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# PRODUCTIVITY IN 21st CENTURY INDIAN HIGHER EDUCATION INSTITUTIONS

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***ABSTRACT***

***The ancient Indian subcontinent, the global knowledge leader and creator, has now-a-days been seen emerging as a universal eternal magnet and pivotal hub for aspiring learners and researchers. Beyond the geographical borders this role model great country has been facilitating the concerned stakeholders with high-quality, human value oriented affordable higher education system and institutions in true sense since ages. HEIIs are governed and managed by the highest selfless morals and standards of pious ethics with sincere accountability based upon the humanity principles and themes with peer-reviewed and true accreditation by societal stakeholders at large. Globally amongst the top seven countries, India finds its three-dimensional interdisciplinary research outputs and contributions cited very frequently by the galaxy of researchers and aspirants.***

***This article presents the thrilling facts for 21st-century HEIIs' productivity enhancement needs, new understanding, vision, goals, cultural transformation and innovative approach across all levels of HE from curricula and pedagogy to the use of ICT, partnerships, governance, funding, research, and globalization. The emphasis that today's' teacher, ane-facilitator to digest the concept of learning to learn through revolutionary methodology would help to enhance the overall productivity of 21st -century HEIIs. HEIIs' Productivity would be said to be enhanced if students, their parents, employers, and society demand the HEIIs to deliver real capability and not empty degrees / certificates.***

***KEYWORDS: HEIIs' Productivity Enhancement, 21st Century, ICT, E-Governance, Employability, Innovation, Globalization, Privatization, Research, Human Values & STEMMSSH (Science, Technology, Education, Medicine, Management, Social Sciences, Humanities)***

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## 1. INTRODUCTION TO HIGHER EDUCATION LEADERSHIP

HE productive leadership is characterized by consistent improvement in performance, trustworthy decision and action for common good, and attitude of living-with-gratitude making the present situation best. It teaches, "Treat with goodness to all and be honest to all, all will become good and honest." Hence, honesty and goodness be attained. In Gujarat University seminar on value-based education (April 12, 2019), Vice Chancellors and speakers focused on bringing up liveliness with simplicity in life, culture, and profession through HE as true wisdom. Human values based 21st century HE needs to be re-established for sociocultural-ethical aspects through pioneering with value-based STEMMSSH. Rising to economic prosperity, comfort, and pleasure, HEII should apply the brake on the erosion of morality, honesty, kindness, self-discipline, sincerity, degree of tolerance by

imparting value based HE. Einstein, "Education without values seems rather make man a clever devil", Dr. Radhakrishnan, "Great teacher takes a hand, opens a mind and touches a heart, true success bases upon human values not on economic values", stated Shri Ratan Tata, "Human values elevate one to a true leader of HEI". HEIIs facilitate to produce, encourage and empower creative intellectuals, responsible skilled and trained citizens to strengthen the health, mindset, culture, living-standard, and economy of society. This manpower enhances effective national capacity and productivity through better-performing interdisciplinary contributions to bring true reformation and globalization. In return, it enhances HEIIs productivity for next-generation human beings and institutional trends.

HE is a learning-based manifestation of human aspirations to create and mold great minds contributing to enhancing cultural-humanitarian values. The only means to achieve the status of an internationally developed nation and a healthy society is enhancing quality HE. Since centuries Indian HE has been facing multi-dimension attacks and challenges. Future prosperity in all wings of human society depends upon policies, programs, and people responsible to foster generations and generations through new and scientific learning. HEIIs create platforms for bringing creative and positive changes in society, promoting healthy understandings of unanimous nature. 21$^{st}$ -century HEIIs aim at work-readiness because employability for fresh graduates majorly depends upon integrated curriculum designed by HEIIs. Un-employability and Unemployment based bridge to employment program implemented in UK is a successful collaboration between HEII-industry and civic society to encourage the youth for STEM career through workshop/mentoring to address manpower shortage. 21$^{st}$ century HEIIP needs to embed employability with skill enriching programs to fulfill the industry's increasing demands for skilled rather than qualified ones. Comparing "World of Knowledge with World of Work" for HEIIs leads the present to the future era of collaborative productive working. Demand-supply, Expectation, and Skill mismatch challenges for 21$^{st}$ -century HEIIs are due to unprecedented transformation in a decade driven by economic power, demographic limitations, and political shifts.

21$^{st}$ -century liberalization, privatization, globalization, ICT revolution, employee-employer relation would have a different meaning when India will become the world's 3$^{rd}$-4$^{th}$ largest youth-economy with unexpected corresponding rapid growth in middle-class citizen size. Quality HEII processes with improved revenue saving and service productivity in proportion to domestic population need reforming and effectively rejuvenating leaders pertaining to improving the Indian academics, skill development and enhancing the researches. The new HE policy drafted by MHRD (GoI, 2018) to replace the existing one framed in 1986 and modified in 1992thatdirectly impacted on national socio-economy and living standards, innovative researches and human values. Union GoI is trying to perceive new productive perspectives to deal with current and futuristic challenges through schemes as Make-in India, Digital India, Smart Cities, e-Governance, Start-ups, incubation centers and Atal Innovation Research that definitely shall require a totally new look and version towards entire HE spectrum system.

## 2. CURRENT HIGHER EDUCATION PRODUCTIVITY FACTS

21$^{st}$ -century e-HEII Productivity enhancement depends on various multidimensional factors and parameters of its processes, approaches, methodology and interdependent functioning within and across the HEIIs. Well, known, recorded and proven blend of applied and core research capabilities of "an annual total of over approximately US$138 billion" R&D Committee, GoI, 2017-18. India, truly the original leader of ancient knowledge and research is seen in the top fourth cycle of its global research studies, excellence framework, with more than a hundred HEIIs found competing with their global best institutions of international repute. Being the single largest young global-talent-provider, with an average ratio of 1:4

graduates in the world, the world foresees India as a highly productive production center for e-talented skill owners. Honorfully stating that recent past two decades have witnessed six Indian origin intellectual products receiving the Nobel Prize across various disciplines and scholarly categories.

THE-HEIs world ranking-2019 comprises 49 HEIIs as emerging economies with several emerging new entrants along with several drop backs too. IISc, 14th followed by IITB, 27th, though both have slipped down by one place due to worldwide competition on the scale of 21st -century criteria. Appreciably research reputation and knowledge-transfer-income of IITR moved it up by 21 places gaining 35th rank while IIT Indore at 61st and JSS HEIR stood at 64th as new entrants. Pune University moved up by 87 to get 93rd, alongside National Autonomous University Mexico due to its research score and outcomes, while BHU and Amrita University placed in top 150 along with IISER Pune and IIT Hyderabad 1sttime as new entrants. Indeed, China stands most reputed with 5 in top among 72 Chinese HEIs. Ellie Bothwell, Global HEIs' Ranking Editor stated, "HEIIs is quite rich with immense potential for success in teaching but not at emerging stage globally in research and fundraising". She told HEIIs' global reputation to attract international research aspirants need to be rethought nationally uniformly.

Enhancing HEI Productivity through educating, empowering and elevating the understanding of depth-level that would nourish the learning-needs of all kinds of tech-savvy 21st-century learners. 21st-century HEI can be said productive provided updated digital initiatives gain sure-shot initiatives, MOOC kind of e-curriculum content are designed and developed for blended learning, open-education-resources (OER) platform training and ecosystem and technology-enabled LMS is implemented effectively.

T. Sanjeevee Jayram (Gibbs, 2006, Ross S. 2006, Curran 2011, Gathuri 2014), "e-assessment methodology, improving opportunities and productive innovations for 21st century HEII's examination, assessment, evaluation, and grading is highly analytical styles with in-depth understanding which determines the overall capability and ability." ICT enabled and facilitated e-assessment can be of four kinds namely; diagnostic-to identify student's deficiencies (Benseman, 2008), formative-to find potential improvements, summative-to measure overall learning, and integrative-to promote self-learning capabilities. E-assessment provides and develops good practices including procedural flexibility and effective overall cost, quick and authentic access, multidimensional engagements, interactive animation-blogs-text-matrix-play-simulation, and virtual to the real presentation.

## 3. SCALING THE CURRENT SCENARIO OF HEIIS PRODUCTIVITY

India has grown good with more than 40,000 colleges and 903 universities (UGC, www.ugc.ac.in) offering 183 courses and programs under section 22, UGC Act 1956 for STEEMMMSH and allied disciplines from UG-to-PhD. Important is to visualize and execute the micro-to-macro initiatives for productivity enhancement on a regular basis at each level in our HEIIs system. Complete productivity enhancement process can be broadly categorized into input, processing, output or response and feedback from user end to input-resource end to make the processing error-free and accurate. Continuous neutral and dedicated evaluation of each micro level junction in HE system is a must making converting the existing traditional HEIIs a ready one for challenges of 21st -century e-HEIIs, both vertically and horizontally across the country.

FICCI HES (2013) reports that at present in current situations, Indian industry and market is predicted to face about 77 percentage of staggering skill gap. This can be restated that as per standard industry demands and requirements,

India will have enough youth unemployable but available to work. Employability is one of the main parameters and criteria of productivity for an HEIIs of any era. This skill gap leads to proving the non-encouraging atmosphere and culture of academic-research-quality and misappropriate to fill the known gap/s between academia-setup and industry-requirements for manpower. India has been witnessing supply-driven not demand-driven system resulting in a big mismatch. True-notion of developing or having World Class WC-HEIs need improving the productive quality of teaching-learning-research through acquisition and real-time creation of modern and advanced e-knowledge for e-era of the 21st century. Philip G. Altbach, Boston College, "*Everyone wants a WC HEI, no-one knows actually what it is, and more-over no-one knows exactly how to get it*."

The Hindu (June 26, 2013) states that 47 percent of graduates in India were unemployable. The aspiring minds, national employability reports (2017) that 90 percent of Indian Engineering graduates are not employable which was based upon a survey to about 60000 respondents, less than 11 percent hotel management graduates are employable. Amongst many, another important productivity measuring parameters visual to end-users and society is the world ranking. HEIIs show the poor ranking in previous years, 2016-18, as summary have been produced underneath for reference.

## 4. REGULATORY AUTHORITIES, OVER REGULATION VERSUS ACCREDITATION

Uncertainty, conflicts, many a time unhealthy ill and diseased multi regulatory Authorities result in over-regulated system for HEIIs. No regulatory agency, body or authority offers jobs or living-hood entrepreneurship but regulates and controls only, which is a one-way methodology to enhance productivity where leadership has no clearly defined responsibility. PCI plus AICTE both regulating Pharmaceutical Courses while no common standard and format of understanding, NAAC plus NBA both are accrediting STEM courses having no common standards or formulae of evaluations, e.g. KCG plus FRC both are Gujarat state Government's agencies having nothing common on vision or objectives even data collected from HEIs for fee or for quality education, and similarly many more combinations. Huge challenges around excessive regulation, corruption, valuation, and accreditation are a chaotic and unplanned, sudden and dramatic increase in the number of HEIIs without a proportionate increase in material or intellectual resources. Apart from inadequate infrastructure, manpower and facilities, the academic standards in HEIIs have been jeopardized. Many HEIIs in remote rural areas are non-viable, under-enrolled, extremely poor HE cultural facilities with no quality teachers that have diluted the HE quality.

Dr. Pandey from HECI, "*True Education can never prosper in highly regulated and too much tightly controlled environment.*" Even countries like South Korea and Hong Kong have given adequate degree-of-freedom to operate and regulate their HEIs. He added that complex and dysfunctional non-synergic regulatory arrangements for HEIIs have raised serious concerns about the credibility of our HE system. "*Poor governance, lack of recognition and accreditation, complicated procedures due to regulatory layers and hierarchical overlaps, and entry barriers discourage participation of quality and productive leadership in HE system,*" said Sam Pitroda. Also, the shared and unclear responsibility of the leadership leads to lack of coordination, complex bureaucratic requirements, HEIIs has practically no productive HE system that prevents from innovations.

Dr. Manmohan Singh opines that Indian regulatory mechanism is non-responsive and non-productive but tries regulating and controlling the quality of the HEIIs' products which are absorbed by the corporate or industry. The corporate and industry who absorb the HEII products have no roles to regulate or control the quality and productivity of the

HEIIs or HE systems! Even, most of the times the HEIIs' leadership is found having no exposure to the industry where their students are absorbed.

GoI (1994) established, recognized and authorized two important bodies/agencies to monitor and regulate quality in HE namely; NAAC (UGC, for Universities), and NBA (AICTE for professional HEIs). Performance of both two, over two decades (until 2005) has been very poor, disheartening and inadequate, keeping NBA the worst, so the *leadership of HEIIs and both accreditation agencies need be evaluated and made responsible for so poor performance*. Anandakrishnan (2011) happily told the year 2008 had accredited 36 percent of the engineering programs, 10 per cent in management studies, 8 per cent in pharmaceutical sciences, while 5 per cent in the computer science and applications. HEIIs' productivity through accreditation can be enhanced qualitatively provided more accreditation agencies for public and private HEIIs are established. Indian HE is understood as "*islands of excellence in a sea of mediocrity*" as very few world-class HEIIs exist but not in top 100. Out of 159 HEIIs accredited by NAAC (Sept 2010), only 60 (~37.7 per cent) were placed A- grade, 95 (~59.7 per cent) with B-grade, while 4 (~2.6 per cent) C-Grade, where percentage affiliated colleges with A-grade was poor and lower.

## 5. PRESENT-TO-FUTURE PATHWAY OF HEII-PRODUCTIVITY

Productivity Enhancement means elevating performance, progress, proficiency, positivity, rewards, delivery and promoting excellence as output of HEII system. Traditional HE system provides financial aid to eligible students as scholarship-facilities where approximately 2/3rdof all together of Government's spending towards HE is invested in teaching fraternity and learners only. "Massive Open Online Courses, initiated enthusiastically by a large group of elite research institutions in a collaborative format, collectively enroll approximately 61 percent of entire students' population worldwide. HEIIs leadership needs to take risks converted into challenges and opportunities to succeed in digital e-age of 21stcentury and ahead" (S. Ramesh Shankar, Siemens India Ltd., Sept. 5, 2018, the TOI, Ahmedabad). Transformational Innovation and Innovative Transformation are inevitable for 21stcenturyeconomy to sustainable productivity growth and HEIIs are no exception. Overhauling HEIIs certainly would exponentially raise the productivity rate by introducing qualitative paradigm shifts.

### 5.1 Perspectives of the 21ST Century HEIIS

As a stimulation to scientific temperament and innovative transformational thinking, "Innovation is a buzzword of the 21st century. No innovation, no productivity, no entrepreneurship, no development", Prime Minister of India (page no.6, Brainfeed Higher Education plus, Oct.2018(5). The 21stcentury HEII leadership would have to be prepared and focused on becoming big digital and global, not traditional and local entrepreneurs. The overall life of an HEII seems like a burden without innovative and productive transformations both in thoughts and action, said Dr. Javdekar, MHRD Minister. Equal importance and emphasis on innovation, earning knowledge and character building would complete the phenomenon of 'wholesome' dreamt by GoI. THE-2019 World Ranking declared a merely 9yearold IIT Indore made a debut as 2ndhighest-ranked and globally amongst top 400 institutions while, the IoE of GoI, IITB slipped to 401-500 from its previous ranking of 351-400, while IIScB could not rise but maintain its previous rank in 251-300 showing no improvements. Therefore, global HEI stakeholders prefer Innovative productive transformation or transformational productive innovation that works qualitatively better than traditional ONLY knowledge style of age-old leadership more centralized on the set of a variety of rigid culture and accustoms not ready to change them.

ICT, AI, and Digital Education are supporting tools to accelerate the socio-economic growth (Inayat Chaudhary, 2018) and productive innovation for future HEIIs. Today, the HE world is seen developing at fast wave of sometimes-before unknown-unexpected technological advancement. Augmenting ICT, AI, digital accessibility has become compulsorily a necessity in full-fledged to all stakeholders. Sense and understanding of the needs of digital-world impacts and elevates only when ICT infrastructure enhancement in Government or Public or Private or PPP HEIIs is taken well care of. Sincere focused attempts and efforts are made to enable the learners to learn as per their convenience and reach of ICT digital augmented technology at the grass root. Phenomenon of 'last-mile-real connectivity opens the possibilities of enhancing HEII productivity through digital education whether its geographically remote location, socio-economically deprived or marginalized zones. Therefore, digital ICT helps to encourage the idea of highly acceptable quality, equality of skill sharpening and societal well-being-ness on larger multidimensional platforms with the active participation of all. Ease of learning process is measured using parameters of introducing international cross border collaboration improvising initiatives taken by HEIIs where digital technology, IoT, AI, and ICT will boost employment and entrepreneurship.

### 5.2 GoI Initiative and Implementation of ICT to Enhance 21$^{ST}$ - Century HEIIS Productivity

ICT's roles (Madon, 2005) (Bhatnagar and Schware, 2000) and investigation for the conceptualization of national development (Heeks R. 2006) using secondary data evaluation show manifold direct-indirect impacts with certain assumptions and perspectives. E-governance and ICT usage initiative of GoI for facilitating transparency and enhancing HEII productivity factors such as "how national and local governments, national and international agencies, NGOs and public agencies conceptualize ICT development (Sein, Harindranath, 2004)".

Four conceptualizations of ICT objectives (Orlikowski, Iacono, 2001) are a tool, computation, ensemble and proxy views for innovative impacts and usage as a commodity, supporting developmental activities, driver of the productive economy of educated healthy life for standard social living with more degree of political freedom and empowerment for human right. Formulation of diverse paradigms for productive HEIIs' development using ICT (Sein,2005) is functionalism, neo-humanism, social relativism, and radical structuralism. Advanced ICT paradigm shift offers govt.-to-citizen services at a single location for reducing corruption, improving HE transparency (Prashanth, 2004) for twin cities, Hyderabad-Secunderabad under scheme "Twin City Network Systems TWINS, 1999). Likewise, HEIIs, states, and country must implement ICT facilities for productive future.21$^{st}$ century HEII focusing on productivity enhancement would visualize itself as a center of excellence for skilled humanity and human values specifically for e-communication and e-learning through online resources keeping humanity as influencing factor at various levels/wings of the economy and life philosophy.

Today's HEIIs being governed administered on traditional rigid patterns need to be transformed into digital called as 21$^{st}$ -century HEIIs. Report (Mansi Taneja, DNA India, 2018) tha**t** as an integrated and strengthening part Digital India program, GoI have started the productive process for formulating an international standard policy for digital HEIIs. HEIIs will set up to furnish facilitate training to enable learners' easy access to high standard HE. It's an appreciable move for accreditation, recognition, and credit on a global platform through ICT, online e-resources for better and quick innovative learning at par with global standards. Over last decade, online digital technology-based private HEIIs has gained accelerated steam with e-learning internet facilities even in remote rural and is foreseen to enhance the productivity of an individual and country both asper 'Digital India 2.0' economy plans. GoI's digital HEII initiatives guarantee to lower the

HE cost at par physical traditional HEIIs of black/green /white boards benefitting the students' love/interest in learning while working/earning after college hours& enhance HEIIP. In absence of basic HE infrastructure facilities and teachers, skill developmental learning and studying would be easy through Digital methodology breaking the boundary of physical time-table attendance to engage-encourage-support qualitative, adaptive and collaborative hybrid interactive methods. This productive concept would support fund raising R&D consultancy projects through e-learning at various academic, research organizations, HEIIs, workplaces, agencies, and laboratories geographically located anywhere. GoI-IT dept. **(**Mansi Taneja, 2018**)** HEIIs combined with a school in India will become the largest addressable category by 2021.

### 5.3 Significance and Dependency of 21st Century HEIIS' Productivity on ICT Usage

Productivity of 21st century HEIIs would be directly dependent on ICT, software, digital, online technical computational tools &applications as AI, AR, Cyber Security, and Cloud Computing has wide scope applications for analysis, feedback, presentation and coding for secure e-learning to transform human activities even for highly sophisticated tasks, but unlike many sectors, HE has yet to implement AI (Nafis A., Graham K., 2018**).** Using AI algorithms, ICT, e_on-line resources for HE will enable learners to study 'where/what/when/whatsoever' they want in a laptop, mobile, tablet. ICT transformation will keep on enhancing 21st-century HEIIs productivity due to high digital accuracy, quick responses, no delays, effective communication, zero wastage and pollution, accessibility and ease of doing the things, skilled labor producing more efficiently. IoT enabled smart classrooms to enhance learning through direct, uniform connectivity and quality accessibility. Administrative responsibilities as attendance monitoring and exam invigilation will be transformed into robust automation to streamline entire HEII process (admission, examination to convocation) for cost saving and productive services.

Corporate sectors observe and significantly practice digital, AI IoT ICT impactfully while HEIIs have discouraging initiatives to implement. Until date, five ways an AI and ICT can help to transform re-shaping HEIIs for better productivity enhancement trends are 'Personalized learning, moving beyond the classroom, welcome to smart campus, monitoring the performance, low costing but smart quality service to students. Personalized learning would enhance productive thinking amongst learners as different people have diversified learning aptitudes, levels and kinds of skills, orientations to learn. Deakin University Australia is the 1st HEI having IBM as a partner to implement Watson, a supercomputer, technologically advanced AI to answer users' questions anytime equipped with 90 servers 200-million-page information processed for six million logics. Identically, performance monitoring using AI ICT in HEIIs would revolutionize the entire operations, processes of auto-recognition, auto-transfer of credits, accurately and potentially opening learning-earning-research opportunities.

The traditional old pattern of HEII campus would survive no more than a decade to welcome the new kind of smart campus as for infrastructure transformation for smarter working and learning is concerned in term of IoT, ICT and AI. Attendance monitoring, invigilation in examinations, controlling and surveillance, parking to dining, e-meetings-video conferencing for imparting delivering courses, accounting-interacting with one-another would all be online with no face-to-face deals or no personal or physical presence.

### 5.4 UGC MHRD Initiatives to Enhance 21ST -Century HEIIS Productivity

UGC Chairman, Prof. D.P. Singh endorsed that important initiatives for enhancing HEII productivity to improve HEIIs quality, in a 3-day national conference (2018) for VCs-directors on HE Innovation Research where participants from

across the country agreed to adopt and achieve couple of resolutions as;

- Achieving the UGC-Quality-Mandate in all HEIIs by 2020, and NAAC accreditation for all by 2022.
- Adoption and implementation of Learning-Outcome based Curriculum-Framework in all HEIIs, updating curriculum from A.Y. 2019-20; Learner-centric teaching-learning-processes by improving the pedagogy.
- Active participation in FIP training for newly appointed teachers in all HEIIs using SWAYAM
- Enhancing HEIIs' research productivity through competition-based funding schemes.
- Creating innovation culture and ecosystem at all levels in HEIIs e.g. admin, accounting, the academic degree of freedom flexibility for promoting innovation, encouraging Smart India Hackathon and start-ups.
- Motivating encouraging learners for active participation in socio-economic upliftment of at least five villages under Unnat-Bharat-Abhiyan.
- Healthy Industry-HEIIs linkage under the National Apprenticeship Scheme (NAPS).
- Promoting digital learning resources, credit transfer for SWAYAM courses, e-Shodh Sindhu, National-Digital-Library (NDL) and National Academic Depository (NAD).
- Awareness creation for research and professional ethics for plagiarism, copyright and journal.
- Striving for clean energy smart environment and learning-earning atmosphere in the HEII.

### 5.5 HEIIS' Supportive Roles to Women's Empowerment with Financial Inclusion and Reducing Gender Gap

Despite general progress made in financial inclusion in HEII system, the gender gap remains unaltered since 2011 (International Congregation Dhaka, 2019). Three formulae have been recommended by G20 countries such as; cross-cutting issues needed to support women's financial inclusion, measures to close the gender gap by supporting inclusion of financially excluded women, and developing women -led business units through full-fledged access by women.

### 5.6 HEIIS Productivity Challenge to Stop Migration of Youth to Overseas HEIS for Medical Courses

MCI witnessed 74, percent rise in applications seeking foreign MBBS with the rise to 18383 (2017-18) from 10555 (2016-17). Key reasons are lack of medical seats in HEIIs, lower level of awareness, more affordable fees, curriculum alignment to global standards (Bhasker Saju, Texila University, USA) while it is claimed that "Quality of medical education in India is one of the best in the world," Dr. Gurinder Grewel, Punjab Medical Council. Six lakhs aspirant's cleared NEET against 12 lakh applicants for 70000seats while remaining to opt for Ayurveda, Naturopathy, Homeopathy and they too get migrate for overseas MBBS from Russia/China as easy pathways.

## 6. HEIIs NOT MEETING INDUSTRY DEMANDS OF TOMORROW

The world sees India as leader in many ways e.g. number of graduating youths from HEIIs (UN Conference on Trade Development, 2012-14)when worldwide 5 million learners (2012-14) in STEM with 29.2 percent from HEIIs and 26 percent from Chinese HEIs. UGC (2016-18) statistics depicts 10.7 million students in STEM. UNCTD seriously cautioned,

"Indications prove HEIIs didn't keep pace with technology and industry demands" Usha Devi (2019) validated formulae of "work-integrated-learning" for enhancing productivity of 21st century HEII to be adopted for curriculum development, evaluation, research, learning with earning, entrepreneurship and adaptive innovation, fostering truly industry interfaced vocational hands-on-ethical practice, OER based soft skill development and employability with productive governance and leadership impact on model-4.0 HEI model.

### 6.1 UGC 2018-Mandate-Proposal for FIP Training for Newly Appointed Faculties in HEIIS

UGC (www.ugc.ac.in) notified about the importance of developing and implementing high-quality systematic induction program for newly recruited faculty with effect from 'nil date'. UGC states that teaching-profession highly-demands highly-ethical-intellectuals so newly appointed one needs to undergo rigorous, continuous hands-on training preparation phases before becoming 'Faculty Member'. A person joining HEII without formal teachers' training lacks the capability of understanding HE culture, managerial soft skills, and awareness of policies relating quality governance and experience for dealing with learners and colleagues. HE FIP objectives include teachers' roles-responsibilities towards teaching-learning pedagogical processes, academic administration and governance, structure and functioning of HEII, socio-academic-emotional nurturing of the self through self-evaluation, the learners and HEII for professional ethics and human values. Necessary guidelines encompass mandatory to undergo one-month residential participant-oriented FIP, conducted by HEII, within one year of new joining in two phases spread over 18 and 12 days. FIP must be an active outcome-based learning meeting the needs of forthcoming e-centuries. Interdisciplinary, collective and collaborative self-learning methodology-based training will strengthen and re-shape the capability of the participating teachers. FIP by HEII need be implemented in modules as HEI understanding, Pedagogy (I-II), Professional-personal-ethical development, life skill, motivational-emotional values learning and consciousness, and Research for societal contribution. HEII leadership and experts should elaborate, discuss on global perspectives as "HE history, vision, challenges, global to local agencies, accreditations, ranking, research ethics-plagiarism-copyrights, patents, HE culture, pedagogical continuous interdisciplinary learning and assessment grading, CBCS, healthy classroom/laboratory demonstration, and environment, flipped and diverse class, blended and e-learning, Personal-emotional development, life skills, counseling and motivation, understanding of the self, self-esteem, ability to reflect, physical-mental and emotional health, mentoring the learners for better career options, building strong national-societal culture, human values, ethics & environmental consciousness, exploring possibilities for linkages between constitutional values and education, fundamental rights, social and environmental issues, HE roles in addressing the issues like inequality, gender, corruption, drug abuses, climate change effects and sustainable productivity."

### 6.2 Internationalization for and of 21ST Century HEIIS

Internationalization is the first and top-most priority for HEIIs leadership now a days to accelerate enhancing the HEIIs' productivity. Undoubtedly, initializing the process of HEII internationalization help enhancing the national to international transparency and visibility, boosting and leveraging the HEIIs' strengths through systematic and strategic partnerships, developing and strengthening stronger research contribution, mobilizing internal and latent talents and intellectual under-utilized resources, aiding the contemporary learning outcomes, and enlarging the socio-academic towards the wider societal activities. Internationalization of an HEII campus from 21st -century prospective needs be undertaken under the purview of e-resource dimensions such as,

- Adequate, comfortable, attractive, up-to-date and user-friendly resources, infrastructure, facilities, and e-environment as per international learners' demands and needs.
- Capable, quality, adequate and efficient staff members are made available to meet the international curriculum of international nature for these guest learners.
- Grant-fund-raising assistance be made available on campus for international learners for learning-research
- A huge number of industry and NGO partners in active mode in terms of endowed chairs, research platforms, other miscellaneous entertainment, and corporate opportunities
- Study and research centres abroad including long-term housing guests, visiting industry experts, MOU and facilities for emeritus professors, international advisors, strong academic team and enterprising atmosphere
- Seven internationalization metrics (IACRROL) **I**nternational **f**aculty, **a**cademic-activities, **c**ourse-curriculum, **r**esources, **r**esearch, **o**rientation, and **l**earners-students are basics.

Patrick (2019) NAFSA reports, "HEI charging low or no tuition fees, have broader and more comprehensive international education strategies, and UK's new strategy set an export target of £35bn with inbound student target of 600,000 per year by 2030." Michael Peak, Head, HE research at British Council, told UK exceeded 20% study abroad target or training abroad by 2020 as agreed by EU ministers". The base of internationalization is "encouraging environments at international HEI with clear, open policies to support student/researcher mobility; strong frameworks that ensure quality provision of HE at home and abroad."

### 6.3 Productivity Enhancement, and Academic and Research Freedom in 21st -Century HEIIS

The two interdependent phenomena cannot stop 21st -century HEII from defame/defend if ARF won't be made a privilege nationwide. HEII functions to selflessly serve, strongly protect/defend the whole society's qualitative capacity to know everything at any point in time. Higher degree-of-ARF matters much beyond learning Counter schools will argue, discuss and debate 'for/against' HEII-Security under bunch of laws, constitutional reviews, independent accreditation-regulatory agencies, socio-professional groups/associations, techno-scientific societies, peer reviewers, informal/formal consultation, parliamentary HE legislation, e_/print_media and press, autonomy players, and international structures and frames. Authoritarian regimes in Western Countries are new challenges (Michael Ignatieff, 2018) dragging the attention on increasingly creating national HEIIs to impart education and govern through public administration to control 21st century's bureaucratic governing system. Regulating the multidimensional-multicultural future of 21st -century HEIIs, iteratively re-designed re-engineered attempts for overall global-societal interest would enhance productive growth for the betterment of entire humanity. High degree-of-ARF will nourish HEII values to seriously think of and plan for its stakeholders to survival as a free press, an independent judiciary, peer parliamentary review of legislation(Michael Ignatieff, 2018). 21st century HEII-ARF absolutely depends on speaking courageous truth 'right or wrong' that today is the toughest task as 'whistle-blower' for hard facts, true knowledge, transparent system, rumor, baseless tweets/blogs, wrong/misleading information. 100 regional HEI leaders, Kingali, Rwanda, East Africa discussed non-productive conditions of HEI ARF and academic quality(Gashegu Muramira,2018)on how to increase the number of qualified senior faculty to meet with demands of PG courses. Rwanda HE-Minister, Dr. Eugene M. addressed to public-private HEIs (East Africa) at InterUniv. Council East Africa, "Core HE-quality depends on quality of PG studies but curriculum on training the faculty for how-to-supervise

or how-to-teach the PG and research academic programs is lacking"

### 6.4 Globalization, Collaboration, and Privatization for Enhancing the Productivity of 21st - Century HEIIS

Growth of private HEIIs (2008 to 2018) is 8% to 30% (Abhay Anand, 2018). GoI-FDI is 0.5% for HE only, so immense expansion is needed for 21st -century HE-sector not on the cost of HE quality, equality (of gender, caste, creed, economic gaps, entry, regulations), and employability skill set. UK-India Business Council "*Beyond Top 200, Effective HEI Collaboration*" endorsed that internationalizing/collaborating an HEI-of-excellence eminence won't help Indian HE-sector to grow'. By 2030, 1500 new HEIIs will be needed to accommodate140-160 million influx of young-skilled population today underage of 25 years. Only productive quality HE can reduce poverty, gender-inequality, non-employability/entrepreneurship for the 21st century. Indian HE system though largest in the world, currently facing critical challenges as global-level professionals "HEIIs neither meet global standards nor needs for domestic employers "Indian forecasts on 2030 HE, "30 million are getting education in 969 HEIIs only" Biggest issue is quality faculty shortage up to 30-40 percent while most of newly appointed don't get training. Though HEIIs produced a 4thlargest number of Ph. D statistically (2017-18), only 600 publication by HEIIs while 7000 articles by UK and 13500 by Chinese HEIs!

Indian private HE-GER went up 11 percent (2007) to 26 percent (2018) with double no. of HEIIs430 (2008) to 950 (2018), while GoI dreams GER of 30 percent (2020) and number of private HEIIs to 500 (2023), means 40 million public HEIIs with 14 million more enrolments. Eliminating the gender gap in HEIIs will enhance productivity. AISHE (2018) reports the Gender Parity Index to be 0.86 while 0.94 (2017) due to ICT. AIHES advised, "Addressing digital innovation will drive industry 4.0 to deliver education 4.0in 21st century having less than 0.50 GPI by 2023". HEP directly depends on employability/entrepreneur ability**,** as a major challenge for HEIIs, in 2016 80 percent engineering graduates were unemployable (Aspiring Minds Research Group), while British Council Research 2016, "76 percent HEII graduates were unemployable because of outdated curriculum, lack of hands-on-practical exposure", and nil research orientation. Total HE-FDI share (2000-2018) was 0.5 percent due to policy restriction on foreign investment. Indian HE conditions in view of world ranking systems are less learner-oriented, so specialization ranking rather than HEI ranking is more important and that too changes every year. In 1947 Bombay/Madras/Calcutta Universities were world recognized and today no one in top 25 due to lack of complete access, perfect equality, productive quality not quantity, over regulations and meager investment.

### 6.5 Responsibilities and Roles of 21st Century HEII as Dissent, Driving, Transformative Think Tanks

Amongst hundreds of functions of an HEII, fostering the capacity to learn, realize and understand roles, duties-responsibilities as a dissent, driving and transformative thinker is prime. Human professional behavioral factor governs and builds HEII reputation. HEIIs must be fully facilitated, encouraged, supported, trained, given more degree of freedom and autonomy, and be adequately funded. Productive governance-management of HEIIs will preserve HEII healthy trend for innovation in STEEMMSSH, languages, philosophy, and entrepreneurship, and help HEIIs to carry primary-original societal researches like European/developed countries. Beginning enacting with such transformative dynamic thinking is necessary with more digital inclusion and active productive participation with professional equality. Global ethical and moral transformative thinking based real conscious changes are needed through critically novel and dynamically engaging pedagogy assured by global educators to implement practical assumptions. Enabling creative,

productive and adaptable consciousness, participatory noble citizenship with recognizing the positive potential of ICT for analytical learning would enhance HEII productivity.

Effective performance of human resources and enhanced productivity of HEIIs mutually help to increase HEII competitiveness to elevate overall economic growth (SK Singh *et. al.* 2016) and employees' long-term retention and self-esteemed engagement. Re-learning and performing better for job satisfaction improves for HEIIs leadership to satisfy the needs and requirements. SK Singh *et. al.* (2016), "HEIIs across the globe have been confronting with chaotic complexities for the economically sustainable and challenging quality environment", and its leadership finds diversity constraints of demands.

### 6.6 Promotion of Academic Integrity and Prevention of Plagiarism to Enhance Productivity of HEIIS

Regulations 2018 (Feb.) approved by MHRD**,** GoId is courage plagiarism for enhancing productivity to increase the inclination of HEII and aspirant towards core innovative real contribution and to check to control the inculcation of false habits of showcasing or stealing wrong credits for personal selfishness. Plagiarism detection is now-a-days is quite simple and easy using digital on-line software/open ware with no cost. 21st-century HEIIs welcome this productivity enhancing true research initiative. Plagiarism, the most non-productive phenomenon hampering sharp/productive research-oriented brains, defined by UGC "malpractice of taking and stealing other's work/idea illegally and passing or producing them as if one's own creation or idea or product or technology". Plagiarism in dissertations/theses is chronic for quality/standard productive research. UGC formulated a strict anti-plagiarism law (Ranjit,2018) with kinds of punishments depending on quantity/seriousness of plagiarism.

Globalization, an extraordinary socio-productive achievement transforms HEI into diverse multi-cultural global communities. Michael Ignatieff (2018), "HEI-Globalization involves Govt regulations". Central European Univ. Budapest Prague (*estd.*1991 by Eastern European Academics)observed world-class TLM in STEEMMSSH with open minded-politics-free thinking but brain drain (2010) transformed Europe's thought into non-productive HEIs. Authoritarian concept turned HEIs (Russia, China, Turkey, Hungary) in the international scientific community for STEEMMMSH. Chinese President Xi Jinping's(life-long emperor) signals academic future heavily controlled, policed and crucial to economic growth with limited innovative-opening in STEEMMMSH. Chinese -Russian case gives emerging picture of a single party where so ever privileges, international ARF and controls over quality. They see ARF as a threat because they prefer having HEII-under-their control to good-HEII, it's a dangerous situation for the 21st-century because HEIP is proportional to the degree of ARF and autonomy.

### 6.7 Learning-Outcome-Based 21st Century HE Framework: (Productive Contribution for Long-Term Sustainable Policy and Development)

A comprehensive HE Policy (P.S. Satsangi) have four sub-objectives, 93 components in a hierarchical structure to develop a well-structured 21st-century HEII system namely; Aims-objectives, Educational-curricular features, Organizational policy-decision process-support, and Productive Governance. Organizational policy decision process and support seem a greater degree of variation in implementation. Useful productive policies for organizing learner-participation for regular/remedial TLM activities in core-curriculum co/extra-curricular need to be explored for 21st century HEIIs. Emphasis must be too practical learning through modules, specialized seminars, latest readings, modular/group discussions and field-training with weightage of formal and elective subjects. International experiences

confirm that lateral entries, non-formal privatization, virtual on-line ICT enabled HE are productive breath for 21st -century Governance system for sustainable implementation. Updated user-friendly infrastructure for 21st -century learning with the help of well-equipped laboratories for self-learning freedom, professional hobby centers, ICT equipped central modern library aids to TLM. Soft skill development culture as students' welfare measures, affordable scholarship assistance, learning-earning motivation provide conducive physical-psychological soothing environment along with training-placement counseling career guidelines.

A mindful creatively significant understanding for enhancing 21st -century HEIIP will produce original thinkers, innovators, ICT savvy global leadership. Within limits of HEIIs, abandoning the scholarly academic wills in the 21st century be considered by the then generation-learners as a betrayal of HE-core purpose for developing independent thinkers, engaging the citizens for excellence in professional training, peace, patience and outcomes for appreciably memorable, productive teaching and effective societal outreach researches activities.

**6.8 Gross Enrolment Ratio (GER) Influencing the Productivity of an HEII**

GER, a standard means, measures access level in HEII, is the ratio of students/researchers enrolled in various courses to total population in a specific age group of 18-25 years. GER in developed countries as Japan, US, UK is 55 percent, while the world average GER is 27 percent. AISHE 2013 endorsed HEII GER for 2007-12, 12.3 percent, and 17.9 percent for 2012-17 (12th five-year plan). FICCI-HE Summit proposed HEII vision-2030, GER (2018-2023) be 25 percent, lower than world average GER (2013) by 2 percent. Proposed world GER (2030) is 50 percent with gaps of HEII-GER(2030) by 25 percent. The Only HEI-GER elevating component is Innovative Research.

Focus of future HEII would be Centre of excellence, Equity, Supply-demand-gap, TLM quality, uneven growth, and Access to opportunity (AKSingh,2013). UGC (2007-08) reports, "HE-Gujarat lagged 15 other states with low productivity in Gujarat HEIs because Gujarat concentrates in few districts only, and non-uniformity exists in its qualitative facilities/resources. Asian Subcontinent, India as a strong hub had been attracting overseas learners and knowledge seekers from across all over the earth in all disciplines. The micro to macro innovative improvements knock doors of integration from admissions to entrepreneurship and adoption of CBCS unanimously, student-centric approach, continuous comprehensive evaluation, single window knowledge consortium, mission mode implementation for the quality program under cascade-HE-model, supporting schemes for HEII funding leading to world-class institution and establishing state-level education innovation commission.

HEII collaboration with overseas HEIs creates numerous productive opportunities as Twinning programs, sourcing service, distance education, students-faculty joint research exchange. Non-productivity to productivity ratio is greater e.g. question paper leakage and academic/research corruption (Gujarat Samachar, March 11, 2018). Productivity, human instinct and indispensable for human evolution and progress, is to do something different differently with different purpose because of contingency as an innovative process of alternativities (AK Singh, 2018) for creation of knowledge-incubation. Only productive innovating teachers and HEIIs will survive and so 'innovate creatively productive or expire' with a student-centric theme. Data analysis by Geeta Kingdom (Anustup Nayak, 2018, TOI) shows that the median percentage score (CBSE school, leaving examination, 2014-16) systematically inflated by 8 percent. Only 40 percent of our 18-year-olds could calculate the price of a shirt sold at a 10 percent discount. Annual Status of Education Reports that 60 percent could read time from an analogue clock.

### 6.9 Social Networks & Media: Effective Tools to Enhance HEII Productivity

Enhancing and improving 21st-century HEII productivity for distance education using Social networks (A.S. Guha, Isagahah Lawrniang, 2018) has increasingly attracted the attention of academic and industry community having equal relevance with traditional, professional and regular mode HE. Productivity enhancement can be achieved only when academicians keep them updated and learned to implement ICT e-processes constructively. ICT based realization of e-productivity for 21st century HEIIs and stakeholders has its roots in the crisis of humanities/human values that emanate from the prevalence of science-technology for qualitative societal betterment. Productive-HE is the most crucial investment for multidimensional impact on technological innovation and economic development for producing high-quality manpower. HE-future world of the 21st century will be surely different from what it is today **(**Pawan Sikka, 2018**)**"education-skills imparted in the 20th century can't meet the rising demands of aspirants of the 21st century". So, enhancing Productivity through ICT is the ONLY possible hope.

Basic objective of 21st century ICT era is developing indigenous methodology and technology, efficient absorption adaptation of improved uniform policies appropriate to national HEII priorities. Technology Policy Statement (1983)framed strategies for strengthening technology of self-reliance, a priority of employment, in-house R & D, societal contribution, energy efficient environment and prevention of obsolescence. Science Technology Policy(2003**)** emphasized on governance and strategic utilization of existing infrastructure, strengthening HEIIs' learning environment and infrastructure, provision of productive training and funding mechanism for resources and researches meeting industry needs/demands. S& T Innovation Policy(2016), "Shaping the future of HEIIs" as driver for sustainable national growth for enhancing productivity through more investment for excellence and relevance in R & D, participation of HEIIs' in Global ICT and R&D infrastructure, and healthy multidimensional collaborations gaining competitiveness, public awareness accountability for both, industry and academia.

### 6.10 Digitalization and Digitization for Productivity Enhancement for 21st Century E-HEIIS

Successful error-free implementation of accurate digitalization and digitization of academic-admin affairs is the fundamentally true beginning of enhancing productivity of 21st -century HEIIs. The 20th century HEIIs could establish a healthy trend for students as valued-customers and products in-line with corporate culture for targeted market. Huay Ling *et. al.* (2017) examined causes, consequences and scopes of digitalization and usage of advanced digital technology on sustainable health of independent thinking and adaptive-blended e-learning environment to facilitate enhancing HEIIP. Retrospective analyses of our observational and hand-on experiences are acceptable evidences that manifest and support the benefits of this transformation like simplified operational complexity and improved connectivity for diversified learning. Hon'ble President Shri Kovind, 'more than 50 percent of HEIIs have adopted ICT digital transformation in most of their processes to enhance improve sharing of learning materials and research innovation resources useful for the 21st century. Certain critical factors, making the HEII digital transformation process productively more standard are resource availability from technical perspectives because 21st century HEII's global digital ICT age (Michael D. Higgins 2016) depends on unseen forces or threats of compatible advanced technology, while 20th -century HEIIs faced severe revolutionary challenges of non-adaptive rapid changes. HEIIs of future-thousands years old system (Ernst Young 2012), "Digital ICT has drastically transformed industries like media, marketing, retail, manufacturing, entertainment, and service sectors while HEIIs are the next soon". World Bank, "for next big scale enterprise opportunity in quantity and quality for

culture rights would be enormous initiatives on social grounds to enhance human living standards through more productive HE for better multidimensional balanced life skill".

The social understanding of 21st century students-HEIIs relationships needs more on-line e-communication maturity and bonding with deeper ethical responsibility with zero tolerance on non-professional inhuman dealings with the stakeholders because of easy e-recording and retrieval. E-productivity enhancement for 21st century HEIIs would be centered at on-line and e-culture. Even today, well in the beginning years of the 21st century, entire HEII systems, regulatory bodies, stakeholders and HE Governance has started using online and e-learning e.g. on-line e-admission process to e-study-materials, on-line and e-version of assignments, on-line examination, e-viva-voce, on-line and e-certificates, on-line payments of fees and even attendance and e-interviews and on-line trainings and hands-on-practical-experiments. At the pedagogical basic level, the tremendously increasing availability of e_and online_short to traditional to professional courses has contributed quite much. This on-line e-culture of HE would certainly play a prime role in improving 21st -century HEIIP that would open more exciting opportunities for better participation of remotely located marginalized communities making education truly globalized.

The dark dimension of e-productivity would certainly raise the eyebrows for making the learners disengaged from the student-teacher interactive experiences. E-learning from learned teachers of passionate nature for specialized subjects, personal face to face discussions and regular engagement in organized debate, direct participation on HEII clubs, personal association in journeying into the false avenues would become central to becoming a rich fulfilling educational charm, and healthy experiences for future generations as a historical storytelling learning. Hence life-long learning lessons would dry-up the social flavor from next generation learners, which would discourage learning through hearing and listening from role model grandparents in the families, which is a great source of perfect learning. So, on the adverse side, e-productivity won't enhance in real life in 21st century HEIIs and would create a new challenge to this e-trend/e-culture of everything on-line. Globally, several great challenges in academics relating STEEMMSSH and ICT skill training for the 21st century would witness marginalization of socio-political philosophy to narrow issues of governance and administration with utter pressure of quality publication plus peer but sophisticated competition for fundraising and sustainable productivity enhancement.

Aspirants would find pressure for making a strong connection between society and economy for strengthening economically productive growth as a healthy paradigm shift of e-academic culture for uplifting the total living-hood standard. Interdisciplinary scholars, e-contribution, activities, relationship, and e-resource utilization would ultimately play critical roles benefitting the 21st century HEIIs compared to present tradition/trend of productivity enhancement. Quality of Resources (Nita T., 2018), technological innovation, equipment-upgradation to support course delivery would be integrated components of e-productivity for 21st century HEIIs. Computational systems; computers-fax-printers-scanners-internet devices-Wi Fi, Li-Fi, projectors, AV systems, 3-D4-D multilingual analogue to digital conversion tools everywhere in HEIIs; ICT facilities-equipment installed at easy access places in the administration-academic-research section of HEII campus would certainly enhance e-productivity of HEIIs.

## 7. DISCUSSION ON IMPORTANT ISSUES TO BE ADDRESSED WITH TOP PRIORITY

Discussion on a galaxy of leadership and productivity of 21st -century HEIIs needs be concluded with finding the answers of few burning questions such as;

- Is HEII leadership of today's style effectively prepared for innovative-productive transformations? "Are we still in a half-awakened state of clarity for 21st century needs, demands, and requirements".
- What kind of changes in HEII leadership be explored, innovated or discovered? "Closing the closed system of selection of HEII leadership and opening the open system can be the One that should cover the whole spectrum ranging from eligibility to capability of productivity and innovation".
- How/whether does the performance of an HEII's leadership evaluated during or after the tenure? "Productivity based innovative transformation is the ONLY near to absolute parameter for evaluating a true leadership"
- Has ever been thought of setting up a Training Institution preparing and producing leaders for HEIIs as ready to fulfill the dreams of future generations in more productive manner? "UGC and its satellite centers in various zones of the country are capable to initiate likewise UPSC facilitates for hands-on full-time field training to beaurocrat and future-ready strong shoulders"
- For making more pious quality conscious, why not HEIIs' leadership shall be granted rights likewise judiciary system enabling recognizing and realizing for their core and applied responsibilities as not a 5th pillar of the nation but the central and pivotal one? "Society's view, opinion and thinking about degrading values and honor for teaching fraternity will improve positively, private tuition coaching, fake certificate or courses, and other peripheral illegal unethical practices will be shut and controlled"
- Why HEIIs of the World-knowledge leading country is found toddling striving for the journey towards top ranking?" Are only NAAC/NBA kind of evaluation formula and system effective to climb up the world-ranking stairs? Economic entrepreneurship and productivity enhancement still trying to find places in the curriculum while extra-curricular activities have been most of the places kept on paper, even in the timetable but not in true practices, just for the purpose of scoring few points in rankings?
- Whether the top leadership of HEII, responsible for governing and managing the show successfully, has begun thinking and planning for digitally compatible infrastructure, its usage, training for the expertise of employees (especially administrative staff, degree-of-freedom compatibility on all grounds and junctions in the system)?
- Have our top Governing Bodies started planning to share the resources such as Laboratories, Experts, Research inputs and outcomes amongst inter/intra-departments, colleges, and universities located at various places in states, country or worldwide?'This will cut the expenditure and facilitate the learners with easy accessibility of library and laboratory instruments costing high. Also, it will help to demolish the misconception of the invisible wall between the self-financed-private funded, public funded or government-funded institutions.'
- Recording the talks/lectures of best scholars of the departments, institutions, and universities to meet with the shortage of good teachers and for training the newly appointed or comparatively poor teachers who need training to become a good teacher of the subject or/and topic. This will enrich the library and help to enhancing the long-term sustained productivity of HEIs across the nation with an increased number of users getting benefitted. Whether our Principals, Heads of Departments, Deans and Vice-Chancellors have coined this thought to respective faculty members at least to implement at the individual level? It's well-known fact that the top leadership team members of the HEIIs own mastery and expertise in a subject or two.

- More Digital e-education system and less, in-fact meager, the print version should be preferred that will reduce non-productive energy, material, and resources, less record maintenance management burden on the administration and overall productivity of the HEI get enhanced. Hence, whether and how do the HEIIs started preparing for modernization and up-gradation of facilities for modern / future digital infrastructure and technology and trained / skilled manpower to understand and handle that hi-tech future digital and on-line systems!

- Job Placements, developing entrepreneurship attitude and skills for students are pivotal outcomes of professional courses in HEIIs. Jobvite National Employer Survey 2018reports about 96 percent of employers now-a-days have started using electronic digital social media for recruitment of new employees such as LinkedIn. Thrilling fact is whether HEIIs planned to train its students to make productive use of e-media for placement, training or internship; and have computer department taken it as the important curriculum otherwise!

- Gender diversity and financial inclusion of women in HEIIs decision-making processes help to make their livelihood in society truly meaningful in the sense of women's economic empowerment through HEIIs, keeping the social complexity cornered. Skill development opportunities explored by HEIIs certainly will diminish the root causes of gender-gaps and diversity.

- The burning issue need to be addressed are quality of intake learners, their interest and high fee structure in private HEIIs, poor quality and lack of faculty resulting into significant drop-out ratio even in IITs (TOI, Mar. 2019). These students if migrating to the UK become class toppers. UK Council report (top 200 in the world) states, "like private sector businesses, universities need long-term clarity in order to make a commitment to India, and a new HE policy should work to harness the potential of all HEIIs, not just a select few." Many HEIs in the UK not placed in top 200 provide world-class courses, learning, teaching, facilities, faculties for Indian learners.

- Alumni Networks at local to global levels strongly affect an HEII's productivity. Contacting and being in close connection with entire alumni groups of years for decades will be simplest in the 21st century than ever in history because of advanced level ICT usage. Hence, e-productivity for HEII of 21st century will be mainly enhanced with the help of contributory efforts from alumni members. Alumni members help To enhance the productivity of HEII in all the ways such as admissions, research, quality projects, placements, fundraising, expert talks, seminars, conferences, accreditation, teaching, consultancy, political issues, pressure, and interference.

## 8. CONCLUSIONS

At the outset, the relevant, applicable and helpful recommendation to enhance HEIIP can be summarized as;

- Most important is the quality of academic staff and teaching-learning experience for the students. Expected academic quality needs are knowledgeable and ever up to date and upgraded. Also, the teacher or facilitator or instructor should be able and fully capable to deliver quality content very much relevant to the real-time real-world as an outcome visible to the community while engaging, enjoying in flourishing and motivating ways and fashion with most optimized productive manner for long term sustainability.

- Staff members especially the academicians rate the most, the quality of inputs to the productivity process e.g. the students admitted to the HEIIs. Teaching community expects the better-quality standard at the entry-level measurably to be at least significant comparable to other HEIIs in the local nearby districts and region. Most

highlighted aspects requirements for incoming prospective students would be having the requisite better literacy, skilled and competitive standards. Weaker or poor the intake quality undoubtedly needs and requires more hard work, more attention and training before passing out from the HEIIs resulting into more time-consuming manpower considered as non-productive compared to if the intake quality is above average.

- Industry and corporate communities argue that quality of course curriculum being designed and delivered is of the highest significance. They suggest that quality of courses must be upgraded with standard reference materials to ensure its internationalization. Importance of embedding and integrating the graduate attributes along with significant knowledge-based learning outcomes need to be periodically assured for providing learners with multidimensional multiple work-skill-based life-long learning platforms and opportunities.
- The others concerned such as regulatory authorities, councils, and Government and Ministry would has no single significant point of central importance for increasing the e-productivity for 21st-century HEIIs. Reason being, all identified areas of enhancing productivity would be equally important and of equal significance and strongly interrelated and interdependent. So, emphasis on the roles of HEII in helping to meet demands, needs, and challenges of the society at large are expected to provide effective leadership to develop the HEII's and the country's talent uniformly justifying the interest of education system.

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