NATIONAL SEMINAR ON
SKILLS & EMPLOYMENT FOR INDUSTRY 4.0

Report on
National Seminar on Skills & Employment for Industry 4.0
Held on 12th January 2019
Our Academic Areas

- Accounting
- Finance
- Economics, International Business and Public Policy (Statistics)
- Innovation and Strategy
- Marketing
- Operations, Information and Data
- Organizational Behavior (Leadership, Negotiation, Organizations, HRM)
- Entrepreneurial Management (Family Business)
- General Management (Health Care Management, Legal Studies, Ethics, Social Impact)
- Technology
An Introduction

Courtesy successive government’s efforts, India have cemented its status as a global technological powerhouse. The Government’s determined push on expanding the penetration and use of technology through a slew of policy and executive actions hopes to ensure that technology becomes an integral part of the growth story in India for ever. The focus is markedly different from what it has been for the better part of the 1990s: from adopting technology for creating more employment and growth to technology being more directly employed in catalysing and enabling growth. The present Indian growth story is well positioned to benefit from job creation on the back of greater technological penetration. This premise is primarily driven by the following aspects:

To transform the information revolution to potentially create millions of jobs what is needed is an ecosystem that helps businesses to benefit from technology to drive innovation and growth. To achieve this, India must focus on a comprehensive policy framework that addresses three key pillars in an integrated manner:

- A calibrated national talent management approach through a deeper labour market analysis as talent scarcity, surprisingly or not, is also on the rise.
- Introducing strong elements of technology and innovation into the country’s education curriculum, backed by systematic institutional collaboration.
- Focus on broadening and/or enhancing existing skill development/re-skilling programmes, including planning around job rotation and mobility support (say, along the lines of NSDC and India Skills Initiative being done in collaboration with the WEF).

In order to deliberate on these and related issues IILM Graduate School of Management, Greater Noida hosted the National Seminar on Skills and Employability for Industry 4.0 at its Greater Noida Campus on January 12, 2019 in association with Shree Vishwakarma Skills University and UN Global Compact. The National Seminar was attended by eminent speakers from different parts of India including State and Central University’s Vice Chancellors, Industry, Agriculture, Service Sector representatives and Government representatives. The event also witnessed wide participation from students. Discussions in different sessions that commenced post the inauguration session focused on the following topics:

Session I: Skilling of Workforce for Industry 4.0 – The Role of Government, Academia and Industry
Session II: Linking Curricula to skills of Industry 4.0 – Reforms in Schools and Universities
Session III: Future of Jobs in Agriculture and Sunrise Industry
Session IV: Preparing students for jobs which do not exist currently

Inaugural Function

The Inaugural function started with the ceremonial Lamp Lighting followed by the Welcome Address by Director General Maj.Gen. B. D. Wadhwa . This was followed by Keynote Address delivered by Chief Guest Shri Kashmiri Lal ji. He started his address by quoting that the day 12th January 2019 is
Session I: Skilling of Workforce for Industry 4.0 – The Role of Government, Academia and Industry

Technologies define and influence means of production in an economy. The fourth industrial revolution technologies will redefine industries and also future jobs. Skill sets required by future industry will be markedly different than what we have today. Are we preparing our young people with those skills which will make them future ready? Are we aware about those changes? Industry, Academia and Government have an important role to play to take coordinated actions to promote skills of industry 4.0.
The session was moderated by Mr. Raj Nehru, VC, Shri Vishwakarma Skill University and coordinated by Prof. Rahul K Mishra, Professor of Strategy at IILM Lodhi Road Campus. The prominent speakers for the session included Dr. Bhagwati Prakash (Vice Chancellor, Gautam Buddha University), Mr. Anand Kumar Tiwari (Executive Director, IOCL), Mr. Anil Gupta (Chairman, NEC Technologies Pvt. Ltd.), Mr. Jagat Saha (CEO, Global Network) and Mr. Kamal Singh, Executive Director, United Nations Global Compact Network India.

**Session II: Linking Curricula to skills of Industry 4.0 – Reforms in Schools and Universities**

It is true to say that the world is changing and the pace of change is increasing dramatically every year. The first industrial revolution built on steam power lasted approximately 150 years; the second industrial revolution lasted roughly 100 years, the third industrial revolution shifted power from mainframe computers the size of buildings to mobile handsets that connect individuals across continents instantaneously in 40 years. Now, we have entered Industry 4.0, in a VUCA world, the future will be very different from the workplaces of today. This means that even as traditional jobs begin to disappear, the number of job opportunities in the new industries. Most people in the future will have multi-track careers and they may even have multiple jobs simultaneously; technology will have the potential to liberate us to adapt our careers to reflect our changing priorities. In the age of automation and smart systems, the key to career success will no longer be based solely on specialist knowledge. life-long career success will be based upon key transferable skills that can be leveraged to succeed in businesses, and organizations that probably do not even exist today. This means that the nature of education and the way it is delivered, evaluated will need to change and that the role of schools, colleges and universities – especially universities – will, be very different in the future.

In order to meet these requirements it is incumbent on educational institutions to adapt their curricula to the emerging needs of the Industry 4.0. Steps are to be taken to produce individuals
who are intellectually, spiritually, emotionally and physically balanced and harmonious” to grow & prosper in Industry 4.0.

The moderator of this session Prof. Ashok Aima, Vice-Chancellor, Central University Jammu, resumed the second session with insightful words on how we must relook at curricula to make them more industry relevant.

The Prominent Speakers of this session: Mr. Anil Pokhriyal, CEO, Management & Entrepreneurship and Professional Skill Council, Mr. Hitesh Oberoi, CEO, Infoedge, Mr. Dhananjay, Director General, National HRD Network, Mr. Rajdeep Sehrawat, Head International Business (Public Sector) & Head Strategic Initiatives (Public Sector) at Tata Consultancy Services, Dr.Ritu Bajaj, Registrar, Haryana Vishwakarma Skill University, Dr. Shankar Goenka,CEO, Wow Factor.

Session III: Future of Jobs in Agriculture & Sunrise Industry
Mr. Suresh Prabhu, Hon’ble Minister of Commerce and Industry while addressing a session on ‘Retail’ at the World Food India suggested that Food is the real sunrise industry of future India, and is vital to India’s development, primarily due to the linkages and synergies it promotes between the two pillars of our economy - industry and agriculture. India’s USD 600 Billion food processing industry is expected to grow three-fold by 2020.

In doing so this sector can potentially link the two pillars of the economy; agriculture and manufacturing to create employment and income, with changing demographics, investment in the food value-chain as well as in storage infrastructure, farming, retail and quality control multiple opportunities are being created for jobs. Besides food processing other sunrise industries include hydrogen fuel production, petrochemical industry, space tourism, and online encyclopaedias. Renewable energy alone is going to generate a million jobs by 2022.

The nature of jobs being created today is very different from those being created five years ago. Disruptive technologies such as machine learning, robotics and artificial intelligence have transformed the way business is conducted and as a result, they have also transformed the expectations from the workforce.

Some of the sectors most affected by the skill gap in employees include big data analytics, cloud services, IoT, service delivery automation, robotics, AI, Machine Learning, deep learning and natural language processing. These sectors also offer great promise as future job creators.

The need of the hour is to bring the employment opportunities created in these sectors through skilling of workforce to enhance the attractiveness in the current eco system.
The moderator of the session was Dr Kamal Singh (Executive Director, UN Global Compact Network India) and session coordinator was Dr Taruna Gautam (Director, IILM Graduate School of Management). The prominent speakers for the session included Mr Sunil Marwah (CEO Food Industry, Capacity Building and Skill Initiative), Mr Satish Kumar (Akhil Bhartiya Sah-Vichar Mandal Pramukh, Swadeshi Jagran Manch), Mr Abhishek Pandit (Director AISECT) and Dr Ashwani Mahajan (National Co-Convenor, Swadeshi Jagran Manch).

Session IV: Preparing students for jobs which do not exist currently

The world of work is changing. According to the World Economic Forum, 65% of children entering primary school today will be employed in jobs that do not yet exist. At the same time many jobs which exist today, will become automated by artificial intelligence in the future. In the India skills report 2018, it has been clearly stated that 47 percent of future jobs in India will be in the areas of analytics, artificial intelligence, and robotics.

One of the researcher suggested seven million jobs will disappear within five years, with two million new positions created from the disruption.

New Technologies are emerging and we are increasingly blending work and life for a new reality. New sets of jobs, skills and mindsets are emerging to succeed in an unpredictable culture. Building a skilling system to match the new requirements, a system that responds well to business needs, is the need of the hour.

Majority of education systems continue to deliver an education and curriculum which simply does not reflect the skills, and capabilities required for the world of the future.

So how can educators prepare students for jobs which don’t yet exist rather than equipping them with skills that may soon be obsolete?

We need to provide an answer to how we best prepare and, therefore, adapt within this new paradigm and do so very quickly.

What does India need to do to embrace new technology, create new jobs and meet the requirement of the change scenario? Through strategic planning educational institutes can ensure that their faculty, staff and students are able to adapt to whatever comes next, as well as whatever comes after that. The
student-centred learning pedagogy, value added courses and industry interface would help in the holistic development of youth. We must realign the education system to emphasize skills rather than mere degrees.

The speakers of the session were Mr. Manish Kumar, MD & CEO, National Skill Development Corporation, Lt. Gen. Anil Kapoor, VSM, DG, Information System, Armed Forces, Mr. Umesh Dhal, global Head HR, LG Electronics, Mr. Mayuk Dasgupta, Head-Projects & Alliances (Voc. Edu. & Training), Aditya Birla Group and the session was moderated by Dr. Sujata Shahi, Vice Chancellor, IILM University Gurugram.

**Valedictory Session**

During the end Prof. Bhagwati Prakash Sharma was invited to deliver the Valedictory Address.

**Vote of Thanks**
Dr. Sujata Shahi, Vice Chancellor, IILM University Gurugram delivered vote of thanks to all the esteemed speakers, participants, guests and organisers of the event.

**Other Highlights**

Shehnai Gharana an age-old form of music was played with Tasha. It is believed that the comprehensive music ideology directly affects the thinking, teaching, performance and appreciation of music. The Lucknow Gharana, which is known for delicate thumris were explicit in their eroticism and have been presented intricately.
This section of exhibition portrayed the skills of UP including “Chikankari” a traditional embroidery style of Lucknow’s most ancient and well-known skill forms. The simple and precise handwork on fabric gave it a very subtle, classy feel. The other attractions were the royal handloom, pottery from Khurja and carving on brass which spoke volumes of UP’s rich heritage.

The handmade pottery from Khurja, U.P. was a center of attraction. These art pieces were a source of contemporary vibrancy. Also, the royal carpets had a unique proposition of being naturally dyed and hand printed.
The NGO club presented handmade perfumes, candles, incense sticks and attar made from natural ingredients such as rose, jasmine, balsams, lily made from natural resources like alcohol and non-sticky natural oils.

Rajasthan’s masala chai was a perfect blend of black tea and green tea. As chai is an integral part of Indian life style, Jodhpur’s tea masala amplified the excellent aroma and taste to tea preparations.
Golgappa has always been the favourite snack of our rich Indian Culture. The famous Lucknow’s Panipuri Stall had three different exotic flavours comprising- Hing Pani (Asafoetida Water) Jeera Pani (Cumin seeds Water) LahsunPani (Garlic Water) which was savoured by all.

Aligarh’s most savoured dish Pav Bhaji was enjoyed by folks of all ages. Delicious spicy bhaji was served with butter laden pav and small size chopped onions along with other mouth-licking dishes such as Pav Bhaji, tikki, chholekulche, sarson ka saag with varied sweet dishes including gazar ka halwa.

Key Outcomes and recommendations of the Workshop Key Outcomes
Inaugural session

- Indians continue to be the employees and are still unable to become employers even in this era of technology driven industrial revolution
- India is a cradle of innovation and radical technological change that can reshape our roles from job seekers to job providers and contribute to the nation’s progress.
- They should focus on new inventions and technologies so that India can be the technology initiator rather than an adopter of technologies.
- World’s famous sound system invented by Bose, Sucam inverters, solar lights being invented by a student of IIT Roorkee, and of Mr. Rahul Gupta, who presently runs a company valued at INR 600 Cr.
- Educational institutions needs to nurture young talent and shape their minds in a manner that they can embrace, enhance and perpetuate the immense potential that technology as a domain has ushered in and take the country forward.

Session I: Skilling of workforce for Industry 4.0 - The Role of Government, Academia and Industry

- India has competitive advantages vis-à-vis other nations while competing for a place in the information revolution, there is a need of a quantum jump in investments in research and development.
- There is a need for pioneering work & the need to strive for excellence in the domain of technology research as a prerequisite for redefining our pre-eminence in the fourth industrial revolution.
- Domestic technology development is at the heart of research and innovation in developing countries and significantly increased access to information and communications technology is the only way forward towards developing the technological breakthroughs that we as a nation aspire.
- There is quite a lot of use of data analytics, cloud computing, and the increasing use of technology in the domain of oil and gas management especially in process innovation and reengineering. He further discussed how these new and emerging technologies haveallowed the organization to adapt and upgrade itself with technological developments in similar organizations in India and abroad.
- There is a need to strengthen the link between industry and academia to up-skill the youth for industry4.0 and the need to update the syllabus accordingly.
- Quality education is the foundation of sustainable development, andtherefore of the Sustainable Development Goals. Education is a force multiplier whichenables self-reliance, boosts economic growth by enhancing skills, and improves people’s lives by opening up opportunities for betterlivelihoods.

Session II - Linking Curricula to skills of Industry 4.0 – Reforms in Schools and Universities

- Domain specific skills make a professional qualified enough to get hired and the lack of willingness to change in the dynamic demand of industry and also lack of implementation of required skills can lead to premature retirement from the workforce.
- Skill Industry is acting like a bridge between education and practical working environment.
• Students need to be nurtured for making them corporate ready from school level and curriculum needs to be integrated to make a student understand both the content and context of education.

• Organizations are going through changes in the information age emergence of new brands, and the skills the skills and intellect used by the CEOs in building their big brands the emergence of new brands.

• There is an increasing role of team work, collaborative problem solving and therefore preparing students to solve Interdisciplinary Problems.

• There are challenges in the current curriculum and pedagogy that lacks an element of novelty, enthusiasm and practicality.

• We should focus on learning by doing as opposed to learning by heart and opined that for education to be truly meaningful, we need to have a thorough relook at pedagogy.

• The link between curricula and the industry is weakening for long and the main issue issue is education system; the same curriculum gets repeated without referring to the changes happening in the work place.

• Skill and will are equally important in achieving a dream with one supporting the other.

Session III: Future of Jobs in Agriculture & Sunrise Industry

• Agriculture and Sunrise industry plays a vital role in the development of our nation, not only in the form of employment but also in the form of entrepreneurship.

• India is a country of surplus agricultural production and food processing industry plays a vital role as it takes these surpluses and preserves it for future consumption.

• With the changing manufacturing techniques and internet of things, now companies can easily monitor customer demand which leads to a great opportunity for the entrepreneur to step up and bring about the change.

• The role of business analytics is very important in industry 4.0 and this will be used extensively for decision making.

• A boost to agriculture will also be a boost to women in the workforce as 50-60 % population in India is working in the agriculture sector out of which more than half of the workforce is women.

• Government policy and leveraging technology is motivating farmers to be part of agriculture but still it is very tough to be skilled and generate revenue in agriculture. Alternate sources of revenue and increased efficiency are the only way to make the farmer prosperous and successful.

• Cloud technology, internet of things and skill development training can increase the profitability in the agriculture sector.

• There is a great scope to increase the welfare and income of farmers by encouraging entrepreneurship as India-Agricultural households derive only 43% of their income from agriculture.

• There is no deficiency of employment in India but there is a deficiency of quality of employment in India.

• Fishing and other non-farm activities should be included under the umbrella of agriculture sector in order to increase employment in agriculture.

• Agriculture is India’s strength as India has the most agricultural land available in the world with a total of 15.97 crores hectare.

• Yoga, which was originated in India, is a 90 billion dollar industry but India has only about 19% of this industry. There is a huge potential for India to grow in Yoga Industry.
Session IV: Preparing students for jobs which do not exist currently

- Skills like Analytical Thinking, Creative Approach, Technological Designing, Critical Thinking, Emotional Intelligence and Ideation are in huge demand.
- Intelligence was always there and the key to face the future lies in adaptability and your preparation for how future would be like.
- One should adopt the four C’s - confidence, communication, content and consistency keeping the fundamental intelligence intact.
- India has high youth intelligence level in the world aligned with the large number of population of youth which benefits in the technological revolution.
- Data, Process and Technology are rolled into one to form a modern revolution.
- The eight key drivers towards the Industrial revolution are Disruption; Ability: Think Big, Start Small, Recover Quickly; Look at life as an Amoeba: Small team, small ideas succeed soon; Data: Fuel of Disruption; Information system of system: Be game changer by harvesting and exploiting the information; Application: Increasing number of apps is indicating growth of IT sector; Security: Threat of Cyber Security.
- Jobs in future are going to increase instead of decreasing even if the industry gets under the net of computer machines or robots; it is just the nature of jobs that will be different.
- There can be huge potential of jobs in the sector of renewable energy, usage of IT in agricultural society, usage of big data analytics in health care sector and the financial sector.
- The future jobs will be available only for the skilled candidates who possess skills like decision making, working in diverse teams and cultural sensitivity.

Valedictory Session

- The Cost of technology is declining day by day with the invention of new and upgraded technological enhancements.
- Although the traditional jobs in the market will be wiped out but at the same time, new jobs will come up emerging technologies like Machine Learning, AI, 3D printing, Robotics and so on.
- India under invest in the new technology. There is a need to invest more in the new technology like AI, machine Learning, 3D printing, Robotics and others so that India can provide AI based solutions to the world and increase its overall income.
- India should embarrass the 4th Industrial Revolution with the first mover’s advantage in order to reap the benefits.
- India has more than 600 Private Indian Universities still they are not fully equipped with Computer Hardware to teach modern languages like Python, Big data Algorithms, Machine Learning.
- India can emerge as Food power by feeding almost 500 Crore people across the globe as India possess highest area of cultivable land.
- India should focus on post harvest value addition to produce agricultural food products and increase export of agricultural production.
- Fourth Industrial Revolution will provide golden opportunity to only those who are future ready. The HR should focus on meaningful hiring and engaging of the working age population.
- India only invests 0.8% of GDP on Research & Development.
- There is a wide scope in the Maritime Industry for ship Building and other activities as India is the 3rd largest steel producer in the world.
- The new era of Electric Driver Cars calls for developing an ecosystem for producing manufacturing components within our own Country.
India is still far behind in the Solar Energy Sector where there is a huge potential to grow and develop.

India should invent new avenues for Social Entrepreneurship especially for Traditional Music, Crafts, etc. in an organized manner.

There is a need for a holistic approach for the changes that are likely to come while entering into 4th Revolution in terms of Social, Cultural, Political and Environmental environment.

**Recommendations for the consideration of Government:**

Governments must cultivate as full an understanding of the future as possible, knowing what the opportunities and risks ahead are, as well as what their applications would be to the world, to individual countries, and to the specific workings of government. They need to ensure their countries have the infrastructure in place to benefit from the enormous advantages of technological change.

In the Indian context, the conference brought out the following points:

- A calibrated national talent management approach through a deeper labour market analysis must be at the heart of government intervention.
- Revamping of our education system; introducing a strong element of technology and innovation into education curriculum, backed by systematic institutional collaboration.
- Integrating curriculum from secondary, higher secondary, graduate and post graduate levels so as to ensure that students understand the need/relevance for education and its link with skill building.
- A thorough re-look at pedagogy and enriching content so as to enable individuals who are intellectually, spiritually, emotionally and physically balanced and harmonious to grow & prosper in Industry 4.0.
- Focus on broadening and/or enhancing existing skill development/re-skilling programmes, including investments in sectors most affected by the skill gap (big data analytics, cloud services, IoT, service delivery automation, robotics, AI, Machine Learning, deep learning and natural language processing).
- A student-centered learning pedagogy; value added courses and industry interface that will enable holistic development of the youth. The need of the hour is to realign the education system to emphasize skills rather than mere degrees.

**Recommendations for consideration and Action by Universities:**

India’s demographic dividend has created immense opportunities for educational institutions in the wake of technological and other disruptions. Educational institutions need to focus on creating an Employability Skills enhancement agenda to impart education that will create directly employable graduates, by bridging the gap between industry requirements and academic inputs. The salient features of the agenda need to be:

- Impart knowledge (through curriculum) about contemporary elements of technology by keeping pace with the new disruptions in the industry.
- Inculcate problem solving and creative thinking skills in the students. Well planned courses can be directed towards this.
- Strive for excellence in the domain of technology research, by focussing on enhancing the research skills of students.
• Introduce courses on emotional intelligence and improve competencies based on self which includes people and team orientation, cultural orientation, self awareness and development.
• Emphasise the need to continuously learn new things, invent new things, open new doors, and be constantly interested and inquisitive.
• Focus on Perception Management and produce grounded individuals who are in touch with reality with regard to their expectations from their work environments.
• Standardise procedures and emphasise the value of quality in the teaching learning processes.
• Focus on improving the critical thinking and analytical skills of students.
• Nurture talent in the new and emerging domains of the technology revolution.
• Make students corporate ready.
• Help students identify their strengths and reach their maximum potential, by building on the 4Cs- Confidence, Communication, Content and Consistency.
• Involve corporate practitioners in curriculum building and produce talent which can be directly absorbed by the corporate.

Glimpses of the Seminar