

CONCEPT NOTE ON INNOVATION UNIVERSITIES AIMING AT WORLD CLASS STANDARDS.

INTRODUCTION

The dawn of the 21st century has heralded the development of India as an economic powerhouse powered by a revolution in the knowledge sector. However, the knowledge economy is not just a synonym for information economy or information society. In the present age, knowledge economies address how information and ideas are created, used, circulated and adapted at an accelerating speed in “knowledge-based communities,” i.e. networks of individuals striving to produce and circulate new knowledge. In knowledge economies, these capacities are not just the property of individuals, but also of organizations, which have the capacity to share, create and apply new knowledge continuously over time, in cultures of mutual learning and continuous innovation. Innovation carries spin-off benefits and yields social dividends for the broader civil society – through reductions in poverty, improved health, greater education, empowerment of women and decline in levels of criminality. Universities are places where ideas germinate, where applications grow out of ideas and where innovation flourishes in an atmosphere of intellectual challenge and freedom. Universities where the faculty and students constantly challenge existing boundaries of knowledge amidst a prevailing culture of creativity, are ideally positioned to be the powerhouse of the knowledge economy.

Despite having one of the largest higher education systems in the world, only a few institutions of learning have been able to make a mark on the global stage. The contribution of the alumni of the Indian Institutes of Technology (IITs), the Indian Institute of Science and the Indian Institutes of Managements (IIMs) have been widely recognised all over the world. India is positioned to adopt a leadership role in the global knowledge economy of the future. In the past, cheap labour and low technology manufacturing skills powered several

developing countries to prosperity. But the coming age would patently belong to those countries who are able to reap the benefits of creative knowledge organisations that exist within. Recognising this, the XI Plan proposes the establishment of **14 Innovation Universities aimed at world class standards.** These Universities would be at the fount of making India the global knowledge hub and set benchmarks for excellence for other Central and State Universities. The first and foremost criterion for a University to be termed world class is the **quality and excellence of its research, recognised by society and peers in the academic world.** Research that constantly pushes back the frontiers of knowledge contributes to the development of the knowledge society but more critically creates the attraction for outstanding faculty and top students to gravitate towards it. This creates a virtuous spiral of ever-increasing quality and excellence ceaselessly pushing the University to strive towards even better research. Students move towards top class institutions after an evaluation of the ability of the institution to invest them with the skill and competencies to be successes in the knowledge economy, besides the excellence of its research. Consequently, the synergies between teaching and research have to be exploited to create quality institutions.

UNIVERSITY AIMS

The university shall stand for humanism, for tolerance, for reason, for the adventure of ideas, and for the search for truth.¹ It shall constantly aspire for attainment of the pinnacle of knowledge and learning, to provide a path for humankind free from deprivation and want, to study the mind of Man in its realization of different aspects of truth from diverse points of view², to understand and appreciate nature and its laws for the well-being and happiness of the present and future generations.

¹ Quote of Pandit Jawaharlal Nehru in his convocation address to the University of Allahabad in 1947 summing up the basic objectives of the university.

² This was one of the objects behind the establishment of the Visva Bharati as expressed by Rabindranath Tagore.

The university shall also provide for the knowledge manpower needs of the country, in training professionals, specialists, scientists and researchers needed by the economy and in generating new knowledge in support national innovation systems, and to nurture, develop and evolve generations of voyagers in the values of humanism for a better citizenry.

UNIVERSITY THEME

In order for a university to be truly innovative, the theme of innovation of innovation should permeate each aspect of its existence including its approach and the 14 Universities should also not be clones of each other but just one deep theme of innovation expressed in 14 different ways. Knowledge created in the world is not pure discipline-based, propositional or even applied knowledge but created immediately in the world in response to problems within it. These problems are practical, not theoretical in character, and therefore the interest behind such knowledge has a pragmatic edge to it, it is interdisciplinary and team-based. Each University would focus on one area or problem of significance to India and build an ecosystem of research and teaching around different related disciplines and fields of study, which are relevant thereto, and search for solutions that are globally valid and in the process develop education at undergraduate and higher levels. For illustration such areas/problems of relevance could be the challenges of urbanization, environmental sustainability in relation to growth and progress of life on earth, public health.

ADMISSIONS

The ability to attract the best students from around the nation, and if feasible around the world, is essential to develop the spirit of inquiry that pervades the institution intellectually challenging the faculty and peers towards academic competition. This ability would depend, amongst other things, on the credibility of the admission process in ensuring a transparent, fair, reasonable and reliable scheme that gives primacy to merit but also is able to account for differences in access opportunities for students in a manner that is objective and

discernable. The Innovation Universities would have the freedom to formulate their own policies for admissions to programmes and courses of study, the features outlined below are only suggestive rather than prescriptive keeping in view the need to innovate in so far as identifying students with the aptitude and skills necessary to progress towards a life of research.

The first step in ensuring a credible admission process would be to choose the right typology that would deliver the values aimed for the process. Generally, admission practices in institutions of higher learning can be categorized into four typologies, namely:

- Type 1: Admissions based on performance in the examinations of the course last attended. e.g. admission to undergraduate courses in Delhi University based on the performance in the Class XII examinations.
- Type 2: Entrance examinations that test the achievement and learning levels for a student to attempt the course for which he seeks admission. e.g. Joint Entrance Examinations (JEE) conducted by IITs.
- Type 3: Standardised aptitude tests that measure the general cognitive abilities rather than achievement. e.g. Common Aptitude Test (CAT) conducted by IIMs.
- Type 4: Admissions based on academic performance over a period of time or on the application dossier.

Undergraduate courses provide the feedstock for excellence to be aimed at the postgraduate and higher levels. Choosing the right admission process or a mix of the processes for undergraduate admissions is extremely important in ensuring that the students with the right aptitude and application enter the gateways of a truly knowledge institution. Normally, recourse is made to an entrance examination process, but failure to apprehend the nature of the testing process suitable to an institution may lead to applicants learning to beat the

method by achieving a score higher than his academic ability would merit usually through a coaching system or the institution ending up with misfits.

The reliability and validity of the entrance examinations rests with how best the admission process is a predictor of the candidates' academic success at the university level. It has been indicated by several studies that secondary/high school leaving performance is at times a better indicator of academic success in higher education. However, with the wide variation in the examination processes at the higher secondary level across the country and the constraints imposed by the federal polity in respect of attempting to impose a national framework for examinations at the higher secondary level, entrance examination would be a comparatively better method to adopt rather than the performance at the higher secondary level.

Studies have also indicated that essay-based examinations that focus on writing ability and analytic arguments may be more effective in predicting academic success rather than multiple choice tests. This leads to the issue of objectivity in the examination process. Reading and evaluating essay type questions, for which there is no single correct answer unlike multiple choice questions, requires interpretation and judgement on behalf of the evaluator. The resultant score is to some extent dependent on the preferences and predilections of the evaluator. The purpose of standardization of examinations as a means of evaluating inter se merit between candidates is then lost. Another problem with having an examination that tests knowledge and achievement through essay type answers is the complication of the vast numbers of candidates who would attempt to gain admission in any university with a reputation of having world class standards. This would require a substantially large number of evaluators with the probability of differences between evaluators being higher and objectivity would be unwittingly compromised.

What is required is obviously an admission process navigates the intrinsic problems associated with the adoption of a single admission system in its reliability to predict academic success as well as being discernable as credible, transparent, fair and reasonable. A mix and match strategy in the right proportion would deliver better results than a single methodology. A two stage testing process would be appropriate – a screening process in the first stage involving a standardized aptitude test in the broad areas of higher learning such as physical sciences, social sciences, humanities, languages, life sciences etc where the tests would not measure knowledge or achievement in subjects but would gauge the cognitive and analytic abilities of the candidate; and the second stage would require the candidates who have proceeded past the screening process to attempt examinations that measure knowledge levels through essay type questions. The score obtained would then be weighted by a factor indicating the performance of the student at the higher secondary level normalized suitably to account for variation in the content, structure and difficulty levels of the testing process across the country. The procedure suggested may appear cumbersome and complicated but necessarily the admission to a world class institution would require an approach that is a good predictor of inter se intrinsic merit that can flush out externalities such as deprivation or coaching that can mask the true ability of the student.

The Universities may have to adopt a different approach towards admission to post-graduate courses in comparison to undergraduate admissions. Existing world class institutions have postgraduate students in excess of the number of undergraduate students which provides the breeding ground for research to be taken up at higher levels of study. Postgraduate admissions have to be structured to avoid the risk of academic inbreeding, the scourge of several institutions. Therefore, opportunity to compete for courses at the postgraduate level has to be equitable for students from the university as well as other students from the country and abroad. The graduate scores are usually a better

predictor of future academic inclinations rather than any other method. However, the only issue here is providing a frame of reference for comparing graduate scores across a wide variety of institutions. Standardized aptitude test scores can be used to weight the results achieved on graduation to resolve the problem. At still higher levels of learning i.e. admission to doctorate programmes, references from eminent academicians who have established themselves in the world of education or research could supplement the results obtained at the post-graduate level.

Affirmative action in a country which has seen intense stratification of its society cannot be wished away in the argument for what is seen as merit. Disparities in educational attainments are in some way related to the socio-economic background of the individual. Obviously merit is conditioned by the exposure and opportunities that any candidate has had in his lifetime. Consequently, it would only be proper to weight the test scores with a measure for the socio-economic background of the candidate. The weight would depend on factors such as the educational attainments of parents, the earning capacity of the parents and the nature of the school from which the student has passed his secondary and higher secondary levels (whether rural or urban). The University shall have the freedom to evolve the methodology of arriving at the weight. This weight could replace the concept of outright reservations to represent affirmative action and the weighted scores could be used as indicators of intrinsic merit. However, in case of entirely publicly-funded Innovation Universities, Constitutional issues would arise in respect of the replacement of the present methodology of reservations on the basis of caste as a measure of deprivation and lack of access opportunities. Therefore, this issue would require to be dealt with according to the Constitutional allowance of what would be permissible. Thereby, the provisions of the Central Educational Institutions (Reservation in Admission) Act, 2006 would be applicable to publicly funded Innovation Universities.

Needless to state, a university aiming to be of world class standards cannot afford to make any distinction except through merit in respect of admissions. Consequently, admissions would be open to all applicants, whether from the country or abroad, belonging to the citizenry of humankind. The tests involved in the admission process should be conducted all over the country in at least all State capitals and metropolitan cities as well as in selected cities all over the world.

ACADEMIC PROGRAMMES AND FEES

The University shall have a cafeteria of courses at the undergraduate, postgraduate and research programmes. Since disciplinary boundaries tend to crumble at the intersection of disciplines, faculties can co-ordinate to introduce such disciplines based on need assessment made at the University level by the Academic Peer Group Audit or by the Faculty Boards in conjunction. Operational autonomy shall be available with the Faculty or Faculties (in case of inter disciplinary programmes) to decide the intake and the course structure and no approvals at the University level would be required for the purpose. However, choice shall suffuse all programmes in that the student after being admitted should have the freedom to approach the range of courses on offer according to his/her preferences and needs. This necessarily calls for inter-faculty co-ordination and choice based credit system to be put in place. The programmes shall facilitate horizontal mobility across disciplines. Innovation, choice, inquiry and knowledge without frontiers shall be the guiding principles for the design of programmes and course curricula and this would not be possible unless decision-making devolves at the strata where the stakeholders i.e. the students and teachers are.

All programmes shall obtain constant feedback from the stakeholders namely, the students, the faculty teaching the course and the employers,

regarding the course structure and its utility and function in the knowledge world and in the discovery of ideas. The duty in this respect would be invested upon the Academic Peer Group Audit that would undertake the academic audit of programmes through this mechanism periodically and preferably every year.

The Faculty Board shall have the freedom to prescribe the fee structure for the undergraduate programmes which should be sufficient to meet its operational expenses along with grants assigned at the faculty level. Fee structure for postgraduate programmes can be prescribed at the University level on the recommendation of the Faculty Board. The University shall offer scholarships to the top 20% of the student community at the undergraduate and post-graduate levels. These fellowships could be varied upwards in case the performance of the student is beyond expectations. At the doctorate level, all students should be awarded fellowships to enable partial compensation for pursuit of a career of research rather than entering the labour market. Educational loans would be available to those in need. Concessional loans may be provided to students based on socio-economic criteria. Research programmes shall be suffused with special fellowships decided at the University level on the recommendation of the Faculty Boards. While in respect of a publicly-funded Innovation University, the expenditure on scholarships and fellowships shall be entirely provided by the Central Government; in case of an Innovation University funded by other means, the expenditure on scholarships and fellowships at the post-graduate and higher levels may be sponsored by the Central Government.

UNIVERSITY AUTONOMY:

“A university stands for humanism, for tolerance, for reason, for the adventure of ideas, and for the search for truth.”³ If the principles enunciated are to be faithfully followed then the search for truth and the discovery of ideas

³ Quote of Pandit Jawaharlal Nehru in his convocation address to the University of Allahabad in 1947 summing up the basic objectives of the university.

cannot be bound by the limits of conventional wisdom. Autonomy is a sine qua non for quality institutions to emerge. However, the conundrum has been to resolve the issue of university of university autonomy within the desired levels of accountability in a parliamentary democracy. A university aiming at world class standards would have to structure a governance framework that promotes autonomy but inculcates the spirit of accountability. Accountability accompanying autonomy requires the fulfillment of certain conditions:

- clarity in the division of functional responsibilities at various levels of the university as fragmentation of responsibilities, formal as well as real, may lead to diffusion of accountability.
- assignment of appropriate incomes, through grants or otherwise, commensurate with the expenditure responsibilities is also extremely essential. A perpetual state of financial insufficiency may hamper growth and development of the university. Linked with the appropriate assignment of incomes is the ability of the university to have the freedom to raise additional sources of incomes at its level, including the ability to adjust its fee structure.
- autonomy in matters of academics, faculty, personnel, finances, administration and in the development of a vision for the future. It has been well established that observability, monitoring & enforceability are the three main elements of accountability in organizations – and a single agency needs to be empowered in all these three elements. In case the agent that observes or monitors performance is different from the agent that enforces rewards & reproofs, then the incentive structure becomes skewed as the link between performance and rewards is lost. Consequently, control over all assets and accountability for liabilities is a necessary condition.
- predictability of grant transfers thru' use of formula based allocation systems driven by simple measures. Predictability of such transfers

ensures that the university can plan ahead in the longer term and also prevents lobbying for funds as well as moral hazard. Universities which are governed by the present system where the internal incomes are adjusted before grant allocations are made, results in behaviour that is not conditioned by fiscal prudence and due diligence and in extravagance in expenditures. A hard budget constraint that is both predictable and sufficient may be more effective in pushing the university to inculcate the spirit of competition for academic and research grants as well as undertake the right capital investments for the right reasons.

Autonomy in the context of a university has three connotations:

- within the university where the sense of autonomy permeates to the faculty, to the teacher or researcher and to the student.
- between the university and the university system including its regulatory structure wherein the university is not constrained by rules and procedures or by principles of conformity.
- between the university and Government in respect of appointments and funding.

AUTONOMY WITHIN:

While the emphasis has usually be laid on the last two connotations, the autonomy within has been a neglected area in university administration. It is essential to ensure that the university does not become administration or administrator dominated. Ideas grow in the most unexpected places and unless the autonomy pervades in respect of such places too, the development of ideas will see a premature death. The University consists of Faculties or Schools as its elements. These elements should possess the same extent of freedoms and autonomy as the university itself in respect of appointments at prescribed levels, in evolving programmes and courses of study, in developing disciplines that emerge from time to time and in the assignment and utilization of finances along

with a certain degree of predictability in such assignments. The University Administration would then perform only a facilitating role.

TEACHING FREEDOMS

Teachers shall have full freedom to structure the pedagogy including its delivery by them within the broad parameters of the programmes objectives set by the Academic Body of the Faculty or Faculties, in case of an inter-disciplinary programme or course. To that end, the University Academic administration shall have the power to decide on the start a programme or course keeping in view the overall availability of resources, but the parameters and the objectives of the course or programme shall be the responsibility of the Faculty or Faculties having a bearing on the course and the structuring of the course contents, curriculum and assessment methodology shall be entirely with the purview of the teacher assigned to teach the course or programme. The teacher should pursue instruction in the spirit of free enquiry challenging the students to discover the world of knowledge. The competency of the teacher should be assessed not on the basis of his own depth and breadth of knowledge but on his ability to pose a challenge to the students in the discovery of ideas and his talent for leading the students in a voyage of knowledge. The accountability of a teacher would arise from student feedback at the conclusion of the course as well as thru' Academic Audit by a Peer Group of the entire course as a whole and its individual elements in a manner to be defined later.

Admissions to courses and programmes of study at all levels, undergraduate, postgraduate or doctorate would also be structured by the Faculty or Faculty-in-charge (in case of inter-disciplinary programmes). Decision on fees to be charged for such courses or programmes of study would also be within the realm of the Faculty or Faculties (in case of inter disciplinary programmes) concerned. Grant funding could be apportioned for each course or

programme of study by the Faculty or Faculties to be utilized in a manner deemed fit by the Course Co-ordinator and course instructors.

RESEARCH FREEDOMS:

Excellence in research underpins the idea of a world class institution – research that is recognized by peers and pushes back the frontiers of knowledge. Research freedoms lend itself to fewer boundaries and constraints than other aspects of the university and it is the quality of research that provides a university with a reputation discernable around the world. Autonomy with accountability in research matters requires a delicate balance as the abundant funding requirements, the ease and predictability with which research expenditure can be incurred and the freedom available to research, all encompassed within a Peer Group Audit framework with the spirit of competition for grants.

Research can be broadly classified into four areas: pure basic research or theoretical research which develops new ideas or knowledge growing from the current breadth and depth of knowledge, strategic basic research which also develops new ideas but with the potential of applications being derived from such research, applied research that grows from already known principles to develop new applications and experimental research that attempts to validate known principles or develop new products and technology. Private research has tended to focus largely on technology development having industrial and commercial applications, whereas pure basic and strategic research have characteristics of public goods and have largely been subject to public provisioning. However, pure basic research and strategic research are the crucibles on which applied research or technological developments are grown. Universities are the ideal breeding ground for such research, provided the right atmosphere and talent is available for the purpose.

Adequate funding is essential to support the university's research and teaching as well as its other functions and that such support must be consistent, predictable and long-term. A Research Endowment Fund of an adequate amount not less than Rs X crores per University shall be provided annually. The University shall also have the freedom to source funding from all other non-Governmental sources subject to the broad limitations that such funding shall not be from unverified or dubious sources or from sources with a biased outlook. Grants from this Fund shall be made available to individual research proposals emanating from the University. The research proposals shall be evaluated by an Academic Research Peer Group consisting of a collegium of eminent academics, not limited to those working in or part of the University, for deciding funding eligibility. Appropriate balance would require to be drawn between privately sponsored and public funded research. The Research funding shall not be apportioned according to disciplines or faculties but on a competitive basis on the intrinsic strength of a research proposal which alone shall stand to test in the competition for discovery of ideas. Once approved, the Research Group shall have the freedom to utilise the grants according to procedures defined by the Group subject to the broad principles of objectivity and transparency in such procedures. This freedom shall include the freedom to procure aids and equipments required for research, freedom to appoint subordinate research personnel such as Research Associates and Research Assistants, freedom to decide an adequate remuneration to be paid to such research personnel. The only limitation that would operate is the total funding outlay approved by the Academic Peer Group for the period specified for completing the research.

Academia shall have full freedom in research and in the publication of results arising out of such research. The free spirit of inquiry and the quest for knowledge shall be the defining principles that shall pervade all aspects of academic life. To that end, researchers shall have the freedom to patent the results of their research jointly with the University without getting the same

approved or validated by the University administration or by any Government agency or authority except in a certain number of limited strategic areas that has the potential of being misused for the destruction of life or property on a large scale.

AUTONOMY OVER APPOINTMENTS

Autonomy over appointments, especially academic appointments, are crucial to the inculcation of an atmosphere of autonomy within the University. Consequently, the University shall have the freedom to define its own appointment criteria for making appointments to academic positions in the University. This shall include the freedom to make appointments by invitation, based on the recommendations of a Standing Search Committee⁴ consisting entirely of prominent and eminent academicians, from within the University or outside. Any Professor of the University shall have the freedom to refer an outstanding person with a proven capability to enhance the reputation of the University to the Standing Search Committee for appointment as a member of the Faculty at the Associate Professor or Professor levels. Recognising that brilliance is not a factor of age of a person or years spent in research, the appointment by invitation shall not be subject to limitations of age or years of experience of the considered candidate.

Faculty at the level of Professor shall be offered tenured service to provide job security, whereas faculty at the level of Associate Professor or Assistant Professor may be provided tenured or non-tenured service, which will be appropriately decided by the University on objective criteria. The University shall also have the freedom to appoint adjunct or associate or visiting faculty involved in research in industry or in R&D establishments in the country and abroad.

⁴ The Standing Search Committee can also include eminent academia working in world class institutions abroad. It may be stressed here that the last comprehensive Commission on education i.e the Kothari Commission consisting of 17 members had five members of academia working in institutions around the world in U.K, U.S.A, Japan, Russia & France.

These faculty members will guide students and deliver lectures in specialised areas and bring their expertise in these areas to enhance value to the teaching-learning process.

The University shall also have the freedom to define the pay structure thru' a negotiated arrangement, which shall be net of the tax payable, for its senior faculty i.e. Professors and Associate Professors, within a broad pay band to provide incentives to attract talent from over the world, including persons involved in path-breaking research in industry.

Liberal book grants equivalent to a percentage of pay shall be provided to Teaching & Research Faculty to update their knowledge constantly in a fast changing environment.

The student-teacher ratio in the university shall be in keeping with the norms available in the best Universities of the world to be appropriately decided by the University, to account for the number of faculty members who would be involved in research work.

The University Administration would act in aid of the fundamental role assigned to the institution. The administrative staff would be enjoined upon to serve the institution according to a defined set of rules. The university should to the extent possible adopt electronic, paperless functioning that reduces the role required to be played by the non-teaching staff. This initiative should commence from the very beginning itself in that the electronic governance model should be in place at the time of commencement of admissions in the university and not at any time after.

AUTONOMY OUTSIDE

Regulation from outside can be perverse and decry the autonomy built within. The Universities shall be kept out of the purview of the regulatory oversight of the existing regulatory bodies in higher education in academic matters and regarding regulations on maintenance of standards or minimum qualification requirements for appointment to academic posts. However, the

University – Government relationship would have to be finely structured as the Government would be the principal finance provider and Parliament, in return, would seek accountability in respect of the monies provided to the institution. Also the issue of whether the Government should have any role to play in the appointment of the Vice Chancellor would also require to be considered. Consequently, the maturity and sagacity with which this relationship is handled by the principal actors on both sides would have a significant bearing on the true nature of autonomy and freedom of the university prevailing within.

As has been discussed earlier, assignment of adequate grant incomes associated with predictability of such assignments based on formula based allocations driven by simple measures are essential to ensure financial autonomy. A vision in this respect is already enshrined in the Constitution in respect of devolution of income from taxes between the Centre and the States. A similar structure binding upon the Government and the universities over a ten year period would be the best analogy to be drawn for the universities aiming at world class standards. A Universities Finance Commission consisting of eminent academicians preferably Nobel laureates and selected National Research Professors in association with financial experts could work out a simple measure or set of criteria for provisioning such as per student expenditure based on global trends adjusted in purchasing-power-parity (PPP) terms and decennial research grants or any such composite measure that would be appropriate. The measure could be indexed to an indicator of the value of money such as inflation or any other suitable indicator to provide for adjustments in relation to developments in the decadal period. This would be in addition to developmental expenditure for capital over a ten year period after evaluation of the status of teaching and research in the university and the growth envisaged in the future years. The recommendations of this Commission would be placed by the Government before Parliament, and on its acceptance with or without modifications by Parliament, would be binding on the Government in respect of a minimum peg over a period

of time, say ten years in so far as grant provisioning is concerned. This would obviate the need to arrive at an annual measure of the operational funds required by the University and also provide the University the assurance of continued levels of grant funding to meet operational expenses over a ten-year period thereby removing the uncertainty inherent in the present funding of Universities

The University shall have the freedom to formulate its own Statutes and Ordinances with the approval of the Board of Governors and no further approval of the Visitor or Government shall be warranted.

The University shall have the freedom to establish Chairs of Studies with funding thru' non-Government endowments to be occupied by Professors of eminence. The Chair Professors shall be entitled to receive pay, if any, from the endowments in addition of the salary payable by the University.

The mode of appointment of the Vice Chancellor to be suitably designated is a vexed issue that does not lend itself to easy solution. The person who is expected to embody the spirit of academic freedom and the pursuit of truth along with the principles of good management, would be the Vice Chancellor of such university. The vision and leadership provided by such Vice Chancellor would largely determine whether the university succeeds in its objectives. Therefore, the thought and effort that goes into the appointment of the Vice Chancellor would be a credible indicator to the talent available within the institution and outside, of the future direction of the institution. Evidently, the ends of the earth need to be scoured for the best person to Vice Chancellor a world class institution. The Search Committee for the post should comprise of the best minds willing to assist the institution in its endeavour. A permanent Collegium of Scholars consisting of National Research Professors past and present, Fellows of the Royal Society and comparable international academies of

repute being Indian citizens or Persons of Indian Origin (PIOs) and Jnanpith award winners constituting themselves into a group shall be established. This Group shall co-opt scholars from such fields of knowledge as are not adequately represented. The process of co-option shall be patterned on the methodology existing in respect of induction of fellows to the Royal Society of U.K i.e. proposing, seconding and preference expressed by two-thirds of the group. This Collegium may associate such other Nobel laureates or researchers of international repute, who are not necessarily Indian citizens or Persons of Indian Origin (PIOs), in the process of search for a suitable scholar of eminence for appointment as Vice Chancellor. The Collegium could then submit a panel of three names for the consideration of the Board of Governors (BoG) of the University who shall have the liberty to choose from among the recommended panel or return the same for fresh consideration to the Collegium. Since the selection of the Vice Chancellor is to an institution embodied with the spirit of free enquiry, the process of recommendation of a panel to the BoG shall not be shrouded in secrecy. The Vice Chancellor once appointed would enjoy tenure of five years and could be eligible for reappointment for another term but only after the process of appointment is gone through with all its rigour.

GOVERNANCE STRUCTURES

The President of India shall be the Visitor of the University and shall be the guiding light of the university aiding and advising the university to aim higher in its endeavours. There shall be a Chancellor appointed from amongst eminent academicians who shall be the nominal head of the University and preside over convocations and the annual meetings of the Board of Governors. The Vice Chancellor shall be the principal academic and executive officer responsible for day to day administration and management of the University. Delegation and decentralization of powers and authority shall form the fount of university administration. The Board of Governors shall be the principal executive body of the University, comprising of the heads of all Faculty Boards of studies, Deans of

all schools, Dean (Admissions) and nominees from amongst the Collegium, alumni, industry, research organizations and international academicians of eminence. The first nominations to the Board of Governors shall be made by the Visitor from a panel of names recommended by the Collegium to the Visitor. The Board of Governors including the outgoing Member shall itself recommend a panel of three names to the Chancellor for nomination against any vacancy arising thereafter. Thereby, after the nominations to the first BoG, a self-generating mechanism shall be in place for peers to identify suitable replacements for vacancies arising on the BoG. The Directors and Vice Chancellors of institutions of excellence in the country shall also be nominated as special invitees to the Board of Governors in order to synergise the functioning of institutions of excellence across the country. The Board of Governors shall decide the academic calendar, structure the intake for research programmes, assign funding to the Faculties and Schools of Studies, consider the manpower needs assessment for the knowledge economy, establish chairs, consider proposals for undertaking research funded by industry or Government, appoint Professors and Associate Professors, Deans and Heads of Faculties and other officers of the University, create new faculties or schools. The Faculty Boards of Studies shall be responsible for all academic programmes, the fee structure and the programme design at the undergraduate & postgraduate level, admissions of students to research at the doctorate level on the basis of the norms laid down by the Board of Governors and also make appointments to teaching levels of Assistant Professors and to subordinate teaching, administrative and laboratory positions. The Dean (Admissions) shall undertake the admission process and be responsible for the actual entry of students to the university at the undergraduate and postgraduate level. A university is also expected to prepare students to fulfil the manpower needs of a knowledge economy. The structure of academic programmes would require restructuring on the basis of constant assessment of the present needs of the economy and a vision on the requirements that would arise in the future. There shall be a Faculty of Knowledge Manpower Assessment,

headed by a Dean that can perform the role of assessment of present and future manpower needs for the guidance of the faculties to structure courses and obtaining feedback from alumni for constant improvement in association with the relevant faculties of the Universities.

The amount spent by the University or its academics on research or teaching shall be kept out of the purview of audit scrutiny envisaged under the Constitution by the Comptroller and Auditor General (This shall not, however, extend to expenditure on administration or on non-academic areas). Accountability shall be ensured by reviews by the Academic Research Peer Group for research work and Academic Audit of Teaching thru' a Peer Group for course work & teaching. To that end, scrutiny and accountability shall be defined by outcomes rather than processes. The two Audit Peer Groups shall be peopled by academicians of world-wide repute to be nominated by the Visitor in the same manner as in the appointment of a Vice Chancellor. The members of the Audit Peer Groups shall be invited to the meetings of the Board of Governors or Faculty Boards of Studies when issues concerning the results of the audit are taken up for consideration. The two Peer Groups shall act as an external advisory group of academicians for the University to consult, and whose recommendations in respect of allocation of competitive research grants or structuring of programmes shall be given due weightage by the University.

The university shall also structure public information disclosure on courses, admissions, funding, expenses, research grants and other indicators of performance. Complete transparency shall obtain in other aspects of its functioning including appointments, finances, research outcomes (there would be no obligation to disclose outcomes of such projects that may prejudicially affect the scientific or economic interests of the University) etc.

INFRASTRUCTURE

While it is the quality of faculty and the standards of research that define a university of excellence, nevertheless provision of abundant infrastructural resources of the desired standards in the form of laboratories, libraries, classrooms, recreational spaces and adjunct necessities such as housing, schools for children, leisure and entertainment facilities, auditorium, lodging facilities for students etc. planned and designed in a manner architecturally pleasing and environmentally provisioned is a sine qua non for achieving status of a world class institution. The class room shall also be freed from the boundaries of physical space in that the electronic medium shall also function as a central element in the teaching-learning process. Good connectivity along with availability of the basic necessities of life such as electricity and water supply in environmentally friendly surroundings shall also need to be provided. The integrated township principle of planning, architectural design and construction shall form the basis for the extended university space. State Governments would need to be active towards providing the other facilities that link the university to the outside world such as good transport facilities along with emphasis on maintenance of law and order in order to ensure that the institutions flourish.

MODE OF ESTABLISHMENT:

While Government is seen to be the prime mover in respect of these Universities, in terms of finances, innovation universities would also be set up in the Public-Private Partnership (PPP) mode using the MoU (Memorandum of Understanding) route with promoters having significant interest in higher education and a demonstrated capacity to deliver, either on their own or in collaboration with those who have such capacity, higher education of a high standard. Financial and academic/ research credentials of those promoting partnerships would be a determinant of their suitability. Alternatively, Universities of world-class standards elsewhere in the world may also be invited to set up similar such institutions here. Such Universities will have Government support in

its establishment and research programmes functioning under the broad parameters of the law governing such an initiative, while the teaching function of the University (except for the scholarships/fellowships sponsored by the Central Government) shall be fully funded by the promoting University. Corresponding modifications shall be made in the governing law to free such Innovation Universities from the oversight of Government which are related to funding of the operational aspect of the University namely its teaching function. However, accountability to Parliament shall extend to the research grants or Endowment funds provided to the University by Government.

Three distinct approaches are possible in establishing Innovation Universities – first, new green field Innovation Universities focused on distinct issues of national importance to India and building various disciplines and fields of research around such issues.

The second approach is that of identifying a few of the existing universities and other institutions of repute and with marginal top-up investment encouraging them to attain world class standards through innovation in chosen areas of knowledge. The advantages are obvious, the investment would be marginal, it would be an acknowledgment of our existing national assets, a recognition that several faculties within such institutions and universities are indeed world-class or near world-class, and that innovation in knowledge does take place, even if in a limited manner, in some of our institutions and universities. The attendant problems of such an approach are obviously that of managing the transition and change; of selecting through transparent and competitive modes those few institutions and universities from the existing ones, which could be invested in; of identifying those disciplines or areas of knowledge which need to be encouraged for transiting in to the sub-sets that would in aggregate overwhelm the other sectors so that those few deficiencies that remain in them do not come in the way of transition to Innovation Universities.

The third approach is that of identifying a few educational hubs (cities) in the country where a few institutions and universities of excellence by national standards are located, and creating the architecture of an Innovation University by building synergies for inter-disciplinarity and strong research and teaching among such institutions. The advantages of this geographical approach are again that of marginal investments maximizing returns, assured outcomes if it works, recognition that some of our specialized institutions are at par with globally reputed universities at least in respect of the disciplines within foreign universities that such institutions specialize in. The problems with the approach include the challenges of managing change and resistance to change, overcoming inter-personal issues and neutralizing 'domain egos', finding iconic personalities to head the super-structure or the 'shell' built over institutional and organizational pillars. It would be difficult to make different organizations and institutions volunteer to forego the legacy built over time, but in theory such a geographical approach is also feasible.

CONCLUSION:

The growth of knowledge has accelerated in recent years and bright minds clustered in the right environment would spark a knowledge revolution. The Universities, if provided a degree of autonomy in the right enabling environment, where the spirit of inquiry and the search for truth prevails, could emerge as the source of talent for knowledge and wisdom to thrive. Knowledge does not recognise frontiers but the offshoots of knowledge development could prove to be a key factor to provide an impetus to finding solutions to economic and social problems of the nation and the region.