Employability Skill traits Management Quotient [ESMQ] - A Conceptual Model Proposal

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How to Cite this Paper:
Narula, A.V., & Aithal, P. S. (2018). Employability Skill traits Management Quotient [ESMQ] – A Conceptual Model Proposal. *International Journal of Applied Engineering and Management Letters (IJAEML)*, 2(1), 1-30.
DOI: http://dx.doi.org/10.5281/zenodo.1156138.

International Journal of Applied Engineering and Management Letters (IJAEML)
A Refereed International Journal of Srinivas University, India.

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ABSTRACT

To remain competitive in a technology driven, fast changing, globalised business environment, and pursue sustainable development goals; Companies today are demanding a high degree of professionalism, intellectual common sense, emotional maturity, domain knowledge, competitive techno-functional competencies from the new breed of graduating students, engineers and value chain managers. Human Resource capacity enhancement and development of functional capabilities in new work related skills, per say employability skill improvement, has become a major challenge across organizations and institutions, especially from emerging and developing economies. In the context of higher education, to address these challenges, a structured, systematic and collaborative approach by strengthening Industry Academia Interface [I.A.I.] can inherently supplement professional skill development efforts of graduating students. University Industry Collaboration or I.A.I. is emerging as a key growth area in the context of academic value addition and value integration that would inadvertently supplement conventional classroom learning of traditional education formats. A mutually integrative engagement model for I.A.I. is illustrated as Collaborative Engagement for Organizational Development and Employability (CODE) in this paper. Thereupon to infuse a fresh perspective across various competitive skills desired by the employers, in the categories of hard and soft skills, with a blend of basic and advanced life skill traits; various subset elements of graduate employability are grouped to develop a graphical perspective of an Employability Skill Traits Management Quotient (ESMQ). This paper contains the concept proposal, structure, synthesis and theoretical analysis of the ESMQ model, from various organizational frames of references. It is believed that the proposed ESMQ Model would assist in designing varying levels of training interventions, through Accelerated Learning Programs (ALPs) that would distinctly enhance the overall employability of graduating students; consequently making them ready for speedy absorption in Businesses and Industry.

Keywords: Graduate employability, University industry collaboration, Employability skills, Hard and soft skills, Competency, Higher education, Skill training, Quotient.

1. INTRODUCTION :

Over the past 3 centuries, from the beginning of mechanization with the use of steam for power (Industry 1.0), way back in 17th and 18th century; to mass production in 19th century (Industry 2.0); later on advances made in automation, electronics, computers, internet and Biosciences have been seen in the recent past of 20th century (Industry 3.0). [1], [3: *(pp.33-35, 45-48)*], and [4: *(p. v)*]. In one of the most transforming eras of human history, the world could be witnessing the 4th Industrial Revolution, across a spectrum of inventions, and innovations in Information Technology, Bio-Technology, Nanotechnology, Artificial Intelligence and Autonomous Robotics; Astrophysics, Cyber-Physical Systems, Augmented Reality, Additive manufacturing-3D printing, as well as discovery of

International Journal of Applied Engineering and Management Letters (IJAEML), ISSN: 2581-7000, Vol. 2, No. 1, January 2018.

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new smart materials and search for extraterrestrial life on Earth 2.0, that are all sifting for sustainable and futuristic development [1], [3: *(p.vii, p. 24)*], [4: *(pp. v-vi & Part 1: Ch-1, pp. 3-10)*], [5].

The macro dynamics of accelerated globalization and techno-automation is posing an ever intensifying challenge to business organizations worldwide, both in terms of improving their overall competitiveness and adopting for sustainable future growth. Influences of integrated e-commerce, disruptive technologies, and Eco-Economic challenges tend to redefine the triad of people, products and processes. Moreover, 4th Industrial Revolution in the 21st century is throwing new employment and employability skill challenges upon organizations and human resources worldwide. In a much more complex, interconnected, multicultural and diverse market fabric today, business organizations continue to face mounting pressures to reinvent and innovate in products, services, and processes with contemporary technologies and management tools, as well as improve their Human Resource productivity both in developed as well as rapidly developing economies [1, 2], [3: *(pp.1-25, Ch-1)*] [4: *(I-Ch-1, pp. 3, 9-22)*]. Furthermore, in the Knowledge and Technology driven economy, in view of the swiftness of skill set disruption, unprecedented rate of change in transforming functional or occupational employability skills and the degree of productive professionalism sought from the many; an integrated and collaborative perspective is necessary towards development of newer skills as well as competencies improvement across organizations and institutions worldwide [3: *(Ch-2, Ch-4, pp. 77- 90)*], [4: *(Part 1: Ch-1)*], [6-10].

Over the past decade or more, several concerns have been published highlighting the widening gap in employment vs. employability skills as well as a pressing need for skill development, improvement in functional as well as vocational domains, on both sides of the academia vs. industry supply chain. Additionally, technical skill shortages, inconsistencies in core work related hard and soft skills and professional competencies especially in developing and emerging countries, has augmented the growing level of difficulty faced by Services as well as Manufacturing businesses in filling job vacancies. No doubt these issues are being actively debated in the academic domain and across governments, businesses, industries, consulting and training organizations in several forums [3, 4, 6-10, 11-16, 17-22, 23-27, 29-37, 38-49]. Eventually, this may need to dwell upon redefining the traditional academic value proposition of professional education, in order to keep abreast with the rapidly changing global business scenario. The role of Higher education in employability skill development (ESD) is equally vital as is primarily for the graduates in the formative stages of their career [9-10, 17, 19, 28, 32, 35, 39, 42, 57-67].

Therefore an attempt is made to build a framework for improvement and management of Employability Skill Traits for the professional development of graduates, from various organizational frames of references between Education and Industry sectors, i.e. regarding acquired education qualification (Knowledge, Skills, Ability, and Attitude) and their practicality in core-work related employability skill sets, sought by businesses or industry employer [4, 6-10, 19, 24-27, 28-33, 34-56, 85-91]. Nevertheless, it is believed that in the dynamic perspective of employability paradigm and collective wisdom of worthy authors, a meaningful collaboration, integration and *"The Scholarship of Engagement"* (*Boyer L. Ernest, 1996)*, between higher education and industry, as well governments will contribute to the 'employability skill development' (ESD) efforts and reinforce the academic value chain of higher education [9-10, 17-22, 35, 39, 55, 58-64, 78, 87-91, 109-116, 124-132].

It is in this backdrop, an effort is made to conceptualize and structure an integrative collaborative engagement, between Academia and Industry i.e. Universities Industry Collaboration or Industry Academia Interface (I.A.I.). An illustration of Collaborative engagement for Organization Development and Employability (CODE) for value addition and value integration, between Industry and Academia, and vice versa is proposed in this paper as a prelude to Employability Skill traits Management Quotient (ESMQ) [9-10, 58-62, 135-160]. Subsequently, a perspective of the conceptual model of ESMQ is illustrated both in tabular and graphical format, that would include the four sub-groupings or categories named as Intellectual Skill traits Management Quotient (ISMQ), Technical Skill traits Management Quotient (TSMQ), Professional/Functional Skill traits Management Quotient (PSMQ) and Socio-Cultural Skill traits Management Quotient (SCSMQ). Within each skill trait category quotients, various subsets of skill elements have been renamed manually, and a model of

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Employability Skill trait Management Quotient (ESMQ) is described as a non-empirical summation of the subset quotients i.e. ESMQ = $\Sigma ISMQn + \Sigma TSMQn + \Sigma PSMQn + \Sigma SCSMQn$.

2. RESEARCH OBJECTIVES :

Primarily, the concept proposal attempts to construct an Employability Skill traits Management Quotient (ESMQ) framework with a purpose to align the ESD efforts of graduates in higher education with industry. For this, the paper begins with identifying major capacity enhancing engagement categories between academia and industry, which would strengthen the academic value delivery of Higher education. Thereupon a synthesis of ESMQ integrated with CODE (Collaborative engagements for Organization Development and Employability) is structured.

To contribute to existing knowledge literature by the ESMQ model which would assist in designing appropriate training interventions through Accelerated Learning Programs (ALPs) beyond routine, for improving the professional development of graduates and prospective employees. The model will guide to manage the employability of individual employees and contribute to the overall productivity of an organization.

3. RESEARCH METHODOLOGY/APPROACH :

Qualitative research is initially adopted to develop a theoretical conceptual framework of employability skill traits management quotient, with exploratory inputs from secondary data, published reports, literature review, group interviews, brain storming and jury of expert opinion, which has contributed to the consolidation of this concept.

Limitations: (i) Quantitative and Empirical investigation of the ESMQ model and CODE engagement correlations, linkages with skill trait quotients as well as sub skill elements is recommended and proposed in differential context of industry sectors and functions for future in-depth understanding.

(ii) Notwithstanding in view of the vastness of industry sector domains and job functions across businesses, requiring varying types of core work related skill sets at different career levels, the degree and intensity of elemental skill units, within a subset group of skill trait, would need a wide-ranging, yet focused and exhaustive research insight.

4. LITERATURE REVIEW :

4.1 Employability Paradigms:

Graduate employability and skill enhancement effort is subject of active research, with an ever growing contribution from a multitude of researchers and authors worldwide for almost the past century [74, 79, 82]. Over past couple of decades, extensive reflection on the terminology, meaning, nature, descriptions and composition on the term employability in a wide variety of context indicates the dynamic character of employability. Although cited modestly herein, definitely the contributions of many avid and esteemed authors are humbly appreciated and treasured through their published contributions [8-10, 28, 32-35, 48, 55, 65-87, 89-91, 100-104, 115-117, & 128].

International Labour Organisation (ILO) adopted definition of the term '**employability**,' "*relates to portable competencies and qualifications that enhance an individual's capacity to make use of the education and training opportunities available in order to secure and retain decent work, to progress within the enterprise and between jobs, and to cope with changing technology and labour market conditions*" [Adopted from 75].

To improve deeper understanding about employability, as well as its determinants, dimensions, related factors and measurements; various research approaches, relationship constructs, psycho-social correlates and cultural dispositions have been well researched and recommended nicely. Illuminating a few: For instance, studies of split brain theory and analysis of occupational behaviours according to hemispheric brain functions i.e. "*Application of Lateral Brain research to the Employability Quotient…*" (Toldson, 1982) indicate the influence of Right brain on occupational futuring. The study emphasizes balancing the Left and Right brain regulated traits in determining the cognitive, affective and psychomotor employability skills necessary for effective job behavior; viz. numerical, sequential, propositional, analytical and logical capacities of left mind with measures of creativity, empathy,

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imaginative etc of the right side [8]. Way back in 1996, Betsy Collard et al. examined the transformative effects of workplace changes on the traditional career development programs, eventually suggesting need of 'Career Resilience and Career Self Reliance' for a healthy career planning [70].

Hillage and Pollard (1998) methodologically trace employability to describe the meaning, elements, components, framework, model and measurement on employability. They examined the four main constituent elements of employability namely Assets, Deployment, Presentation and Context, thereupon suggesting three possible routes to measuring employability i.e. Input, Perception and Outcome measures; finally concluding that, '*employability is a two sided equation*' [71]. Whereas comparing Individual and Institutional employability evaluations, Lee Harvey (2001) explores fragile link between Employability Skill Development (ESD) opportunities provided in educational institutions, their operational measurements, contrasting with graduate employment outcomes; finally suggesting a relevant Employability Quality Audit of the ESD Process [72]. Rather on the term 'employability', Forrier and Sels (2003) focussed on its process to conceptualise 'the employability process model' and defined its components and factors, which influence the chances of an individual in gaining employment during job transitions, internally or externally (such as Labour market position, Movement capital & its variables, Ease of movement, Context, Transition, Willingness to move, Shock Events, Activities and opportunities enhancing the movement capital of an Individual, etc.) [73].

Grip and Sanders (2004) bring in industry sector's perspective for the benefit of organizations and stakeholders, to develop an Industry Employability Index (IEI), wherein an Individual's employability is related to the 'Need' and 'Current opportunities to effectuate employability' in the his/her industry sector, (inclusive of their sub-factors) [74]. Whereas Fugate and Ashforth (2004) argue to understand an individual's employability in context of many personal constructs (Career identity, Personal adaptability, Social & Human capital), that would assist individuals to proactively align and adapt their career to the changes happening in their work domain [76].

In the book, *The Mismanagement of Talent'*, while describing the 'the duality of employability*',* in relative, absolute and subjective dimensions, the authors also vividly quote; *"Employability signifies a progressive movement that celebrates the liberation of the individual from reliance on the paternalism of the bureaucratic corporation. Employability not only reflects the new realities of business, but also changing lifestyles and cultural values"* (Brown & Hesketh 2004, pp.19 & 24) [10].

McQuaid and Lindsay (2005) illustrated their own 'holistic' framework of individual's employability, comprising of three main influencing and related components, namely Individual factors, Personal Circumstances and External factors that were exhaustively illustrated in Table 1, with examples and sub elements [77: (*pp. 209-213*)].

Van der Heijden et al., (2006) bring in a resource based competency approach to individual's employability, with qualitative discussions on research done upon 'competences', HRM approaches, 'human resource advantage' and organization's sustained competitive advantage. Distinguishing between skills and competencies, the authors brilliantly elaborate and conceptualize 'Competence based Employability' with its five dimensions, (Occupational Expertise, Anticipation & Optimization, Personal Flexibility, Corporate Sense, and Balance), that would benefit both, the individual and organization [79].

Exploring the perceptive dissimilarity about employability, Clarke and Patrickson (2008) discuss these differences as *Transitional vs. Functional* between employee and employer respectively. They also examine the explicit & implicit assumptions about responsibilities and benefits of employability, eventually to find that the nature of written and psychological covenants between employee and organizations are more Transactional and less Relational [83 & 84]. Likewise Louisa Sieber (2008) states that the paradox arises if employer organizations are selective on ESD efforts made in human capital, seeking tangible return on investments made like in fixed assets. She builds a perceptive model of bi-axes Four Quadrants, representing the paradoxical organization and employee needs in diametrically opposite quadrants, subsequently mapping and finding best practices and ESD strategies

International Journal of Applied Engineering and Management Letters (IJAEML), ISSN: 2581-7000, Vol. 2, No. 1, January 2018.

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that meet the need of both stakeholders in terms of competitive advantage, ROI and Employee development respectively [85].

Hinchliffe and Jolly (2011) dig deeper into the discourse of employability, skills, competencies, and attributes and emphasize on 'Graduate Identity or Profile - as a Complex Capability Set'; encompassing Values, Social engagement, Intellect and Performance, which enables potential range of functioning, varying across respective employment domains, subsequently transforming into a 'Professional - Oriented Identify' [28].

A systematic literature review to better understand 'employability', from several available conceptualizations, by Williams S. et al., (2015) identified key employability dimensions and their subcomponents as 'Capital'- (Human, Social, Cultural and Psychological); 'Career Management'- (Signalling and Self management-career identity); and third 'Contextual Components'- (such as micro dynamic environmental circumstances viz. employment & skill demand, individual's demographics, personal circumstances, access to opportunities and mobility) [67].

Similarly Guilbert et al., (2015) restate the interactivity of 'employability' and its dynamic fuzzy characteristics mentioned by Gazier (1998), while discussing axes of many employability studies, stakes and concepts. Thereupon, to address employability and un-employability paradox, they emphasize the importance of adopting an integrative systemic approach to the researched interpretations and dimensions of employability constructs; by considering the individual, organizational, educational-governmental angles, corroborated with socio-cultural, economical and technological context, in the agendas, models, policies, procedures, processes, operations, programs, and curriculums of stakeholders [68].

David Finch et al., (2016) elucidate Integrated Dynamic Capabilities view of 'employability', which comprises of five interdependent resource categories: Intelligence resources, Personality resources, Meta-skill resources, and Job-specific resources. Also, on the lines, organizations achieve a strategic advantage from resources and dynamic capabilities; they contend adopting similar strategies for graduates to build Employability advantage. Thereupon they illustrate conceptual models of IDC and another for its future research [55: *(p. 67&74)*].

4.2 Employability Mosaic:

A mosaic of conceptualizations, frameworks, linkages, and models proposed in several type of research illustrate an 'employability ~ meta-form', that assists in designing and developing employability-embedded curriculums, especially in Higher Education Institutions, (HEIs). For example, Peter Knight and Yorke M (2002, 2003) create a synergic blend of capability view from personal qualities, diverse skills and disciplinary understanding in their 'USEM' Model: {subject Understanding, Skills (subject-specific & generic), Efficacy beliefs (self-theories, efficacy and beliefs) and Meta-cognition (including reflection)} [110, 114]. While Lee Harvey (2005) deliberate upon 'Model of Graduate Employability Development' involving employability development opportunities, central support, attribute development, work experience, etc. [113].

To overcome the frustrating effects of the disaggregated style of academic management, David Rae (2007) proposes connecting "Enterprise and Employability" in an integrated and coherent engagement that is stewarded by Institutional Leadership keeping 'employability' context as a core focal point. Thereupon the author illustrates a five strand approach model for practical implementation involving Personal development, Applied learning, Skill development, Work based learning and Career management [115]. Whereas Pool and Swell (2007, 2014) suggest a metaphorical model of employability: "CareerEDGE" {Career development learning, Experience (work & life), Degree subject knowledge understanding & skills, Generic Skills and Emotional Intelligence}, and subsequently introduce the factor structure of a "CareerEDGE Employability Development Profile" (EDP) [81: *(pp. 280-281)*], [92]. While Su and Zhang (2015) investigate factor characteristics influencing the graduates' employability in China and propose a qualitative model to measure employability indicators (1st & 2nd level) of Chinese graduates [93: *p.5*].

Using confirmatory factor analysis (CFA) and structural equation modelling (SEM), Denise Jackson (2016) models 'Graduate Skill Transfer' and suggests a compelling need of process-oriented approach over outcome focused approach to the employability skills acquisition and transfer from university to

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the workplace [130]. The Higher Education Academy (UK) offers a comprehensive collection of handbooks, manuals and reports on employability for practitioners in HEIs [41, 69, 78, 114, 116, 121].

4.3 Employability Reflections:

Exhaustive in-depth analysis, correlations, normology and anthology of connotations respective to Knowledge, Learning, Skills, Attitudes, Abilities, Capabilities, Behaviours and Competencies forming an employability concoction, in their contextual transformation and manifestation from various frames of references indicate the complexity of 'employability skills traits' and the magnanimity of their developmental efforts. However, differences in perspectives and expectations concerning employability, from the graduate student, teaching faculties and employers expectations is evidently noticeable across job functions and employment domains [11-16, 24-48]. Thus the ever growing debate on the role for career management and employability skill development (ESD), through several arguments establishes the graduate centricities, nonetheless emphasizing the collective responsibility of stakeholders [29-32, 37-38, 55-57, 61-66, 78-79, 88-94, 115, 118, 132].

For instance, perceptual comparison study among graduates, teachers and employers, for employability indicators establishes the gap between relative importance of graduate capabilities, weighed against the extent of their development, during the course experience (Oliver et al., 2010) [26]. Another investigative study indicates varying levels of gap in perceptions and actuality about employability skills among employers, university lecturers and graduates for entry-level jobs (Wickramasinghe et al., 2010) [27]. Related contention is drawn by Pratama (2015) about the differences in academician's and practitioner's view in accounting profession (i.e. based on theory vs. practical experience and business requirements) [51].

While Hum Chan (2013) in a qualitative study conducted in Cambodia, finds the gap between 'business management curriculum and employability requirements' due to four key factors (insufficient enforcement by government, perception gap toward skills development, scarcity of resources, and information gap between industry and HEI's towards skill and curriculum development), [47]. Maripaz and Imam (2016) add to the knowledge pool by correlating the employee skill competence with its contextual job performance, [54]. Whereas Cai (2012) suggests improving employment of graduates by influencing employers' beliefs about international education output and employability, by expanding Bailly's framework and including dynamic aspects of social & public learning, initial signalling effects and other exogenous factors with insights from the new institutionalism concept [29].

Alex Tymon (2013) deliberates upon the nebulous spectrum of work done in understanding graduate's view on employability and its limited alignment with other stakeholder groups; while also doubting the extent higher education's role and possibility of developing myriad variety of skills and attributes in practice, [30]. Moreover graduate's self awareness, self management responsibility and conviction about their career expectations, life goals, personal development needs reflect upon their self-perceived employability, which invariably gets influenced by several factors empirically, Eivis Qenani *et al.*, (2014). Nevertheless career self management responsibility of graduate can be supplemented with ESD efforts within an employability enabling environment created within universities [32]. Notwithstanding ESD and Career Management being individual centric, the facilitative role of higher education and employer organizations as a shared responsibility is apparent as seen in a cross case study research project, involving perspectives of Human Resource practitioners (Stokes, 2013), wherein four major premise of Shared Responsibility, the Power of Learning Attitude, Assessment for Growth, and Resource Availability emerged [31].

4.4 Employability Gaps and Occupational Futuring:

In the shadow of employment insecurities and displacements, as well as changes taking place in the world of work and economies at large, [31, 85]; the urgency of augmenting the transformative ESD efforts in the knowledge and technology economy by way of collaborating, integrating, and imparting the futuristic skill sets in millennial generation for better management of their employability is aptly stated. A comprehensive and rich analysis in context of futuristic skill sets and skill stability, specifically for employment skills across industries and geographies is very nicely covered in 'The

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Future of Jobs Report (2016)', by The World Economic Forum, Switzerland [4, 106].

Indeed the exhaustive study in this report aptly uses the concept of skills stability to illustrate the degree to which, by the year 2020, particular occupations and job types are expected to require skills that have hitherto not been part of that occupation's core skill set today. The report stimulates deeper thinking about how governments, businesses, educators, training providers, employers, and workers can manage the transformative impact of disruptive changes due to 4th Industrial Revolution, through enhanced collaborative partnerships for employment, skills, and education [4, 106].

A study by Indeed Inc. 'Labor Market Outlook 2016' suggests that there is an increasing gap between employer's expectation and the employability skills of job seekers. The report suggests, perhaps this gap is fuelled primarily by two types of mismatch viz.: Skills mismatch and Interests misalignment or in other cases, by shortages in the population, owing to aging or migration. Additionally, there is a growing level of difficulty in filling jobs; and almost one third of employers find that talent skill gaps have a medium to high impact on their competitiveness, productivity and ability to serve their clients satisfactorily [12].

In a talent shortage survey by Manpower group, results published indicate that the percentage difficulty of filling jobs in India has risen from 13 % to 61% over last 10 years. The report finds that Indian companies struggle to find suitable employees mostly in Accounting and Finance, IT staff, Technicians, Engineers, Corporate management, Sales and Marketing, Buying and Procurement as well as Teaching and Research. The primary reasons found for such difficulty in filling job vacancies, encompass lack of technical competencies (hard skills), lack of appropriate experience, lack of workplace competencies (soft skills), demand of higher remuneration, overqualified applicants, geographic location, company size & image [11, 12].

According to India Skills Report'16, *(a comprehensive survey and analysis published jointly by CII, Wheebox, Association of Indian universities, People strong and LinkedIn)*, most of the top skill space required by employers was in 4 primary skill types: Domain Expertise (28%), Integrity values and result orientation (27%), Learning agility and interpersonal skills (18%), Numerical and Logical ability (9%). This was followed with Cultural Fitment (8%), Communication (6%) and Adaptability (4 %). However, the results of India Skills Report'17, shows that the emphasis is tilting towards Communication up at 14 % in 2017 [14, 15].

Will it be right to assume that the Businesses and Industry have a nagging perception of overpromise and under delivery of the value proposition from their academic value chain partners? Whether does it mean there were redundancies in academic value addition, perhaps due to "stresses and resource constraints" in education management, policy framework or regulatory stipulations? Or will it be appropriate to presume that contrary to the way the concepts and theories are taught in classroom factories; the Millennial graduating student needs a different education product mix, with a futuristic academic value proposition toward an 'Employability Competitive Advantage' (ECA)?

While deliberating there seems a broad agreement to look beyond purely academic success, qualifications and credentials towards a collective, shared and holistic ESD effort for improving graduate employability traits, consequently enabling the students to meet the challenges of existing and future employment market. Government's action in policy and regulatory framework reforms and quality interventions continues to be debated for stimulating ESD initiatives across stakeholders; in order to prepare individuals to manage their "Employability Quotient" effectively, thus be self employable, progressive, innovative and entrepreneurial. Most importantly the foundational mutual partnerships, per say "the scholarship of engagements" in University Industry collaboration, beyond their respective boundaries, suggest immense scope and opportunities to be harnessed for creating, delivering and capturing the value of Knowledge and Resources together [60, 135-163].

Congregated reflections of concerns on the widening employability skill gaps and need for interventions required at policy, strategic, tactical and operational levels towards the functional/ vocational/ professional/ technical/ socio-cultural ESD domains, in emerging and developing economies, indicate the monumental task in front of the respective governments, organizations, and institutions worldwide in order to steer the human capital effectively in the 21st century.

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Thus progressing the employability debate; "The fluidity of 'employability' streams with the market, academia, society and the global situation, nonetheless Graduates progressively learn to swim one's career through ongoing learning and development, in a world that is in constant redefinition." [70, 76, 126]

5. INDUSTRY & ACADEMIA :

Current Job Scenario in India is highly competitive and professionally demanding. Companies are demanding more and more in terms of skills and competencies from Management and Engineering students graduating from Universities and Colleges. Beyond classroom learning, graduating engineers and management students have to multi-skill, multitask and train themselves with contemporary techniques for a professional career, in order to survive and succeed in any organization.

For instance in B2B (Business to Business Context), it's usually the engineering background managers, who do Techno Commercial dealings with Key customers from different backgrounds. Technology driven value engineering in products and services put together, make such jobs equally demanding and challenging. Engineers not only have to specialize in their core technical discipline, but also have to actively engage with B2B buying centre members, understand B2B Procurement Process, interface with end to end clients and demonstrate in depth techno-commercial acumen, product and service application knowledge, critical thinking, analytical, logical mathematical reasoning ability as well as hands on understanding of domain business practices.

Similarly across various professional jobs, organizations at the basic expect employees to demonstrate industry awareness, business commercial acumen, technology adaptability, leadership skills and interpersonal relationship smartness, which are supplemented with emotional intelligence / maturity in order to work comfortably in teams. Additionally, employers look for cognitive flexibility, 'task-activity-effort-result' orientation and seek resource management ability with a problem solving attitude and negotiating aptitude in the prospective job seekers. To steer across various internal and external challenges, organizations make an effort to build a successive human resource pool that possesses a constructive leadership aptitude and system wide decision making skill traits, aided with innovative creative talent, envisioning perpetually self motivated teams engaged in a throughput enhancing momentum towards the strategic goals of the organization.

It is worthwhile to realize that organizations alone cannot create jobs for work welfare, conversely the competitive pressures requiring them to pursue certain quality of skills and expertise in the employability of job seekers. Beyond the traditional premise of employment security, apparently the manifestation of unemployment per say is also changing from mere-'availability to work', 'actively seeking work', then 'adaptability to work' to 'employability and competency for work' and 'entrepreneurial aptitudes' [23, 31-35, 56,114-134].

The role of national governments in policy restructuring, fiscal budgetary allocations and institutional support in skill development and training is paramount to steward the millennial employability efforts and overcome the deficit of corporate ready, Professionally Employable Human Resource [PEHR], rather than Qualified yet not employable workforce as generally witnessed in the emerging and developing economies. Notwithstanding the unorganized and fragmented Training Industry, that is preoccupied with a huge incubation training demand from growing Indian businesses and industry, that are ready to spend on training and development; the education industry, must capitalize upon this golden opportunity in the knowledge economy, by increasing the 'academic value through-put' for its stake holders.

6. GRADUATE ATTRIBUTES - EDUCATION, KNOWLEDGE, SKILLS, COMPETENCIES, & EMPLOYABILITY :

The process of learning should result in visible changes in behaviour and performance of a learner. In the education sector, the reference to skills may tend to lay emphasis on knowledge acquisition, assimilation and achievement of education outcome in terms of qualification and certification. On the other hand, businesses and industry lay emphasis on the practicality of acquired credentials in terms of capabilities or competencies expected from a graduate student that they may be able to use for a given functional job in an industry domain [4, 10, 51].

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Knowledge, Skills, Ability, and Attitude (KSAA) constitute the basic elements for professional development. Usually, the term skills can mean to refer work-related capabilities of an employee to perform a job successfully. However, skills and ability may differ, wherein ability may refer to more fundamental and enduring attributes of an individual, such as physical or cognitive abilities that are formed over a longer period, often beginning in early childhood education [Adopted from 4 & 106].

- Knowledge- gained / learnt / experienced understanding of concepts. (Explicit & Tacit)
- Skills- Proficiency developed through training, experience, practice and sustained effort to do something well repeatedly and produce results efficiently.
- Ability- physical or cognitive strengths formed over a longer period.
- Attitude- Predisposition manner to handle the circumstances and reaction to the same.
- "Aptitude" practically refers to an innate inborn ability to learn or adapt certain new skills. For example, verbal, numerical or abstract reasoning for cognitive knowledge.
- Competencies-A measurable pattern involving both cognitive & non-cognitive aspects including knowledge, skills, abilities, personality traits, and other characteristics that enables an individual to perform occupational functions successfully (Behavioural, Functional, Professional, Technical etc.) [79, 97, 99, 102, 106, 108, 112,120, 131].
- **Employability**- In this context the paper conceives, Employability as a holistic summation of knowledge, skills, abilities, attitude, behaviour, competencies etc. as composite 'Skill Traits', cultivated with individualistic and normative efforts, which enable them to define their professional career, acquire and manage employment, achieve productive performances, commit value addition to the employer organizations and society, competitively demonstrating a meaningful career progression in their respective micro-dynamic environment.
- **Employability Quotient-** is suggestive of a qualitatively or quantitatively derived index or ratio of various employability skill traits and their sub skill elements respective to a profession or job function in a given employment domain. [8: (*pp. 16)*]

Beyond education for knowledge: For acquiring knowledge qualifications and credentials, professional education needs to develop a deep sense of responsibility among youth and channelize their creative energies for a meaningful choice of profession. Moreover, it is imperative that this choice be fundamentally aligned to the passion and potential of the Student. Qualifications may act as a ticket but not guarantee the experience of career journey. Evidently, this reflects in the shift of education focus from textbook loaded theoretical learning towards Applied and Experiential Learning. The spirit of inquiry, exploration, observation, reasoning, discovery, and exposure are among the many advantages of applied learning plus inclusive of the benefits to influence innovation and entrepreneurship by enabling functional skills confidence [103, 111, 115, 119, 129, 133].

A holistic and vibrant knowledge enablement ecosystem, aided with an entrepreneurial perspective, which simulates functional capabilities, and that is stimulated by hands-on experiential training for professional development, may surely provide an outstanding academic experience to students. This can be further supplemented with exposure to industry domain knowledge, adoption of new teaching and training tools, applied learning for the practice of management concepts, practical training exposure to enhance functional skills consequently improving the operational productivity of student managers and engineers [121-130]. This effort requires a strong and ever-aligning Industry and Academia partnership as a two way collaborative engagement channel on a "common ground" integrated with a "common language" in the knowledge based economy in order to develop mutually beneficial relationships [138].

7. SKILL DEVELOPMENT - INDIAN CONTEXT :

In India, National Skill Development Council (NSDC) is actively engaged in harmonizing the industry sector job skill sets, through National Vocational Qualification Framework (NVQF), which is forming a basis to overcome mismatching perceptions between education providers and employers.

'Skill India Mission' is the backbone to create an eco-system, with a primary objective to overcome rising employability skill gaps for Make in India initiative. The mission spectrum is very vast laterally and vertically spread across several domain sector skill councils. Under the National Skill

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Development Board, the mission endeavours to enhance the productivity, capacity, competitiveness and entrepreneurship skills of young Indians. Appreciating the monumental target of 'Skill India Mission" and the exceeding urgency to make young Indians job-ready, the management of employability is, therefore, essential to overcome youth unemployment and achieve job creation.

Nevertheless, the ESD and management efforts are not just limited to academia or individual itself at the formative stages of graduates; rather extrapolated by invested and collaborative efforts from various partners collectively, involved in tertiary education, apprentice training, and ESD. Several reports, by regions, sectors, and clusters are published in this regard for respective skill development initiatives are available online [17-22].

Furthermore, within the realm of evolving and changing the matrix of Indian Educational Institutions, a redefining focus to augment the academic value proposition is the urgency of today. Be it applied learning, adaptive pedagogy, quality of curriculum or employability of graduating students, or else making tremendous efforts in providing an Industry centric, international quality, exhilarating education experience to Millennial (Gen-Z) students, as well as competing globally through academic research productivity, while invoking faculty accountability on building expertise through applied research; It's the moment for Indian academia to gear up collaboratively and collectively in the Data driven Knowledge economy. Hence a fresh perspective and an aligning shift are therefore obligatory to complement the ESD efforts and overcome the widening gap in functional or occupational employability skills among graduating students, especially in the emerging and developing economies.

8. SYNTHESIZING THE CONCEPT :

(1) Collaborative Engagements between Industry and Academia:
To develop capacity enhancing linkages between businesses, industry, training and education, a systematic as well as structured approach towards collaborative engagements are perceived keeping in mind the Industry Academia Interface (I.A.I.) and that can be looked from both aspects of industry and academia for value addition and value integration, [135-160]. A graphical perspective of value addition and value integration for collaborative engagement is shown in Figure 1.
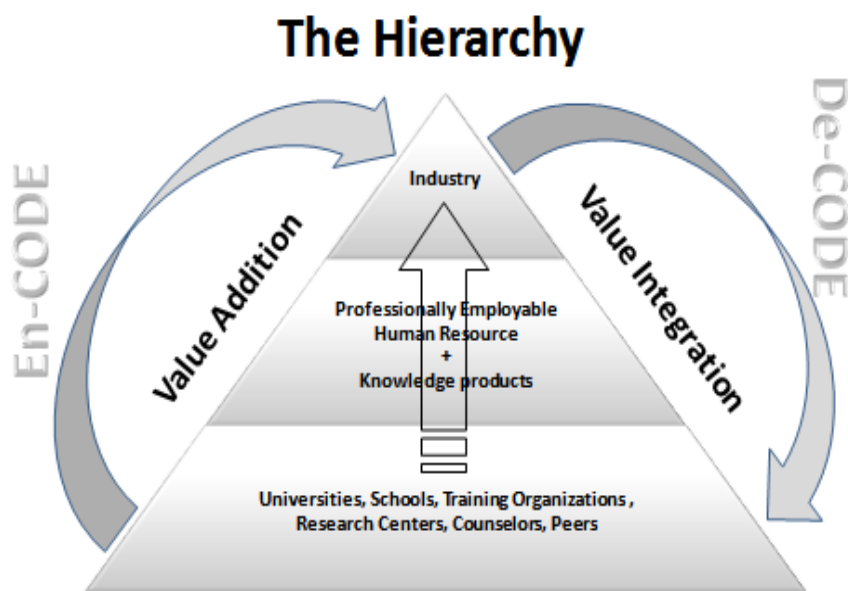

Figure 1: A graphical perspective of value addition and value integration

(2) Value Proposition:
    (A) En-CODE: From Campus to Corporate for Value Addition.
    (B) De-CODE: From Corporate to Campus for Value Integration

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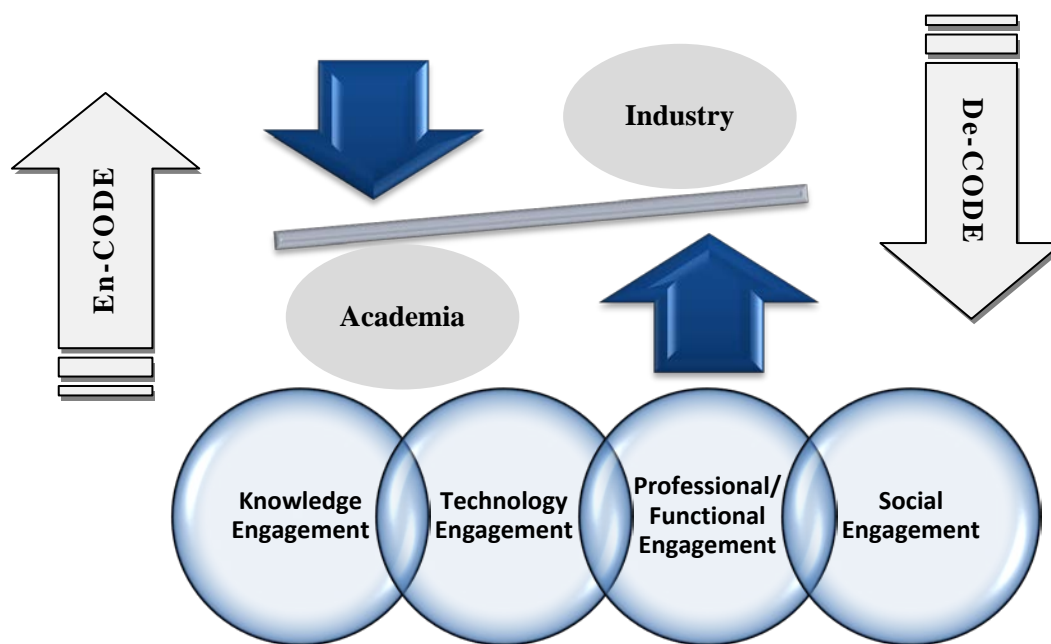
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Figure 2: A graphical perspective of Industry Academia Interface (I.A.I)

(3) Collaborative engagement for Organization Development and Employability (CODE): This includes four types of engagements that are classified as 1) Knowledge engagements, 2) Technology engagements, 3) Professional/Functional engagements, and 4) Socio-Cultural engagements. The same is illustrated in a graphical perspective in Figure 2.

C.O.D.E. = En-Code + De-Code [Resource and Knowledge Products respectively]. Approaches for C.O.D.E. methodology are categorized as resource based and knowledge based and described in Figure 3.

	Industry side Impact	Society side Impact	
Student Side Impact	Professionally Employable Human Resource	Qualified and Progressive Human Resource- Educational certifications	Resource based Products (En-Code)
Faculty Side Impact	Useful Knowledge for finding solutions to the problems of industry, businesses, and society	Offer solutions to the most pressing problems (may bring in the reality of future today)	Knowledge based Products (De-Code)

Figure 3: A quadrant of Resource based (En-Code) and Knowledge based (De-Code) view

8.1 Resource Based – Student Side Impact: <u>En-Code:</u>

Redefining academic value proposition through applied learning and accelerated training to provide an experiential exposure for professional development of graduating students and improving their overall employability can be one approach; i.e. value addition beyond knowledge acquisition and qualification credentials, towards professionally employable human resource [PEHR] [9]. In other words to become a competitive green channel resource provider, rather than just producing qualified

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yet not employable workforce. Here it can be referred to as producing a progressive, high on employability skills, professionalism, business maturity and technically smart, productive young Indian Executive: En-CODE.

On the graduating student side, for their professional development, co-relating the four collaborative engagements with Functional (Professional) performance and Relationship performance; a conceptual Four Quadrant construct of Employability Skill traits Management Quotient (ESMQ) is proposed with its following sub categories (refer to Figure 4, 5, 6).

1. Intellectual Skill traits Management Quotient: ISMQ
2. Technical Skill traits Management Quotient: TSMQ
3. Professional or Functional Skill traits Management Quotient: PSMQ
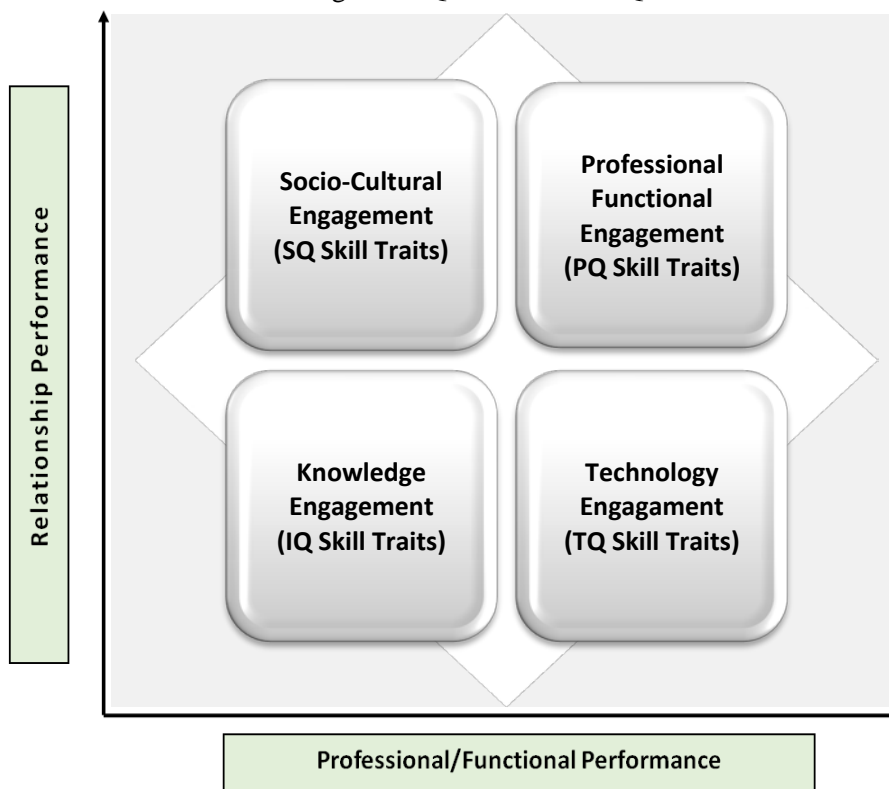4. Socio-cultural Skill traits Management Quotient: SCSMQ

Figure 4: Co-relating engagements with employability skill traits

On the lines of 'The Future of Jobs Report' [4], an attempt is made to manually reproduce and rename employability skill traits, mapping to collaborative engagements and combine them for inclusion into respective quotients. Moreover, for flexibility and adaptability, each sub-skill trait set, can be a group of elemental core work related skills, respective to a given function or domain [4, 95-99, 102-109]. A tabular (Fig: 5), and graphical (Fig: 6) representation of ESMQ is illustrated below.

{Note: Numerous groupings and categorization of skill types, capabilities, competencies and traits that comprise employability were listed in referenced articles; however the relative importance of each will fluctuate in different demographics, organizational and work settings, (10). Notwithstanding a range of skill-occupation combinations, the analysis in the 'The Future of Jobs Report', found an empirically derived commonality of most frequently cited core set of 35 work-relevant skills and abilities from across occupations and job families in the O*NET database (Two recognized reference systems, ISCO and O*NET Model, offer an extensive repository of core work related skills classifications and occupations widely used by researchers.}; [4, 10, 106, 108].

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Levels	Intellectual Skill Traits	Technical Skills Traits	Professional Skill Traits	Socio-Cultural Skill Traits
EMQ1	Conceptual Knowledge Clarity	IT & Computation skill assets	Functional/ Vocational skill capability	Soft skills, Emotional Intelligence and Socio cultural Etiquettes
EMQ2	Knowledge Application capabilities	Technical competencies in functional area	Professional Acumen and Productive result orientation	Socio-cultural responsibility, Ethics, Integrity and Leadership
EMQ3	Functional Subject area Research	Resource and operations optimization competence	Business and Economics maturity	Societal and Corporate Peer Networking,
EMQ4	Industry domain depth	Technology integration and Management capabilities	Innovative and Entrepreneurial astuteness	Community integration, Training and futuristic development

Figure 5: Essential elements of ESMQ Model. (Tabular)

ESMQ is proposed to be a non-quantitative summation of varying elements of Skill traits respective to a given Function in a given Domain i.e. ESMQ=∑ISMQn + ∑TSMQn +∑PSMQn +∑SCSMQn.

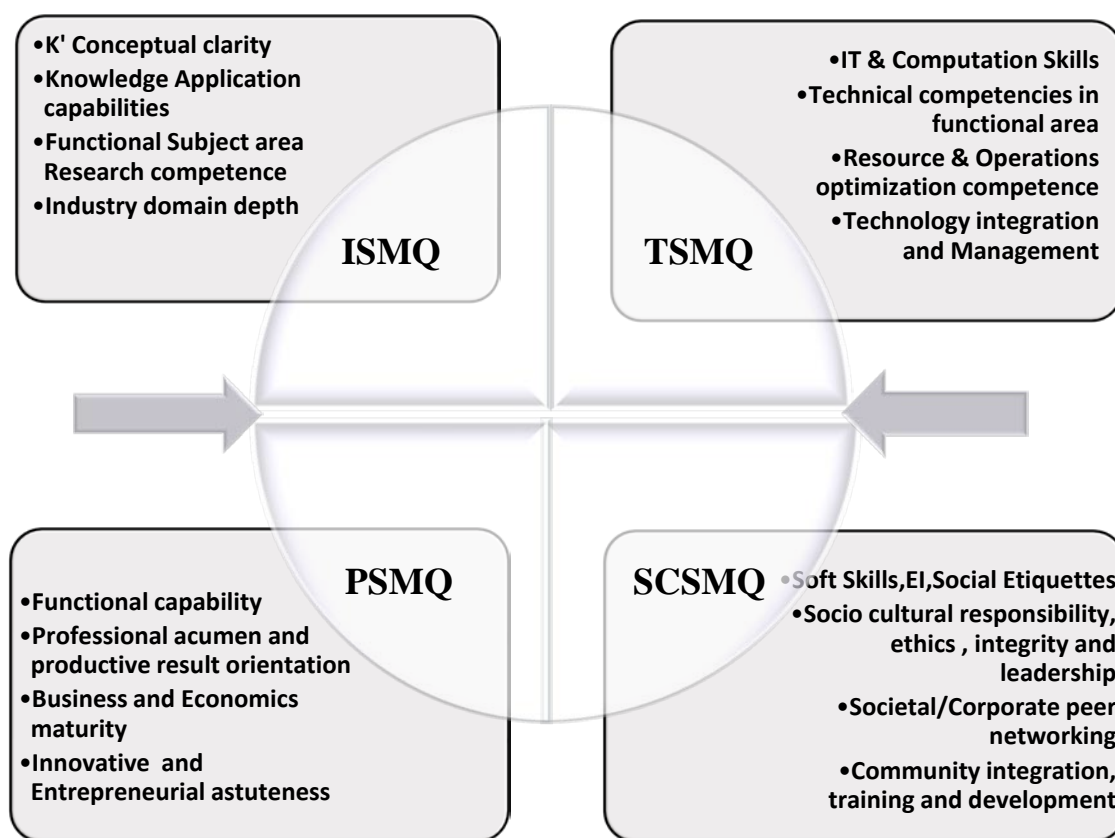**Figure 6:** Essential elemenets of ESMQ Model. (Graphical)

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8.2 Knowledge Based- Faculty Side Impact:
De-Code:
Co-relating the four collaborative engagements on the Faculty side for producing superior knowledge through applied research useful to businesses, industry, and society, for finding solutions to their pressing problems and offering innovations that may bring in the reality of future today, could be another approach; i.e. value integration beyond academic asset for building intellectual capital with collaborative engagements for organizational development and sustainable growth of businesses, industry and society as a whole [135-160].

"Determine the knowledge and expertise required to perform effectively, organize it, make the requisite knowledge available, 'package' it (in training courses, procedures manuals or knowledge-based systems, for example) and distribute it to the relevant points of action." (Adopted from page 402: Karl M Wiig, (1997) [135].

From an intrinsic and extrinsic viewpoint of conceptualizing, creating, communicating, delivering and capturing the value of knowledge, expertise, skills, competencies and resources through collaboration within and among academia; four Knowledge product lines are proposed for value integration between industry and academia. Here it may refer but not limiting to packaging knowledge and expertise from research, consulting, techno-management solutions, and trainings to Businesses and Industry: De-CODE (refer to Fig 7, below for De-Code - Knowledge opportunity product categories).
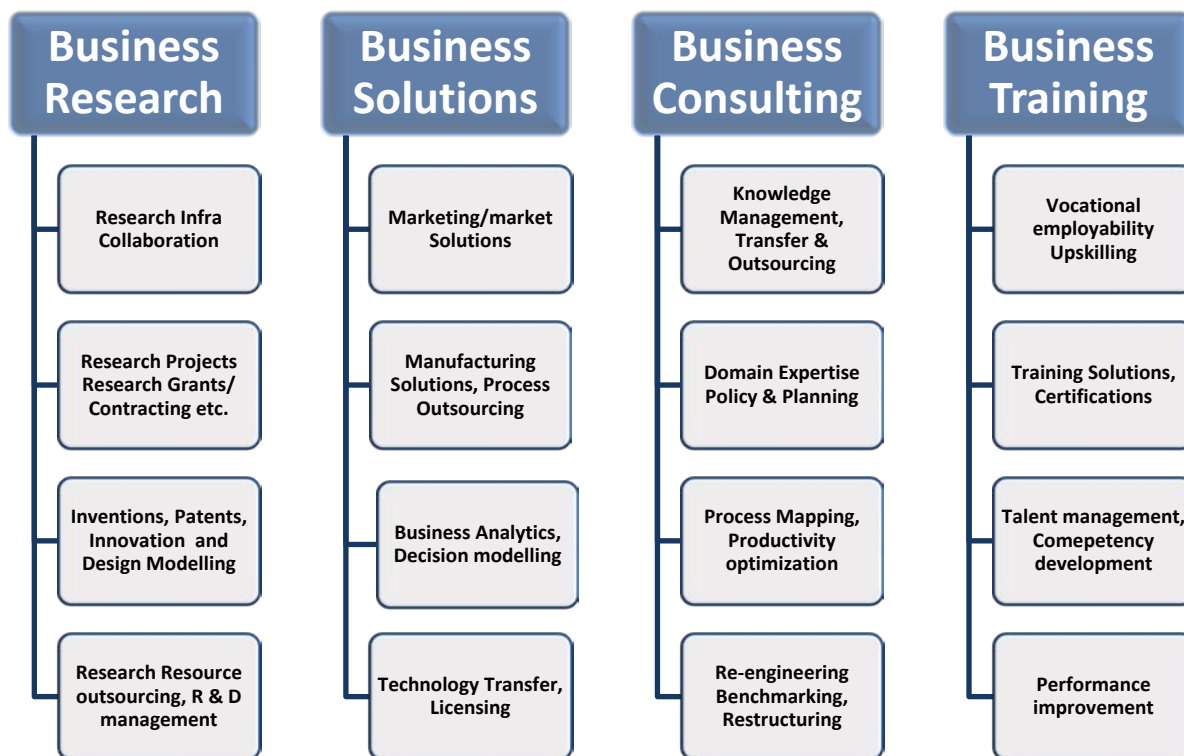

Business Research	**Business Solutions**	**Business Consulting**	**Business Training**
Research Infra Collaboration	Marketing/market Solutions	Knowledge Management, Transfer & Outsourcing	Vocational employability Upskilling
Research Projects Research Grants/ Contracting etc.	Manufacturing Solutions, Process Outsourcing	Domain Expertise Policy & Planning	Training Solutions, Certifications
Inventions, Patents, Innovation and Design Modelling	Business Analytics, Decision modelling	Process Mapping, Productivity optimization	Talent management, Comepetency development
Research Resource outsourcing, R & D management	Technology Transfer, Licensing	Re-engineering Benchmarking, Restructuring	Performance improvement

Figure 7: Knowledge products categories illustrated as four vertical product lines (De-Code)

8.3 Combining Resource Based and Knowledge Based Components for the Industry Academia Interface (I.A.I.): Integrating En-Code and De-Code, the collective goal shall be to build a competitive and collaborative value adding partnership by harvesting and delivering Value of Knowledge and Resources to Industry and Society, i.e. expanding the existing knowledge platform for a wider intellectual and resource spectrum. Per say with an aim to create productive synergies (alchemy) between University and Industry Sectors, for a mutually profitable relationships that could be prepositioned as a multi lateral intellectual highway for the Technology intensive Knowledge

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Economy; from Academia to Industry and vice versa [9, 58-63, 135-160].
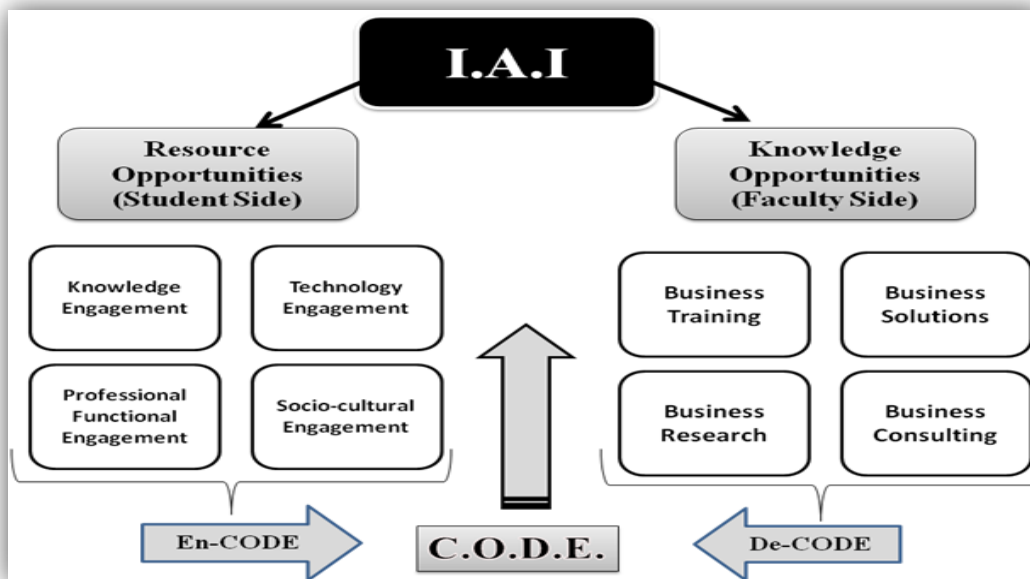

Figure 8: Industry Academia Interface (I.A.I.) mapped to C.O.D.E.

9. ANALYSIS OF THE MODEL :

The proposed model is analysed by listing the features under four constructs Advantages (A), Benefits (B), Constraints (C), and Disadvantages (D) as given below [164-172]. The detailed factor and elemental analysis of the model using ABCD framework [173-185] will be published elsewhere.

9.1 Advantages of the Model: ESMQ as resource based and CODE as Knowledge based framework, brings clarity to refocus value engagements and linkages with Graduate employability and I.A.I. (University Industry Collaboration). The model builds a bilateral connectivity in the contemporary perspective of the evolving university purpose.

The proposed ESMQ tiered at four levels provides a systematic professional development intervention, and prepare students to effectively manage the challenges of competitive, globalized and cross cultural business environment. Alternatively CODE proposes knowledge product lines to channelize faculty efforts towards an evocative 'scholarship of engagement' and contributing to knowledge management of University. Integrated CODE & ESMQ strengthens the academic effort of providing education, developing knowledge as well as contributing to the professional, technological, & socio economic wellbeing of the businesses and citizens in today's knowledge economy.

9.2 Benefits of the Model: CODE channelizes conventional academic effort further beyond knowledge creation, towards knowledge delivery and capturing its commercial value with effective and efficient resource based productivity. The concept suggests looking beyond tuition fees and donations etc, toward alternative sources of potential revenue from knowledge product opportunities, consequently reducing financial pressures on low funded private universities in emerging and developing countries. Additional benefits would result in enhanced reputation, legitimacy, up-skilling, motivation and revitalized direction to traditional academic efforts.

Whereas ESMQ model and levels are facilitative to designing professional development interventions for improving graduate employability through ALPs (Accelerated Learning Programs), thus value adding to the core academic purpose. ESMQ provokes objective training assessments and imbibes ALP's as a regular curriculum engagement for improving the professional skill development efforts of young students for speedy industry absorption.

ESMQ through ALPs exerts to enhance employability confidence in graduates especially average graders, by capacity building and creating interest in components of professional work culture. The 'Four Quadrant ESMQ' levels, implemented through simulative ALP's, modelled around pre-

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exposure to *quasi* work environment; prepares student through practice of developing, refining and demonstrating the relevant employability skill traits. ESMQ, inspires behavioural refinement, self-esteem and "I can do it" attitudinal transformation through peer learning and team competitions. Eventually, ESMQ ignites Leadership behaviour, competent professional conduct and instils youth maturity to commence their career journey on the pathway to success.

9.3 Constraints of the Model: Commercialization threat if not clearly border-lined may affect the autonomous and independent nature of academic work and influence deviating from the fundamental university mission. Development of new skills, competencies, and re-organization of structures, process flows, resource allocation, infrastructure and measures to evaluate workload would need appreciable re-engineering of curriculum and policies for strategic re-alignment within the existing education environment. Sharing of resources, time frames, bureaucratic redundancies and administrative/ academic management may slow down the practical implementation, performance and realization of objectives. Conflict of interest (profit seeking vs. welfare), varying frame of references, overstepping, agreements and contracts, disclosures and restrictions, dispute settlement require legal and regulatory support.

9.4 Disadvantage of the Model: Strengthening of the proposal by improving nomenclature not limiting to the theoretical narrative, quantitative and empirical correlations, experimentation of model, SOPs Handbook/Manual development, as well as comparative benchmarking of best practices is required. Notwithstanding in view of vastness of industry sector domains and job functions across businesses, requiring varying types of core work related skill sets at different career levels, the *degree, intensity and density* of elemental skill units, within a subset group of skill trait quotients, would need a very comprehensive focused and deep research insight, domain sector wise. Alternately, from the academic institutions side, adoption of technology and augmentation of resources for Teaching-Learning, proper Academic Audit and Quality Assurance, and following improved models for Capacity Building, the Quality Enhancement in Higher Education is possible which may improve the employability [186-190].

10. CONCLUSIONS AND RECOMMENDATIONS :

An accelerated learning program (ALP) intervention for supplementing the professional development and grooming of students is based on developing their overall Employability Skill traits. The purpose of such Accelerated Learning Programs (ALPs) should be to inculcate analytical and problem solving skills, with the help of teamwork, leadership development, sharing of fundamental perspectives, conceptual clarity, intellectual rigor and practical fieldwork during the training sessions, gradually conducted in stages from EMQ1 to EMQ4. "ALPs" should go beyond to polish the personality of young graduates and postgraduates to make them city smart in social etiquettes, manners, ethics, emotional maturity and social leadership, thus instilling Community Confidence, encompassing students of various Professional Courses. These endeavours should go beyond classroom teaching as an integrated supplementary periodic intervention customized using ESMQ or as an incubation simulative training which is conducted in a competitive and peer learning mode, using 'LEC-DEM-PRAC-PROV' methodology.

From the perspective of training need assessment, the classification proposed in ESMQ would be versatile for arriving at an appropriate loading of topic/subject/skill specific training methodology in order to design, develop, and deliver an accelerated skill enhancement intervention to a given target audience in a focused manner. ALPs should be designed to target common student cluster groups and enrol them through compulsory participation of ALP workshops that can be integrated into the academic curriculum or semester calendar as a 1, 2, 3-day workshops across varying levels of ESMQ. This can be further supplemented with a "*Four Quadrant Assessment and Grading",* as a mandate for Professional development Certification along with Graduate Qualification award [90].

Emerging and upcoming mid range universities should go beyond the boundaries of their own campuses, reach out to their stakeholders, and thus carve a niche in high growth business verticals in India through applied Research, Training, and Consulting for building their intellectual capital. These efforts will consequently assist organizations in efficiently engineering the knowledge syntheses, into

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processes and products for the benefit of stakeholders.

Endeavouring for Value creation, the internal challenges of implementation and seamless execution within institutions can be only overcome, if a cohesive team is formed that is highly motivated, committed and focused compassionately to the cause of ALPs. Moreover, a change management initiative would be needed to catalyze the motivation level of ALP team for achieving higher quality benchmarks. For a synergetic integration of ALPs into the curriculum, a partnership or bilateral mentorship from Industry to Academia and vice versa shall become a common forum for improvements and future alignment. Industry Mentor's central role will be vital to infuse energy through coaching and mentoring.

All the above multidirectional efforts endeavour to instil confidence into students and sharpen their 'Employability Skill Traits', improve their 'ESMQ' and enhance their 'ECA'. In nutshell, these efforts *"humbly focus upon cultivating Leaders and Responsible Corporate Citizens in their chosen Professions"*; so that they can face tougher career challenges in professional life, and eventually sustain their career growth on a long term employment journey, enabling them to come out as a winner.

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