread too thin uniformly across all institutes. Uniform dole out of funds leads to sub-optimum utilization of money and needs to be avoided.

What can be done to empower IQAC for internal assessment and accreditation

> **CII** Internal Quality Assurance Cell (IQAC) should be an autonomous and independent cell and should be empowered to question any procedure or action of the institute related to assessment and accreditation. It should have a mechanism to take appropriate action against those who are found to be flouting the quality norms. This should include assessment of the performance of faculty.

exercise?

What institutional measures need to be taken to attract, recruit and retain exceptionally qualified faculty and also keep the equity focus?

> **CII** **Freedom Freedom Freedom.** Freedom for institutes to recruit faculty, irrespective of the nationality of candidates. Freedom to offer world-class salaries. Freedom to faculty to design their courses and work with industry.

What should be done to teachers who do not teach?
- Remove
- Transfer
- Counseling

Would you support if they are removed?

> **CII** Teachers who do not teach have no right to remain in institutes. They should first be counselled about their non-performance. If they do not change their way of functioning then they should be transferred / removed. CII would support removal of non-performing teachers. However, there should be well-defined parameters for assessing non-performance and a fool-proof system with enough checks and balances.

Should the college Principal and the Governing body be given responsibility for expenditure, and be accountable for it.

> **CII** Yes

Should the University Act be changed?
Should the VC's appointment be based on Search & Selection Committee?

> **CII** Yes

Should faculty appointment committee have third party presence as appraiser who is to just watch and give report?

CII No. That would be like policing of the exercise and may lead to a feeling of mistrust.

Should fees be enhanced to Rs 500 p.m. when the expenditure is more than Rs 2000 per person? This should come along with waiver for needy students.

CII Yes. Subsidy of all kinds should be need-based.

Should BoG/Governing body be empowered to take decisions with regard to expenditure on the fee collected?

CII Yes.

Should colleges be autonomous administratively and financially?

CII Yes.

Should colleges be allowed to frame their course work (accredited) within the NEP.

CII Yes.

Should teachers have probation for 5 years?

CII Yes.

II: Ranking of Institutions and Accreditation

CII Approximately 28 per cent universities and 14 per cent colleges only have so far been accredited by NAAC, NBA and other accreditation agencies in India. Considering this low number and the below-par ranking of Indian higher education institutionsin global rankings, it has become imperative to develop a dynamic accreditation framework which can monitor the quality and standard of education imparted by both private and public institutes on an ongoing basis. The following are some suggestions to suitably modify the existing framework of ranking and accreditation:

Incorporate global accreditation standards: Integrating parameters for accreditation which are relevant for both Indian and global education system such as number of foreign faculty and students, number of patents and copyrights registered would enable a balance of focus on various areas

Open up accreditation to other agencies: Accreditation should be opened up to other agencies such as industry chambers of a certain repute and standing and NAAC and NBA should undertake accreditation of these agencies, like in the case of Council for Higher Education Accreditation or CHEA in the US. Help may also be sought from international agencies such as ABET and ACBSP for training of evaluators and other guidance. This will:

    a. Prevent monopoly of any one accreditating agency
    b. Ensure that our standards are on par with the global standards
    c. Enhance the credibility of Indian education system
    d. Divide the workload of NAAC and NBA so that they are able to focus more on the regulation side of accreditation
    e. Ensure speedy accreditation of all institutions earlier.

- Participation of PPP accrediting agencies should be encouraged as this will reduce the burden on existing government agencies and ensure necessary transparency in the evaluation process
- Develop Internal Quality Assurance Cell within HEIs: Self-evaluation by leading HEIs should be encouraged with help of internal quality mechanism which will enable external agencies to focus on strategic evaluation of HEIs which are lagging behind. More weightage should be given to the following aspects than merely physical dimensions of infrastructure

    - Student experience
    - Setting expectations and measuring learning outcomes for students
    - Research integration in teaching and learning
    - Interface with industry
    - Mentorship and faculty development
    - Curriculum and learning and teaching practices
    - Contribution to community aspects

- Governance of Accreditation Organizations: Given the long-term implications that accreditation and ratings can have on an individual institutions, it is suggested that accreditation organizations need to have balanced representation from all major public and private stakeholders including employers, state governments, academia etc in the governing boards.
- Rationalisation of norms: Impractical norms of regulatory bodies such as faculty-cadre ratio, student-faculty ratio, library facilities etc. need to be rationalized. This will result in bringing down the cost of education for students and institutions will themselves feel motivated to obtain accreditation, which they otherwise avoid because of unrealistic norms.
- Adequate Time for Application: Reasonable time period needs to be given to apply for accreditation for understanding the ranking/accreditation assessment criteria, procedure, desired outcomes etc. stipulated by the accrediting/ranking bodies and their adaptation in the existing institutional systems.

Global rankings of universities are based on an assessment of institutional performance in the areas of research and teaching, reputation of faculty members, reputation among employers, resource availability, share of international students and activities etc. Most of the top ranking institutions are located in the USA and the UK.

Indian universities do not find a place in the top 200 positions in the global ranking of universities. Even the top ranking institutions of India appear low in the global rankings. As per the Times Higher Education Rankings 2012-13, the top ranked Indian institutions are IIT Kharagpur (234), IIT Bombay (258) and IIT Roorkee (267). The top ranked institutions as per the Quacquarelli Symonds (QS) System 2012 were IIT Delhi (212), IIT Bombay (227) and IIT Kanpur (278). Does it imply that India has only low quality institutions? The idea of establishing

accreditation agencies in India was to enhance standards and quality of higher education.

As a measure of quality assurance, India established accreditation agencies in 1994. The institutions of higher education were supposed to approach the accreditation agencies to get their institution or programme accredited. Accreditation was voluntary and as a result only few institutions have approached and secured accreditation in India. Only 140 universities (out of the 764 recognized by the UGC) have got themselves accredited by the National Assessment and Accreditation Council (NAAC) and, among them; only 32 percent have been rated as A grade or above.

Amongst the 4,870 colleges, as many as 2,780 are accredited by the NAAC and, among them, barely 9 percent are rated as A or above. Doubtless, quality and excellence in colleges leaves much to be desired. Among the accredited institutions, 68 percent of universities and 91 per cent of colleges are rated average or below average in terms of quality parameters specified by the NAAC.

The Indian higher education system has expanded and will further expand. This is in response to the increasing social demand for higher education. However, a major share of this expansion has taken place through the private institutions. The quality of facilities and teaching learning process in these institutions is far from satisfactory. An assessment and accreditation of institutions are important, especially in the context of mushrooming of private higher education institutions, to ensure quality in higher education.

There is need for effective ways and strategies to expedite the completion of assessment and accreditation by NAAC within a stipulated time frame. Now accreditation is made mandatory for higher education institutions to receive funding support from the UGC. While this is a positive development, the issue of accrediting large number of institutions within a short period of time poses

challenge to the accreditation agencies. Some of the state governments, notably the State Councils of Higher Education, have established their own accreditation units. This is an important development to decentralize the accreditation process. The higher education institutions have also established internal quality assurance cells. Their functioning and effect on improving overall quality improvement of the institutions is yet to be assessed. The issues related to ranking and accreditation raise several issues for discussions.

Questions for discussion

Q1. Should India focus its resources on research universities, including liberal arts and social sciences so as to improve the country's position in the global rankings?

> **CII** Yes. Whether it immediately leads to improvement in our rankings on global indices or not, there is a need to focus more on research universities, including in liberal arts and social sciences. This will lead to enrichment of the overall academic eco-system, help in improving the overall cognitive and analytical skills of students and result in better employability quotient.

Q2. Should not India develop its own ranking system relying on indicators more suitable to Indian situation as other ranking systems have heavy weightage for perception/subjective factors in which Indian universities lose out?

> **CII** There is a case for India to develop its own ranking system based on indicators and outcomes which are suited to Indian conditions but such a system should also be a global ranking system where our institutions are benchmarked against the best in the world, rather than they being benchmarked against other domestic institutions. The purpose should not be to pat our own backs by comparing ourselves with mediocres of the world but to push our institutes towards excellence by recognizing their achievements in the Indian context but at the same time showing them their position vis-a-vis the best in the

Q3. Accreditation has been made mandatory for all institutions (whether the institution is publicly funded or not). Is this approach correct or not?

CII It is correct to make accreditation after the completion of a stipulated number of years mandatory for all institutions. Enforcement of proper disclosures by institutes as far as accreditation is concerned is also important. Ultimately, accreditation should be the only yardstick for judging the quality of an institution.

Q4. How should we facilitate the process of accreditation to make it more objectively verifiable and transparent?

CII The process of accreditation can be made more objectively verifiable and transparent by involving multiple stakeholders in the evaluation process and sharing the complete feedback with the institutes. There should be adequate support services to help weak institutes pull themselves up.

Q5. Should we focus on programme accreditation or institutional accreditation or both?

CII Programme accreditation and institutional accreditation are both important. Institutional accreditation alone cannot do justice to individual programmes and most institutes have core competency only in certain programmes. These need to be recognized at the programme level.

III: Improving the quality of regulation

CII Education being in the concurrent list under the Indian Constitution has led to creation of multiple regulators at the State and Central Government level. Overlapping jurisdiction and conflicting regulations have led to a number of challenges.

Need for single overarching regulatory authority

a. A national central education regulatory authority needs to be set up by streamlining the existing regulatory bodies governing university education, technical & professional education & distance education. Ideally, this authority should be created under an act of the parliament.

b. The apex body can be structured with a Higher Education Board reporting to a Governing Council with representations from academics, government, industry and professionals from specific areas of expertise. With the creation of an independent regulatory body, it is expected that the existing multiple mandates with various regulatory agencies can be rationalised including the removal of overlapping regulations. This will result in the creation of a single-window clearance to institutions. Further clarity may be developed on the licensing for foreign institutions to operate and grant degrees in the country, accreditation standards, disbursement of funds as per a stringent national institutional performance framework, amongst others.

c. To ensure that the Central & State Government regulations are completely in sync.

d. Addressing the provisions of conflicting regulations in order to make them uniform. This exercise needs to be conducted on the policies affecting the higher education sector irrespective of the administrating ministry. For e.g. – Under the FDI Policy of India, 100% FDI is permitted in the education sector under the automatic route however AICTE regulations specifically bar direct or indirect

foreign investment in technical education.

e. Legacy regulations enacted in the last century needs to be replaced with more relevant provisions which addresses the needs & demand of the 21st century. The UGC Act & Regulations, AICTE Act & Regulations, MCI Act are a few examples.

f. Use of ICT for effective governance & reducing unnecessary paperwork should also be encouraged.

Global Best practices:

- In China, the Ministry of Education (MoE) is the all-encompassing agency which regulates all aspects of the educational system in mainland China, including compulsory basic education, vocational education, and tertiary education. The MoE certifies teachers, standardizes curriculum and textbooks, establishes standards, and monitors the entire education system with an objective to modernize China through education.

- In Brazil, the higher education framework is mainly regulated by the Ministry of Education's (MEC) Secretariat for Regulation and Supervision of Higher Education (SERES) and the National Institute for Educational Research (INEP). SERES is responsible for the registration, accreditation and Quality Assurance (QA) procedures, and INEP is responsible for publishing QA annual indicators and implementing the National Examination on Students' Performance (ENADE).

  o In view of the evolving higher education environment in the country, the Brazilian parliament has recently initiated the process of studying a proposal for the creation of a new National Institute for Supervision and Evaluation of Higher

Education (INSAES). While INSAES will inherit all of SERES' responsibilities as well as many of INEP's, bringing regulation, supervision and quality assurance activities under the same roof. The new Institute is being designed to be more autonomous and resourceful for shaping the Brazilian HE education.

Regulations for governing online education

- The government has been quick in realising the potential of online education in overcoming the challenges of access, equity and quality in higher education. A separate budgetary allocation has been set aside for developing infrastructure for virtual classrooms and massive open online courses (MOOCs) in the last two annual budgets.

- In the absence of a regulatory framework, online education is expected to take a lot of time to make any significant impact on the prevailing landscape. Given its enormous potential, the government should consider setting up an exclusive regulator for developing and harnessing this sector.

Global Best practices:

- In most states in the US, any non-public or out-of-state post-secondary institution providing online education is required to obtain authorization* provided it has a physical presence in the state. Certain other states require institutions to be authorized irrespective of their physical presence in the state.

  *As defined by The State Authorization Regulation released by the US Department of Education in 2010, "authorization" (also known as "registration," "licensure," "approval," etc.) refers to the certain minimum standards which have been met by the institution under the laws and regulations of a particular state.

- In 2010, the US Government had issued a federal regulation

which necessitated the institutions with no physical presence in a particular state but offering distance or correspondence education in the state to obtain authorization from that state in which it operated.

• At present, there are no federal regulations for state authorization for distance education regulation. However a new federal regulation was proposed to be introduced in the latter half of 2015.

Better governance reforms (revamping college affiliating system)

• Quality assurance in higher education has largely been dependent on governance of higher education institutions with respect to academic, administrative, research, social outreach and other themes of governance. This has necessitated a systemic and a step-by-step approach in overhauling structural reforms of higher education regulators along with the accreditation agencies.

• With most of the large universities spending a majority of their time in administrative and other non-academic activities, a cap on the number of colleges affiliated to a university needs to be put in place. The cap can be determined on the basis of a number of local factors such as concentration of higher educational institution, GER, dedicated staff for administration etc. Limiting the number of colleges under a university is likely to help improve academic quality at the university. This is also likely to provide greater independence to better performing colleges in terms of devising their own curriculum and assessment standards.

Rationalisation of impractical norms of the apex bodies is needed to reduce the cost of higher education. It will also encourage promoters to spend money on creating additional educational opportunities or exploring new ways of improving the quality of education and research. Some examples of outdated norms are:

- Faculty:student ratio of 1:15 for courses like B.Tech, B.Pharm, MBA, MCA etc. is unreasonable in today's changing world of video lectures, lectures through skype, NPTEL, MOOCs, other forms of digital learning as well as emergence of theatre-style big classrooms which can be hooked up via broadband and the same faculty sitting in one place can deliver lectures to students in multiple locations. Insisting on 1:15 faculty-student ratio is okay for institutes in the western world where the number of students is just a fraction of that in India. This, coupled with the fact even the best of institutes, such as the IITs, face up to 40 per cent faculty shortages, shows that it is unnecessary to insist on classrooms with small number of students when our reality demands the opposite.

- Moreover, to teach B.Tech, B.Pharm and other students, faculty with relevant industry experience is much needed more than those with doctoral degrees. Ph.D. candidates are mainly required for M. Phil, Ph.D. and certain post graduate programmes involving research.

- Likewise, under the NCTE (Recognition Norms and Procedures) Regulations, 2014, infrastructure requirements are excessive. For intake of 100 students of 2 years B.P.Ed programme, in addition to the classrooms, ten tutorial specialization class rooms are mandated. Similarly, for B.Ed. alone, initially 1000 titles and 3000 volumes of books are mandated to be augmented with addition of two hundred titles annually with multiple copies. Instead of stress on numbers, there should be focus on continuous and consistent augmentation of facilities.

- There should be level playing field for both private and public institutes not only in framing of regulations but also in their implementation. Enforcement of rules should be as stringent for public institutes as it is for private ones.

The main objective of regulation in higher education is to meet the three objectives of equity, expansion and excellence as stated in the Twelfth Five Year Plan. There is a multiplicity of regulators in India and there are separate regulators for higher education, technical education and professional education. However it is felt that a single regulatory body would be more effective as it is often the implementation of the regulations rather than the regulations themselves which poses the problem.

The issue of quality of governance is closely related to the issue of autonomy enjoyed by the institutions. Starting from the first Commission on higher education (Radhakrishnan Commission in 1948) there has been a strong argument for granting of more autonomy and less interference from the government in the governance and management of universities. Commissions on higher education emphasized on the legislative framework of universities and a strong governing body with external members leaving the universities 'free from interference'. Universities were supposed to be self-regulating entities and to voluntarily adhere to standards determined by the UGC.

There is a need to enable institutional autonomy by transforming the role of government from command and control to an evaluative and steering role. In this scenario there is a need to increase the capacity of the higher education system to govern itself by coordinated regulatory reforms. However regulation is needed in some areas in the higher education sector: granting permission to enter, permission to operate, decide on the intake of students and introduction of courses, monitoring overall performance including issues related to governance and management and levels of student learning. Also, more transparency is needed in both public and private institutions by requiring them to disclose important standardized information related to admissions, fees, faculty, programs, placements, governance, finance, business tie-ups and ownership.

As we move from an elitist structure to massification we have the proliferation of private higher education institutions. Some of these universities and colleges lack

proper infrastructure and faculty strength and have poor academic standards and take exorbitant fees from students. However, measures need to be introduced to ensure that private institutions are committed to quality, equity and transparency through regulatory reforms. The current regulatory framework needs to be reframed to: (i) encourage serious private philanthropy and investment to innovate and provide high- quality education; (ii) promote better availability of information on private institutions to the public; (iii) ensure that institutions that indulge in unfair practices are dealt with swiftly. The system of accreditation will be central to such reforms and needs to be transparent and function in a time bound manner.

There have been cases like the judgment in 2005 in Chhattisgarh ordered closing down of 117 private universities as they did not follow the regulations stipulated by UGC in 2003. Recently, 41 deemed universities had their deemed status withdrawn after a physical inspection found them lacking in infrastructure facilities which are needed to provide quality education.

There is also a need to reform the affiliating system since majority of the teaching takes place in affiliated colleges. Institutional reforms are needed whereby affiliating universities will be required to revamp their college development councils and give greater autonomy to their colleges in all academic, administrative and financial matters.

Question for discussion

Q1. Has the present system of regulation stifled the growth of our institutions? Would it be better to reduce the number of regulatory bodies and/or should they undergo massive restructuring so as to function effectively. Please examine in detail.

CII There is certainly a case for streamlining of regulatory bodies, though not exactly by subsuming the existing bodies. There needs to be a single window clearance for setting up institutions, provide greater clarity on the licensing for foreign institutions to operate and grant degrees in the country, accreditation standards, disbursement of funds as per a stringent national institutional performance framework, amongst others.

IV: Pace Setting Role of Central Institutions

> **CII** Central Universities should be connected with community and schools in its vicinity, to ensure quick reach- out to masses, in terms of local needs for basic , as well as skill based education. Community colleges under Central Universities will not only ensure quality teaching , but also improve upon GER and can link skill based professional courses to industry.

Central institutions / universities are regarded as key institutions in the processes of social change and development. The most explicit role they need to play is in research and in the production of highly skilled personnel to meet requirements of the production sector. This crucial role should not keep them away from their role in the building of new institutions of civil society, encouraging and facilitating new cultural values and training and socializing new social elites.

Central universities are institutions to be durable and enduring. They need to be wisely designed, governed and financed to remain our global image and national competitiveness. These institutions have responsibility to transcend traditional disciplinary limitation in pursuit of the intellectual fusion and develop a culture of academic enterprise and knowledge entrepreneurship. They must also be prepared to begin delivering higher education at scale in a manner that bestows status upon universities based upon the outcomes they achieve and their breadth of impact rather than the exclusivity and quality of their incoming freshman class.

Central universities must play a role of academic incubators which will nurture and produce the young budding academicians and scientists of line which are in much of demand. Academic incubation centers should be opened by central universities in their own catchment /region at three different levels: a) Junior academic incubators; b) Senior Academic incubators; and c) Higher Academic incubators. Junior, senior and high academic incubators will be responsible for

excelling the knowledge and research oriented aptitude in the students of first to eighth standard, ninth to twelfth standard and UG/PG standards respectively.

Central universities of the country may be given specified targets to be achieved within the framework of national priorities for research and teaching to develop experts to help facilitate regional development in the country. Similarly, the central universities professors must be given task to teach students at junior and intermediate level once a week /fortnight to enthuse them to serious academic work.

V: Improving Public State Universities

CII "Transparency" and "Purely merit" based process for recruitment of all teaching and Administrative positions in universities will automatically improve upon the functioning and high quality research and teaching. Colleges should not be given academic autonomy for creating courses, as this will not ensure quality of curriculum, assessment and certification etc. The uniformity of academic courses must be maintained centrally by the university. In place of Guest Lecturers, permanent teachers should be appointed with a rider for performance linked promotions and other incentives. High quality infrastructure along with incentives for promotion linked policies will encourage teachers to take up research, however, this is possible if the State Universities are strengthened in terms of financial support from Centre. Increasing the fee will not be a solution to meet the requirements, as it will not attract large number of students to join university education.

There have been debates and discussions on the state public higher education system within the country and recognition of the dire need to change, restructure and reform them. The issues range from the appointment of Vice Chancellors in the state public universities, to those of affiliating system and the governance. There is heavy bureaucratization in the universities. There is severe shortage of teachers and teachers are appointed on ad hoc positions are ill equipped to manage teaching and research on paltry payments to them. The universities are not autonomous in their decision making. The regulations and all academic reform agenda imposed on the state public universities are either burdensome or are not monitored properly. There is a system of accreditation of universities and colleges to improve quality, yet the public higher education has not much responded to it.

The state public universities suffer from severe public resource crunch and this has led to the proliferation of self financing courses. Some of the colleges in the

public university system are no doubt of very high academic standards, yet there are colleges in rural and semi urban locations which are languishing. There is no systemic thinking to improve the efficiency and working of the colleges. There is too much politicization and it is becoming an unattractive destination for job seekers who prefer to join corporate jobs.

The standards of research in the public universities are very poor. The doctorates being awarded in these universities are of poor quality. The teachers have also lack of opportunities to promote research.

There is also a proliferation of private universities in the state in recent years and there is no robust mechanism for the maintenance of standards in private universities.

Hence there is a need to think of systemic reforms in state public universities and colleges. The issues that need to be revisited are: a) appointment of Vice Chancellors in the universities; b) the number of colleges affiliate to some of the state universities; c) the financing of state public universities and colleges; d) promoting the standards of teaching and research; e) the process of recruitment of teachers.

VI: Integrating Skill Development in Higher Education

CII Akin to the west, earn while you learn needs to catch up in India. Integration of practical training with theoretical learning needs to be encouraged and supported to facilitate sustained employment and in-work progression.

1. Interface with industry is a key to this
2. Certifications from industry and giving credit to the same is important
3. Internships which foster collaboration are important
4. In every discipline, employability components should be built up -- modules and hands on training on communication and customer orientation is important. Also it should involve exposure to aspects which matter from real work life perspective
5. Managing complexity, technology competence and aspects of emotional intelligence must be integrated
6. This could be done through curriculum modifications with industry inputs and encouraging work on real life problems
7. Industry apprenticeship is the key
8. Leverage NSQF (National Skills Qualification Framework) and its various levels leading to horizontal and vertical mobility including B.Voc post incorporating skills in the curriculum.
9. The curriculum (aligned to job roles) and relevant certifications would be offered by the respective Sector Skills Council.
10. Student post completion of the skills course can be registered in the National Skills Registry.
11. Launch bridging programs which facilitate skilling in identified priority areas (example SMAC, cyber security, etc. in IT)
12. Create a National Skills Fund which enables students to avail loans to either take up a skills course or certification
13. Students / existing employees need to constantly develop knowledge and skills in different occupational areas (life-long learning). As this may not be considered formal learning, RPL (Recognition of Prior Learning) needs to be given weightage and have their learning achievements recognised and validated. The process framework (established procedure, guidelines or policy) developed should take into cognizance that participants either gain credits towards a qualification and / or exemptions from some program requirements.

With increasing unemployment among the educated, the need for giving due attention to employable skills in secondary and higher education is being felt increasingly. As skilled workforce is considered the most important human capital required for the development of a country, both vocational education and skill development are known to increase productivity of individuals, profitability of employers and national growth. Vocational education aims to develop skilled manpower through diversified courses to meet the requirement primarily the unorganized sector and to inculcate self employment skills in children through a large number of diversified vocational courses. Given that only 7 to 10 per cent of population is engaged in formal sector of economy, development of vocational education will provide skilled labor force in the informal sector which would further enhance the productivity. The Central Advisory Board on Education (CABE) and National Knowledge Commission (NKC) have also emphasized the need to improve access and participation to vocational education and recommended the flexibility of vocational education within the mainstream education system. There is need to look into the innovative delivery models including strengthening of public private partnership (PPP) in forging linkage between skill development and economic development.

With the impact of technology and globalization on the labor market, the work environment has become more complex, requiring new skills to navigate successfully within a world of work marked by constant change. But the education system is not able to respond to the demands of the labor market. A key issue is to improve the effectiveness of the system in order to enhance the employability skills of the workforce and engender more employment opportunities. Moreover, developing skilled workers enhances the efficiency and flexibility of the labor market. India has set the target of skilling 500 million people by 2022. In view of the policy priority and harnessing the potential of young people, skill development assumes great importance in the domain of educational planning and management.

Several measures a can be taken up in linking education and skill development. There are possibilities of aligning and developing skill courses – NSQF.; Establishment of community colleges in general colleges and polytechnics; the country may start vocational programmers at the under-graduate level and introduce skill credit transfer to facilitate vertical / horizontal mobility. We may introduce KAUSHAL – Bridging Diploma-Degree Divide and promoting region specific skills. Similarly, the polytechnic education may focus on employable skills.

VII: Promoting Open and Distance Learning and Online Courses

CII Technology enabled learning allows for:

- Anytime, anywhere learning and not just confined to the classroom

- Collaboration with other students and teachers outside the institution and globally
- Student to comprehend difficult and challenging concepts using multimedia and simulations that may be not be possible – for example inside a nuclear reactor, chemical reactions, anatomy, etc.
- Leveraging social media and community forums to discuss common issues and threads and learn from peers and mentors
- Access to a repository of content and open educational resources to supplement learning

The Opportunity of Technology in Education covers an entire spectrum of areas:

- Broadening the way we access education
- Helping students become the fulcrum of the education system
- Gain life- skills beyond classroom learning – online certification
- Creating a vibrant knowledge community for sharing learning and finally
- Driving efficiencies- Software and services can be a powerful catalyst for significant transformations in the way we learn.

One of the best examples of use of ICT is that of providing equitable access to quality education. Why restrict access to the best lessons to 30 pupils at a time? Why not record the best teachers giving the best lessons, stream and archive these. Supplement this "home grown" material with professionally produced materials and turn into learning objects, pod-casts and / or video clips that children can watch using mobile devices.

With a Unified Communications environment teachers, pupils and experts within and beyond the walls of the school can collaborate and build material and curriculum repositories in a co-operative fashion. With the right tools and a secure, reliable platform, the Internet can break down traditional barriers to communication across the stakeholders in a child's education, engaging parents, experts, other students, etc. in a continuous, virtuous flow of information.

In order to cater to the huge demand of providing higher education to all, distance learning and online courses can be adopted formally through New Education Policy, which will ensure overcoming the challenges like online assessment, certification and smooth transfer of credits through universities. However, the effectiveness of this will depend a lot on the Government's initiatives for providing high speed internet, Wi-Fi facilities etc. which must reach all parts of the country to avail full potential of open and distance education.

The **first step** towards this implementation, therefore, would be to ensure a robust system of providing high speed connectivity through NKN, which will ensure hassle free streaming and broader bandwidth available to Institutions / Universities at State as well as Central level.

Second important step would be to train the teachers towards "Digital Literacy" for making online videos, uploading lectures, using blogs, Moodle platform etc. for course delivery through various online modes.

It is understandable that most students cannot afford to repeat their degree if the first one does not secure them a job. Hence the young students would not risk replacing a traditional degree with a MOOC. Therefore, the **third** step is to emphasize on MOOCs that can be designed to supplement additional learning on the subject and should not substitute the face to face teaching. This additional learning material through MOOC will certainly improve upon the existing courses and will lead the Indian Education system to be at par with Global standards. Nationwide awareness through all possible channels should be envisaged to encourage people to undertake such courses for professional and personal development with due credits earnings.

It is to be noted here that MOOCs represent only one possible model for online learning and one cannot get qualification from a MOOC. In India, the success will lie in designing MOOC courses which can be bundled as packages along with other options ranging from these to hybrid programs like self –paced online, flipped classes where students absorb the teaching online and then come prepared for discussions classes.

CII It is true that transnational education is booming globally and hence, online courses can be designed under the New Education Policy to meet the potential demands of students clamouring for western branded degrees. Universities can use MOOC courseware to lower the cost of instruction and help disseminate higher education to working students, students in rural areas who have limited financial resources.

Fourth step is to organize workshops at different state levels / at Central Universities / private universities and other affiliated institutions, to create awareness and train the teachers towards TEL. Only then the effectiveness of the new initiatives can percolate down to masses, which are the future of India, getting ready to capture the Global economy.

An example has been set up, again, by Campus of Open Learning, University of Delhi, whereby under UKIERI Project on "Digital Learning", in collaboration with Edinburgh College, Scotland, UK, a chain of teachers has been created through workshops organized at COL, Keshav Puram. The trainers from Edinburgh College visited COL, Keshav Puram and conducted workshops on web 2.0 tools. Eight teachers were selected for further training at Edinburgh College and learnt latest technological ways of course delivery. They will now propagate "digital literacy" in their respective colleges in University of Delhi! Also, Campus of Open Learning had initiated the process of redesigning some of its existing courses to be offered as "online courses" and are underway to be implemented.

1. Creating **outstanding student experiences**
2. **Technology as a means** to create the desired learning outcomes
3. Ability to create **unique learning experiences by collaboration** with international community- students and teachers
4. Ability to provide access
5. Creating **right solutions** which are not just digitizing content but making those dynamic so that right kind of learning happens. The content is also so dynamic that needs to be made relevant with passing months and years
6. The technology should be able **to institute the 21st century learning skills of collaboration, team work, critical thinking, problem solving, attention to detail, communication**
7. Pen integration is important. The ability to write and also express deploying technology tools can be amazing

Conventional education alone cannot meet the needs and aspiration of higher education. Distance education system is emerging as an important means to cater

to the increasing demand for higher education. Open and Distance Learning (ODL) is recognised and accepted as an important mode for achieving enhanced access, developing skills, capacity building, training, employability, life-long education and continuing education. Open and Distance Learning has contributed significantly in development of education structure of India. It provides avenues to those students who are not able to leave their jobs or are not able to attend regular classes due to some reasons. Our distance education system consists of one National Open University namely, Indira Gandhi National Open University (IGNOU) and 14 State Open Universities. In addition, many Central/State Universities also offer courses through distance mode. Expansion of ODL is proposed to ensure that 10% of the enrolment takes place in the open and distance learning institutions. There are however issues of quality in distance education, which calls for reforming the ODL system. The Madhav Menon Committee has suggested several changes in the implementation of ODL within the country.

Massive Open Online Courses (MOOCs) have recently received a great deal of public attention. The MOOCs provide free access to cutting edge courses that could drive down the cost of university-level education and potentially disrupt the existing models of higher education. This has encouraged various higher education institutes/universities to put their courses online by setting up open learning platforms.

Indian Universities need to establish the MOOCs program in Humanities, Social Sciences, Sciences and Technologies. This should be in the wider contexts of open education, online learning and the need to democratize education by disseminating as wide as possible. Pedagogically the University need to develop contents of the study programmes, Teaching learning materials, Videos etc. which can be relied on to launch online courses. Developing collaborations with other institutions, depending on the nature and contents of the courses, is an important part to increase their outreach.

Learners' motivation to participate in MOOCs is a significant area of interest to many higher education institutions in stakeholders. Surveys conducted by researchers at Duke University show that student motivations typically fell into one of four categories: a) gain an understanding of the subject matter; b) for fun, entertainment, social experience and intellectual stimulation; c) convenience, often in conjunction with barriers to traditional education options; and d) to experience or explore online education.

MOOCs have been criticized for adopting a knowledge transmission model; in essence, they are considered to be technology-enriched traditional teacher-centered instruction. Such systems offer an individualized experience in that they allow students to take alternative routes through material and offer automated feedback. However, they do not provide a social learning experience or one of being dealt with personally.

The issue of quality assurance of MOOCs is a big concern for HEIs. In most cases, compared to other online courses, MOOCs lack structure, and rarely include the central role of the instructor or teacher. They are largely self-directed learning, which is a very different experience to formal education. The open nature of MOOCs creates a population that is self selected to be engaged and passionate about this approach to learning. MOOCs demand a certain level of digital literacy from the participants, which has raised concerns on inclusivity and equality of access.

VIII: Opportunities for Technology Enabled Learning

Today technology is all pervasive and it influences all domains of our daily life. The developments in information and communication technology have changed the way educational services are offered. Technology enables to take education and learning go far beyond the confines of institutionalized instructions, structured study programmes and teacher-cantered teaching learning process. ICT helps take learning beyond schools and universities. E –learning is one of the most sought after modes of delivery of educational services.

The World Summit on the Information Society (WSIS) and a series of international conferences in the early 2000s emphasised on e-learning as a priority area of priority. Today digital literacy and e-skills overcomes constraints of age, income and class. Digital literacy (e-skills) has transcended barriers of age, class and income. The government of India plans to connect institutions of higher education and research and provide broadband connectivity at all levels of education and administration.

Technology has capacity to speed up the delivery efforts, standardize the quality of delivery and the quality of services to be delivered to the recipient, provided that recipient, provider, and delivery mechanism all are equally careful to the nuances of the technology. The types of technologies and devices relied on vary widely between regions and countries. Once countries relied on radios and DVD players and now mobile phones, MP3 players, digital cameras, or video-gaming equipment etc are the devices relied on for learning.

Keeping in view all benefits of the technology, the National Mission on Education through Information and Communication Technology (NMEICT) was approved in 2009 to leverage the potential of ICT, in teaching and learning process for the benefit of all the learners in Higher Education Institutions in "any time any where" mode. It has two major components:

· Providing connectivity, along with provision for access devices, to institutions and learners;

· Content generation

Nearly 404 universities have been provided 1Gbps connectivity or have been configured under the scheme and 19,851 colleges have also been provided VPN connectivity. Over 250 courses have been completed and made available in National Programme on Technology Enhanced Learning (NPTEL) Phase I and another 996 courses in various disciplines in engineering and science are being generated in Phase-II of NPTEL by IIT Madras. The low cost access-cum-computing device Aakash 2 was launched on 11 November 2012. Using the A-View software developed under the NMEICT, several programmes for teachers' empowerment have been conducted for batches of 10,000 teachers at a time by IIT Bombay.

 In the context India such technologies and devices will be relied on when infrastructure for adopting such technologies are made available to those in the rural and remote areas. In the area of higher education, we are supposed to upgrade the system to capture the knowledge flow at world level. With a view to care local needs in the context of changes taking place at global level, every college/University engaged in imparting higher education needs to upgrade the facilities in the light of modern technology which can enable learners in a big way. Of course the facilities like Wi-Fi and computers the site of learning and teaching is essential. But again a question arises that to which extent the large number of Students enrolled in the Colleges/ Universities run by the government assistance (in sufficient) could avail the costly facility like Wi-Fi and computers in the library, E library access, E-books, Digital library.

IX: Addressing Regional Disparity

Higher education expansion in India is also accompanied by disparities between regions and groups. Ensuring access to higher education is critical to mobilising greater participation thereby increasing the Gross Enrolment Ratio. In fact regional disparities increased in the process of expansion of higher education in India. The variations in GER (Gross Enrolment Ratio) are a good indicator of existing disparities in higher education development among the states. The GER at national level increased from 8.97% in 2002-03 to 20.4% in 2011-12.

The inter-state disparities in enrolment (GER) increased over a period of time. In 2002-03 the GER varied between 5.0 per cent in Jammu and Kashmir and 28.7 per cent in Chandigarh. In 2011-12 the variation in GER is between 8.4 per cent in Jharkhand and 53.0 per cent in Chandigarh. This shows that the variations in GER increased from

23.7 percentage points in 2002-03 to 44.6 percentage points in 2011-12.

The increasing disparities in GER are due to varying rates of growth experienced by different states and union territories. A close examination of the state level data will indicate that larger gains in GER took place mainly in those states where private institutions accounted for a good share of the total institutions and enrolments. The exceptions are smaller states and union territories such as Delhi, Chandigarh. There is also issue of over concentration of higher education institutions in southern states like Andhra Pradesh and Karnataka. Since private unaided sector in particular play an important role in enhancing GER in many states, issues of affordability and quality has been a major concern.

Latest evidences also reconfirm that higher education participation is unevenly distributed across the regions and states and among social groups and gender. While Andhra Pradesh has highest number of colleges i.e. 48 per 100,000 population, it is 6, 7 and 8 per 100,000 population for Bihar, Jharkhand and West Bengal. Similarly, Chandigarh has highest GER (all categories) of 53%. But GER for SCs remains at 19.2. While in GER in Gujarat is below national average, states share of total and SC GER is 17.6% and 18% respectively. Many of the north-eastern and eastern states have GER below the national average. The GER varies

between 8.3 per cent for rural females and 30.5 per cent for urban female and between 7.7 per cent for the Scheduled Tribe population and around 45 per cent for the Christian population.

Two key issues emerge here: a) Continuing disparity in enrolment at state and regional levels and among various social groups and females; b) Poor quality and lack of adequate facilities in the existing institutions. Planning for eradication of disparities requires well a targeted approach.

X: Bridging Gender and Social Gaps in Higher Education

CII Gender gap is one of the reasons behind under-representation of women in science, technology, engineering and math and should become a critical policy priority. As an ongoing impetus, the new policy should continue with the following schemes:

- Pragati (Providing Assistance for Girls' Advancement in Technical Education Initiative) and Saksham (encouraging differently abled students to take up technical education) by AICTE should be promoted extensively for higher uptake
- Same way Ishan Uday scheme specifically for North East students by UGC also needs to be promoted
- Unnat Bharat Abhiyan was launched in 2014 as a network of IITs and other academic and professional institutes to evolve appropriate technologies converging for rural development – again not seen much traction – we ought to revive these.

There exists wide disparities among social groups in terms of their participation in higher education. The twelfth plan reports that the variation in GER is 44.9 per cent among the Christians while GER is only 7.7 per cent among the ST, 9.6 per cent among Muslims, and 11.6 per cent among the SC. In all these instances the GER among the females lags behind the males. India has been making efforts to increase the transition from secondary to higher education levels. However, quite often pursuing education becomes more costly for students from poor families because of the loss of perceived earning when they pursue education instead of working for a salary. Studies show that youth from marginalized community prefer to earn livelihood rather than continuing higher education. India has introduced several incentive schemes including scholarships to students from the disadvantaged background. These measures do not seem to be sufficient to attract students from disadvantaged groups in colleges and universities and more importantly to retain them.

For an inclusive higher education efforts should be made to eliminate gender disparities and to significantly reduce urban-rural, inter-regional and inter-social group disparities. This will call for a much larger facilitative and promotional role

for the central and state governments as well as the private sector in higher education towards the hitherto marginalized sections of the society. Thus the major emphasis of the policy should be on promoting inclusiveness so as to accommodate more students from the marginalized sections into the ambit of higher education.

The gap between men and women in access to higher education has been eliminated in a few states and is lower in urban areas. The education policy shall aim at complete elimination of this gap, at least at the overall level. Diversify the higher education provisions and programmes which can help in reducing the barriers to access to higher education by socially deprived groups. Improving Access for Differently-abled Students which will require improvement in basic infrastructure facilities to enable access by the differently-abled students in all institutions of higher education; extension of support facilities to such students; and increased support to teacher preparation to handle their educational needs.

Women Participation in Higher Education can be sensitized by nation-wide awareness programs. Introducing specially designed skill based courses for girls which are linked with Higher education degree / diploma programs will attract girl students to join University education, as this will encourage them to "Earn while you learn". Further, this can be supplemented with scholarships linked to performance in degree courses. Also, flexible entry and exit points for completing higher education, an economical residential environment which is safe and learner friendly will ensure more participation from Women. Basic IT education and courses related to specialized IT fields can make them work from home and more importantly, a blended learning approach will enable women to pursue higher education along with shouldering the family responsibilities and simultaneously become financially independent.

XI - Linking Higher Education to Society

> 1. **CII** Integrating sustainability aspects into the program
> 2. Integrating value and ethics modules
> 3. Mandatory for every student to initiate a community project which matters to India while pursuing their studies
>
> Given security issues emanating today with the splurge of internet based devices, it is imperative to bundle two-factor authentication security with a wide choice of credential and risk analysis options in all type of transactions. Two-factor authentication refers to the process of authenticating users with a combination of something they know — a password — and something they have — such as a credential or device identifier. It generates and delivers a one-time security code via SMS, voice calls, or email. For example for all our visually impaired friends, the security code is read to the user over a customizable phone call to punch in".

Since Independence, there have been manifold increases in the number of universities, colleges, teachers and students. The growth, to a great extent, seems unplanned and exhibits a weak linkage with employment and the outside world. Various reports have shown that although jobs have been increasing in the professional stream, degrees have been multiplying in general education mainly in arts and humanities. The condition has become ironical. On the one hand, the country does not have adequate manpower to carry out developmental work; on the other hand there is a high incidence of unemployment among the educated youth. The expansion and diversification of educational growth has been almost adverse to the sectoral growth of jobs.

The role of institutions of higher education in societal development is becoming increasing significant. In recent years, higher education has isolated itself from the society and there is a need to re-establish and strengthen higher education's close linkages with the society. The Universities need to foster social responsibility and engage in community outreach programmes.

Development of higher education is critical for achieving the goal of `Unnat Bharat' and in developing capabilities of people to face the current and emerging challenges. The unprecedented explosion of knowledge warrants higher

education to become more dynamic as never before, constantly entering into unchartered domains. Despite constant efforts made by the Government in higher education, the country is facing the challenges of greater opportunities of access to quality higher education through greater investment in infrastructure and recruitment of adequate and good quality faculty, promoting academic reforms, improving governance and institutional restructuring with aims of improving quality and inclusion of hitherto deprived communities. Higher education should carry the developmental agenda of the country on its inner strength and resources. Besides improving access and equity, it should improve the quality of teaching and learning in higher education institutions.

XII: Developing the Best Teachers

1. **CII** Develop a "mandatory" certificate for pedagogy across disciplines in education
2. Develop institutes for leadership development for academics
3. Exposure and international exchanges for teaching and research
4. Exposure to funding opportunities for research and collaboration
5. Sabbaticals in industry
6. Mentorship from industry

If private sector is headed by promoters as leaders, the faculty has almost no say in the governance of these schools. In public institutions, the challenge is at the other extreme as the faculty lacks business acumen and perceives administration as clerical work. The need is to strike a fine balance between academic perspicacity and business efficiency. A fresh look is required in the role of teacher in becoming active agent of change rather than passive pawn in the academic process.

- Manage teachers' capacities to use technology effectively in the classroom + establish adequate support mechanisms (motivation)
- The 13000 odd teacher education institutes in India are not of top quality – the bad ones probably need to shut down and good institutes. The budget (investments in training and developing teachers, not salaries) should go up. We can learn from China, which has only 66 dedicated universities for teacher education, one or two for every province.

We could think of setting up a separate entity to impart training to and develop leadership abilities in teachers.

The quality of instruction depends on the quality of teachers. The qualification levels and pedagogical experience they have certainly influences the teaching learning processes and learning outcomes. The length of academic preparation, the level and depth of understanding of subject matter and the extent of

pedagogical skills a teacher possesses decide the learning outcomes in an institution. Unfortunately, a major share of our teachers, especially in the colleges does not possess doctoral degrees.

One of the major constraints is to attract good students as teachers. Invariably teaching profession is not high in the priority list when the graduates look for jobs. The salary levels and facilities provided to the teachers, although increased in the recent past, are less attractive compared to other sectors. Creation of a pool of brightest students is important in the sense that they will ultimately make improvements in teaching learning process. The UGC is funding a variety of programmes such as provision for awards, scholarships, facilities to participate in conferences etc. to attract and retain intelligent, meritorious and brightest students in academic profession.

After their joining in the teaching profession, they need to be inducted effectively and oriented towards research and teaching. Apart from the off-campus induction process, it will be a good in-house practice if the young and fresh teachers can observe the class teaching of senior and best teachers being in apprenticeship for further cognitive and pedagogical development. The process of enhancing their knowledge of Content, Pedagogy and the Technology especially the knowledge of ICT is essential and need to continue as an integral part of the capacity development of teachers. Extensive use of ICT and audio-visuals are the need of the day when students are more techno-savvy than the teachers.

The research should be an equally important dimension to be emphasized since research improves the level of teaching and academic credibility of the teacher. It is only through R &D activities, that teachers can update their knowledge, bring more clarity in their concepts, fly at higher level of teaching and reflect on through action research. The global initiative to get faculty from best universities to come and teach for a term is a commendable idea, but practical problems cannot be overlooked. Scholars teaching abroad are hardly accustomed to the realities of India. However, artificial transplantation of foreign methods of

teaching without addressing the requirements of ground reality is bound to be counter-productive.

XIII: Sustaining Student Support Systems in Higher Education

CII

1. Developing a portal which brings together various offerings on internships and international exposure
2. Opportunities for entrepreneurship
3. Counselling centres for students offering range of careers open to them

Effective implementation of public policies requires proper monitoring - educational management information systems (EMIS) with specific data and indicators, for example scholarship/tablets/bicycle distribution to deserving students. Secondly while Shala Darpan has been launched, it's yet to see traction at a ground level. A GIS Mapping of all higher educational institution would enable mapping infrastructure gaps and responding to the needs of the people in providing facilities. The Student Financial Aid Authority setup in Budget 2015 needs to be implemented with full gusto.

the age of 25. If the government's policy prescriptions of expanding access in higher education and increasing enrollments to the level of the developed world continue, our country will have the world's largest student population. As we approach an era of mass provision of higher education, and a majority of the young learners are likely to be first generation, the scale and enormity of this challenge needs to be carefully envisioned.

Envisioning student support systems need to be a critical element of policy innovation. While the focus has been on physical provision of infrastructure such as canteen, common-room, drinking water and counseling centers etc. until the XI Plan, in the XII Plan, student loans have been spoken about. Student loans are becoming increasingly popular, these also cannot be seen as a reliable method of financing higher education on a large scale. The adverse effects of student loans on students' attitudes and approach towards higher education and the values that these loans impart, besides its accentuating role in commercialization of

higher education, need to be carefully examined before further expanding loan programmes.

Besides, in terms of the prevailing culture of institutional practice students are handled by "Dean Students Welfare" within Universities—an office that requires itself to be sensitized on the diversity and changes in student needs. While this emphasis on welfare, support, and physical infrastructure needs to be sustained, the shift from the top-down approach of planning to integrate student voice as an element of policy thinking is urgent. Students need to be envisioned not just as passive recipients of policy transfers, rather as stakeholders with a voice. Students are at the heart of higher education system and beyond the support system they should be treated as important stakeholders in all decision making processes.

The student support system in a university requires good Infrastructure such as common room and recreation facilities, and counseling centers, facilities for Student Grievance Redress, student assistance in terms of financial needs—loans on entry, short-term loans, innovation funds/awards and sustaining inclusiveness—providing for diverse learning needs of students from disadvantaged social backgrounds.

Several schemes of students financial assistance are being implemented at Central and State levels. But the question is have they really served the intended objectives. Some critical views are invited on the existing schemes and what changes will improve the quality of financial support systems for our students so that every aspiring learner can enter higher education.

XIV: Promoting Cultural Integration through Language

Cultural integration is a form of cultural exchange in which one group assumes the beliefs, practices and rituals of another group without sacrificing the characteristics of its own culture. While cultural syncretism carries a negative connotation, cultural integration is generally looked upon as positive because nothing is lost. From this perspective, cultural integration is a healthy

intermingling of the beliefs and rituals of two unique cultures. The factors that affect the process of Cultural Integration include future media technologies, actions of governments, the global economy, rise of global media networks and actions of Trans National Corporations. In all of these the role of language is of primary importance. If language, on the one hand, structures our thought process, it liberates us and propels us into unexplored territories of knowledge and imagination, on the other.

We need to locate language education programmes in a multilingual perspective. Multilingualism is a natural phenomenon that relates positively to cognitive flexibility and scholastic achievement. What is critical is that curriculum makers, textbook writers, teachers and parents start appreciating the importance of multilingualism, which sensitizes the learners to the cultural and linguistic diversity around them and encourages them to use it as a resource for their progress and overall growth. The special features and contexts of the languages that fall under the rubric 'other' for a learner are kept in mind while devising pedagogy for teaching and learning.

One must focus attention to the social, cultural, and historical contexts of minor, minority, tribal, and endangered languages. These languages are repositories of rich cultural traditions and knowledge systems and every effort needs to be made to resuscitate and rejuvenate them. This can be done only by making provisions for them in the higher education framework.

The underprivileged speakers of minor, minority, and tribal languages often suffer severe linguistic deprivation. It is important for us to realize that the major languages of this country, including English, can flourish only in the company of and not at the cost of minor languages. The ideological position that the development of one language also helps in the development of other languages leads one to expect that the development of even some of the languages could provide a marked impetus to the rest of the languages in the case of the linguistically diverse tribal areas, and spur the speech communities to consciously

strive in that direction. This endeavor should lead to further the status of these minor, minority, and tribal languages by allocation of new communicative role(s) and functions, especially in the domain of education at all levels and mass media and thereby lead to more supportive acquisition planning. Many languages are becoming endangered and some have actually disappeared from the Indian linguistic scene despite our claims to multilingualism and maintenance. Every time we lose a language, a whole literary and cultural tradition is likely to be erased.

Multilingualism is the essence of the Indian identity. Even the so-called 'monolingual' in a remote village often possesses a verbal repertoire that equips it to function adequately over a large number of communicative encounters. Indeed, the multiplicity of Indian voices interacts with each other in the Indian linguistic and sociolinguistic matrix, which is built on a variety of shared linguistic and sociolinguistic features.

XV. Meaningful Partnerships with Private sector

CII

1. Allowing private public partnerships through single window schemes
2. The success stories of PPP across various sectors in India especially in infrastructure needs to be replicated in the education sector. The Government of India's initiative to promote skill development programs through the National Skill Development Corporation (NSDC) has been an operative testimony of public private integrated model.
3. The regulators should not view all investments by private sector with suspicion or with any ulterior motives. In fact, private education sector should be seen as an equal partner in improving the education infrastructure of the country. The need of the hour is to create policies and regulations for attracting foreign & private investment in this sector, which faces huge demand supply gap, including increasing spend on R&D.
4. Private organisations need to be encouraged and incentivized appropriately for imparting specialized training to youth especially to those involved in developing "skills for the future." Besides overcoming restrictions such as inflexible salary scales, working hours, this will help build a skilled resource pool. Special provisions such as providing soft loans to private education providers and other entities who are undertaking infrastructure initiatives on a cost sharing basis needs to be given due consideration.

Global Best practices:

- **Successful university–industry research collaboration & partnerships have a**

Expansion, inclusion and rapid improvement in quality throughout higher and technical education system by way of enhancing public spending, encouraging private partnership and initiating long-overdue reforms form the core of various initiatives for higher education. Higher education cannot sustain only through public funding. Given a massive requirement, the public resources may not be sufficient to meet the ever- increasing demand for quality higher education and that our policy and regulatory framework should provide for necessary enabling framework to attract private investment and Public Private Partnership (PPP) in higher and technical education sector. Further, PPP, besides meeting the wide resource gaps, can also serve as an instrument for resource-use efficiency, improvement in service delivery and promotion of excellence. Besides supplementing public investments and reducing dependence on public exchequer for provisioning of quality public services, PPP also brings about the following efficiency gains:

§ Promoting cost-effectiveness through risk sharing and efficient use of resources leading to higher productivity and optimal risk allocation;

§ Enhancing access to modern technology leading to better project design, implementation, operations and management;

§ Promoting accountability through clear customer focus, which, in turn, results in accelerated & improved delivery of quality public service;

§ Promoting institutional autonomy by reducing dependence on public funds and in the process significantly reducing external interference in decision making, as it empowers public institutions by making then financially self-sustaining and independent.

Private sector participation should ensure adherence to government policies with respect to reservation and affirmative action. Importantly, institutions established under PPP mode would follow means blind admission process thereby ensuring that no one is denied admission due to inability to afford cost of education. Liberal scholarship provisions, students loan and interest subsidy scheme may be thought of as cushion to build private partnership in higher education. It needs to be noted that partnership with private sector does not mean privatisation, commercialisation and debasement of education. Rather, it explore possibilities of attracting private investment and participation in decision making within the overall framework of education being merit good, while government continues to be responsible for ensuring quality higher and technical education to all. Thus, under the PPP mode, the cherished national objectives of excellence, social justice, inclusion as well as removal of gender, regional and social group disparities will continue to be the guiding principles. What it does mean is that the Policy Instruments of the Government require to be modified from the present role of funding and controlling to assuming a much wider role of being an enabler, facilitator, financier and regulator.

It is against this background that higher education institutions need a shift in policy towards private sector participation in a manner that broad objectives of expansion, inclusion and quality are maintained.

While public private partnerships in higher education have been pursued as a strategy, not many have shown successful results. Hence, the PPP models need to be revisited so as to allow more meaningful collaborations. A critical analysis of PPP in HE , the existing legal provisions and which viable models are possible need to carried out.

XVI. Financing of higher education

CII In developed countries, with mature higher education systems, student fees form a relatively small part of the funding for institutions. Grants from private sector for research, combined with endowments from alumni and massive government grants, form the bulk of the financing. Until the higher education system in this country reaches a certain level of maturity, it is important to come up with innovative methods of financing for both the supply and the demand side of the education, besides governmental grants. Sustaining state run universities through public funding, though a desirable long-term goal, would have its limitations in the short to medium-term when the need of the hour is to create a vibrant infrastructure which should be largely self–sustaining; a structure that would be able to keep pace with rapidly rising costs of higher education. The future of financing education cannot be merely an extension of the present but has to be shaped by new realities, such as the expected massive growth in enrolment to promote the demographic dividend, new mechanisms in cost-sharing that reduces burden on the student and at the same time does not solely rely on the Government as the provider, emergence and growth of different types of private and public education providers, innovations in modes of delivery of education, etc. Consistent with these realities, new and flexible ways of tackling financing issues in education need to be initiated.

The Approach Paper to the XII Plan mentions that about 18 per cent of all government education spending or about 1.12 percentage of GDP is spent on higher education today. This should be raised to 25 per cent and 1.5 per cent, respectively. An increase of 0.38 per cent of GDP means an additional allocation of about Rs 25, 000 crore to higher education for the Centre and the States taken together. It has been reiterated that we spend at least six per cent of GDP to education.

The following approaches could be looked into for driving private funding into education:

CII

- For investments in education to reach the goal of 6% of the GDP, there is a need for private investment in higher education: Higher education institutions, like the schools have been operating in a not-for-profit model, as a trust or society or a not-for-profit corporation. There is a need to allow institutions in a for- profit structure in order to attract institutional private equity.

- Allow for-profit institutions to collaborate with universities for a royalty fee in order to offer professional degrees
- We could also consider capping of returns to a certain percentage (or operating margin) as an alternative to having no-profit at all. This would also create avenues for the flowing of private investments.
- CSR: Create channels to allow investments into education focused private equity funds that have specific education investment charter
- Determine ways to channelize CSR directly into soft educational loans for K12 and higher education; thereby improving liquidity on the demand side
- The for-profit structures would also result in allowing access to external commercial borrowings which are out of reach for institutions today
- Create access to cheaper funds for banks that could be lent at reduced interest rates allowing banks to offer education bonds along the lines of infrastructure bonds in order to provide cheaper access to funds
- Create secondary public market vehicles for retail participation, such as Education Investment Trusts along the lines REITS
- Infusion of foreign grants / funds: Fund-raising mechanism from foreign institutions including venture funds need to be eased which can act as a catalyst especially for the incubation centers at Tier-1 and 2 institutions. Investment in specialized equipment & software for implementing large research assignments to be encouraged
- Monetizing investments: Keeping in mind the objective of "Make in India" program, an output R&D Index can also be developed under the PPP model. This will not only help the government and private sector in monitoring their RoI in research activities but will also stimulate greater participation and accountability in the young entrepreneur and start-up community.

Public funding has its own limitations and constraints in a diverse and vast nation leading to resources being spread thinly if the objective of massive expansion in enrolment with equity is to be fulfilled. Public funding cannot keep pace with rapidly rising costs of higher education. The expansion of student numbers has presented a major challenge which combined with the goal of inclusivity has aimed to provide access to all sections and thereby operate a highly subsidized

tertiary education. In financial terms, this has become an unsustainable model. Traditionally, education has been seen as a public good, contributing to society through educating citizens, improving human capital, and boosting economic development. There is an increasing pressure to view higher education as private good, largely benefiting individuals, with the implication that academic institutions, and their students, should pay a significant part of the cost of higher education. Funding shortages due to "massification" have also meant that higher education system and institutions are increasingly responsible for generating larger percentages of their own revenue.

The future of financing education cannot be merely an extension of the present but has to be shaped by new realities, such as the expected massive growth in enrolment to promote the demographic dividend, new mechanisms in cost-sharing that reduces burden on the student and at the same time does not solely rely on the Government as provider, emergence and growth of different types of private and public education providers, innovations in modes of delivery of education etc. Consistent with these realities, new and flexible ways of tackling financing issues in education need to be initiated.

The Approach paper to the XII Plan mentions that about 18 per cent of all government education spending or about 1.12 percentage of GDP is spent on higher education today. This should be raised to 25 percent and 1.5 per cent respectively. An increase of 0.38 per cent of GDP means an additional allocation of about Rs.25, 000 crore to higher education for the Centre and the States taken together. It has been repeatedly reiterated that we spend at least six per cent of GDP to education

There should be a proper sharing of responsibilities in funding higher education in India between the union (central) and state governments. While the central government directly or indirectly through the UGC funds completely the central universities, only the development expenditure of state universities and colleges is funded by the union government.

Since higher education produces a wide set of social benefits to the whole society, there is no justification to expect the higher education institutions to significantly rely upon student fees. Earlier committees have suggested to allow these institutions to generate about 20 per cent of the budget requirements through student fee and other sources. The CABE committee (2005) has suggested that this 20 per cent may be seen as an upper limit so that equity considerations of higher education are not traded off.

Strong higher education systems are developed in advanced regions of the world with the liberal funding by the state and equally liberal funding by the society at large, specifically through donations and endowments from the corporate sector and individuals, including alumni. Student contributions in terms of fees constitute relatively a minor source of funds. It is necessary to develop a framework in India that promotes this missing source of funds – the non-state and non-student sector. Besides, linking some of the provisions of the Corporate Social Responsibility Act specifically to higher education sector, innovative measures to promote individual and corporate donations and endowments to higher education need to be searched for. A proper system of matching grants to higher education institutions needs to be put in place.

Cultural exchange between students belonging to different groups and languages can be formulated by linking project based studies in degree programs offered by Universities.The groups of students can travel to different states with various Themes related to Entrepreneureship, industry linkages, heritage studies, etc. Such "Innovative Project based peer group learning" will imbibe in them ,the sense of respect for each other's culture , heritage and strengthen national bonding.

XVII. Internationalisation of higher education

CII

1. Allow participation of international universities in India

2. Allow foreign institutions including universities to set-up & operate campuses in India
- Strategies to globalize the Indian education sector cannot stay unidirectional and inward looking. Participation from foreign education providers and investors (including Private Equity & Venture Capitalists) should be given due emphasis both at the state and central government level.

- Allowing foreign institutions to set-up their campuses in India with or without Indian partners can have a cascading effect on the higher education sector. Besides improving our global ranking, such an initiative will also lead to introduction of best practice in curricula, pedagogy, research in addition to attracting foreign students & teachers. Indian higher education sector will become the global stage for academics & research.

- More emphasis should be accorded in easing procedural norms including foreign equity participation, surplus repatriation, developing own curricula, recruitment of foreign faculties, bringing-in the best practices etc. Extended tenure of foreign faculties may also lead to a number of benefits.

- An over-arching act passed by the Government of India with non-restrictive conditions laying the groundwork for foreign universities to set up an Indian campus is required. Based on the global reputation of the university, level of autonomy & flexibility can be accorded for various operational matters.

3. Flexibility towards exchange programs and joint programs including exchange of research resources:
- Periodic exchange of Indian students/faculties with foreigners should be encouraged as it may help them in gain a new perspective on research subjects.

Global Best practices:

- **China's higher education sector has seen a spurt in cross-border higher education initiatives in recent years. At present, 18 international branch campuses are operating in China, with host institutions primarily from the US, France, and the UK.**

- **Strategies adopted by China to internationalize higher education**

CII

Global Best practices:

- **China's higher education sector has seen a spurt in cross-border higher education initiatives in recent years. At present, 18 international branch campuses are operating in China, with host institutions primarily from the US, France, and the UK.**

- **Strategies adopted by China to internationalize higher education sector:**

– **Branch campuses are required to collaborate with a local Chinese university and offer dual degrees. Seven additional institutions, all from the US and UK are in the process of setting up branch campuses or have expressed intentions to open a campus in the next few years.**

– **Substantial number of joint-partnership programs exists in China.**

– **Initiated various policies to adopt the global language instead of resisting it. For instance, peer-reviewed papers, published by Chinese researchers have increased 64-fold over the past 30 years, with over 80 percent published in English.**

– **Focus on exporting Chinese knowledge to the world. China in the recent years has put effort to balance the foreign students in China with students going abroad for studies. In 2010, foreign students in China stood at 265,090 as compared to those leaving China to study abroad (179,800).**

Globalization has resulted in greater cross border higher education. However, there is a need for a better policy that encourages collaborations, student faculty mobility etc. Internationalisation has two forms: a conventional one, and a modern one. The conventional one focused on core academic values, while the modern one tends to focus primarily on education in the framework of international trade, with export/import and economic gains as the operative parts. The conventional one focuses more on student mobility and to some extent faculty mobility as a strategy, while under the modern one, business models are formulated that includes not only student and faculty mobility, but also institutional mobility and programme mobility – all with a primary view to make economic gains. It is necessary that we focus mainly on the former model aiming

at enrichment of quality in teaching, research and intellectual environment in the universities that result in better knowledge production and dissemination.

It may be good to adopt a selective purposive approach by identifying a few high quality select institutions abroad and invite them to come to India, to share teaching and research with Indian students and faculty. Also, such institutions need to be provided a conductive atmosphere for these institutions to set up campuses and offer stand-alone or joint degree programmes.

While all Indian institutions of higher education may be encouraged, it may be good to identify some of the best institutions in the country to collaborate with selected foreign institutions in such programmes. The Indian institutions may be provided additional required support in this regard, to facilitate, inter alia, student and faculty exchanges. In the same way, not all, some of the potentially high quality Indian institutions may be encouraged to set up campuses abroad and offer programmes in which India has a comparative advantage.

Measures have to be developed to attract good talented students from abroad into our university campuses. Merit may have to be the prime concern in this regard. If necessary, scholarships may be provided to such talented students. Differential fee policies (for foreign students) may have to be carefully formulated. There is no justification for charging even the foreign students above 100 per cent cost of their education. It is necessary to see that foreign students are not viewed as a revenue generating source, but as a source of enhanced learning environment. Indian universities with sizeable number of foreign students also need to be supported with additional resources to have good residential facilities for foreign students.

In the whole area of internationalization, care has to be taken

a. that academic considerations are not displaced by commercial interests

b. to balance domestic demand and demand from foreign students.

c. to ensure strong mechanism of accreditation and quality assurance

d. to protect Indian institutors of higher education from unhealthy and unfair competition from foreign universities

e. to protect, promote and nurture Indian values from possible invasion of foreign educational enterprises, with their curriculum and associated values and practices.

XVIII: Engagement with Industry to Link Education to Employability

CII

1. Encourage faculty to take short sabbaticals in industry – perhaps for couple of months during semester breaks
2. Create a formal engagement mechanism in the institute for industry engagement with a definite agenda for engagement
3. Have industry representatives on the board of the institute. These people should be independent participants and should not be related with the ownership of the institute
4. Regular meetings- at least once every semester to review the progress
5. Working on industry projects for self and students should be given weightage in performance appraisals
6. Curriculum related inputs across modules must be integrated with inputs from industry. New courses should be encouraged which could be sponsored by the industry
7. Internships between terms by students should also be encouraged. This would contribute towards employability
8. Guest lectures across modules, collaboration on themes, community projects jointly with industry, thought leadership across modules should all be mandatory
9. Share opportunities with industry to devote a day at the institute with faculty or students
10. Allow industry to spend time in teaching / research at Institutions
    All major corporate have interventions geared towards the academic sector. A number of corporate have gone ahead and created full-fledged verticals within their organisations for enhancing employability of students. These interventions could range (based on degree of difficulty) across 4 broad categories:

CII

- One offs - Guest lectures, seminars, panel discussion, industry visit and equipment donation
- Curricula – Board of Studies, courseware design, faculty collaboration, sabbaticals, refresher workshop, executive education, MDP, Industry specific curriculum leading to certification
- Business Interface – Case Studies, Market Survey, Brand consultancy, projects, internships, faculty selection
- Research – Consultancy, testing, industry/domain chair, incubation centres

11.

India represents a typical case of over-supply of higher education graduates on the one hand and non-availability of prospective employees in the production sector. The basis for such a mismatch is rooted in the differences between the skills imparted and the skills required in the labor market. The universities and higher education institutions operate independently with very little scope for mutual interactions and engagements.

The realization on wide gaps in 'learning' further extended to 'Employability Skills' in the last decade. Employability of our students is a matter of concern. The industry has been rather disappointed with the kind of graduates emerging from our Education particularly for want of the right kind of employability skills. Though India has one of the largest education systems in the world, employability of the graduates is often quoted as one of the biggest challenges the country faces today

The huge gap between the supply of educated and also employable human resource and its demand by labor market in the country is indeed an early warning signal. The number of readily employable graduates in Tier II, III and IV colleges equal the number of the total talent pool in tier I engineering colleges which (IITs and IISc) jointly contribute to less than 1% of the engineering graduates in the country. On a scale of 10 the gap between the employability of technical graduates between Tier I and Tier II cities is worrisome. This gap is almost 50% for most of the high growth tech sectors in the country. The situation

is far worse in case of graduates from other streams. As per the India Labor Report only about 46 percent of the graduate and above workers in India are regularly employed.

At the other end of the spectrum is the need for greater investment in research. Industry academia linkages are essential to meet both the ends of increasing employability quotient as well as research needs. While we have various efforts in this direction, these have not fructified as expected. We need to find out how and what is needed for a more fruitful partnering.

XIX: Promoting Research and Innovation

CII

1. Promote entrepreneurship and innovation in universities
2. Enable incubation
3. Develop linkages with innovation ecosystem
4. Encourage faculty to engage with thought leaders from industry
5. Develop joint research consortia with industry, govt. and institutions by doing away with the complexity for such partnerships
6. Allow faculty to initiate consulting and development of business ideas with students
7. Encourage development of corpus which enables investments in innovative projects and development of new ideas

Besides leveraging AICTE, CSIR, DIT, DSIR and DST schemes, institutes need to explore research even in pedagogy (tap NITTTR for the same). Some initiatives that need to be undertaken involve

- **Promoting a research culture in institutions by having faculty and students work on resolving ground level issues**
- **Building centres of excellence in key universities to do work on cutting research**
- **Exposure of faculty to international research conferences and post collaboration, adopting best processes and practices**

12.

The progress of the nation depends on its sustained growth of education and research in science and technology. To meet the objective, our research should bear international comparison in terms of standards of attainment. This will happen, when we determine our priorities and programmes in education and research on the basis of `indigenous' thinking and needs, and not follow the fashion set by other countries. The development of science must derive its nourishment' from our cultural heritage and internal resource base. The process of scientific attitude and creative thinking should begin from the earliest stage of school education. The science teaching at the school level suffers from lack of academic rigor and infrastructure constraints.

Furthermore, a major weakness of Indian education and research is the relatively very small part played by the universities in the sum total of Indian research. Indian universities are more teaching centered. There is need for teachers and students to perform more and more research work and of better quality. The proliferation of private universities has further deepened the teaching function of the universities. Many of them do have neither facilities nor orientation to undertake and carry out research.

The UGC scheme of assisting teachers, research workers, and laboratory technicians is inadequate and needs to be up-scaled and re-strategized. The universities should prioritize pure (basic) research, leaving applied research and development in all branches of science to other institutions. The private agencies should also devote more funds for research in the university system and share the cost of R&D with public sector.

The government can take several steps to encourage research and innovations in the universities. Promotion of research in liberal arts and social sciences, including inter-disciplinary research is significant too. The government support is needed to creative conducive conditions to carry out research. The government needs to increase its allocations for Rand D activities. At the institutional level, there is a need to link teaching with research. The government needs to invest in faculty

development and provide incentives for research, promote collaborative efforts between institutions in research.

XX. New Knowledge

CII **Given advancement in technology, the following areas and interdisciplinary studies need to be looked at - cloud, mobile computing, data analytics, nanoscience, green, solar, biotechnology, genetics, etc.**

1. Give autonomy to develop new courses
2. Encourage interdisciplinary approach
3. Give autonomy to students to choose from a range of courses

A knowledge economy is ability to create and disseminate knowledge and use it for economic growth and improved standard of living. It is important is to understand the characteristics and the dynamics of knowledge economy and chart out a path of economic development of India in which knowledge management assumes a key role. Knowledge economies have become quite vulnerable and exposed to external forces and need internal mechanisms to be created to exploit opportunities and mitigate threats.

In knowledge economy, therefore, human resource endowed with education and skill is considered important as knowledge can only be produced by human resources who can then transform knowledge into tangible products- technology and goods and services – for the market. A country, therefore, rich in educated and skilled workforce has great potentials to produce, disseminate, adapt knowledge to enhance growth. It is for this reason that educated youth in the age group 18-24 years is an important index of knowledge economy for reaping the benefits of knowledge. Changing demographic composition worldwide has altered the paradigm of development in terms of centre and periphery debate in favour of developing countries, notably India and China, with high number (if not proportion) of highly educated youth in total population.

Highly endowed human resource of a country, however, is no guarantee of the economic development of a nation. The reason is that educated and skilled human resource, so far not so mobile, has become too mobile and hence the use of the human resources may not be specific to the country of origin. The knowledge may be produced and used by countries which can attract talent. Emerging global labour market has enabled easier access to expertise and skills and knowledge embedded in professionals, on the one hand and produced threats of growing brain drain and loss of advanced human capital. Many developing countries, including India, suffer from this dichotomy of factor endowment and its use in knowledge economy.

The ICT revolution added an important dimension to the knowledge economy. With ICT revolution has the mobility of professionals become irrelevant or even more important – diminishing or increasing the asymmetry? A country which is digitalizing and putting IT for various uses and is developing enhanced networking has greater potentials by attracting talents to transform information to knowledge and further increase the usefulness of knowledge by converting it into exchangeable product. Thus wherever information networking is strong and professionals have this important tool, they are much better placed to use networking in knowledge production. The threat of knowledge divide in this regard emanates from digital divide. Hence ICT adds an important dimension to the management of knowledge economy by enhancing the potentials of economy to produce and use knowledge by educated and skilled human resources particularly the professionals.

Knowledge economy has an important dimension of commercialization and marketing. It is argued that protection of knowledge will provide an incentive for the producers of knowledge to produce. The 'knowledge' or 'innovation' translated into a tangible good or 'product' that is protected also carries a price which can be charged from the user of knowledge. Innovation is thus considered a critical pillar of knowledge economy. It means that countries will have to make

effort to transform its implicit knowledge i.e., knowledge embodied in brains into an explicit knowledge i.e., in forms in which it can be traded.

Knowledge economies have given rise to interdependence. It is difficult to live in isolation. Hence a country that understands its dynamics should be able to manage knowledge economy in its favour through appropriate strategies. The internationalization of higher education – with mobility of teachers, scientists, students, programmes, educational institutions and collaboration and networking needs to be strategically promoted with top class quality institutions in a country to retain and attract talents.

We are living in a dynamic knowledge based society. Newer technologies and challenges are seeing the birth of new areas of study. Our higher education institutions must identify the new domains of knowledge in the global scenario and build up their capacities to meet this need.