Learning & Development in the Age of Artificial Intelligence

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Rajlakshmi Saikia
Assistant Vice President
Talent Development - GENPACT
Become a member of Indian Society for Training & Development

**Membership Fee**

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<tr>
<th>Category</th>
<th>Entrance Fee</th>
<th>Subscription Fee</th>
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| **Associate Member**              |              |                  |         |           |
| Annual (April-March)              | 300/-        | 400/-            | 126/-   | 826/-     |

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| **Institutional Member**            |              |                  |         |           |
| Annual (April-March)                | 3,000/-      | 10,000/-         | 2,340/- | 15,340/-  |
| Half-Year (Oct-March)               | 3,000/-      | 5,000/-          | 1,440/- | 9,440/-   |
| Permanent                            | 3,000/-      | 75,000/-         | 14,040/-| 92,040/-  |

**Membership Fee Renewal**

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| **Senior Citizen (60 yrs and above)**        |                  |         |           |
| Annual (April-March)                          | 500/-            | 90/-    | 590/-     |
| Conversion fee for Annual Membership to Life  | 3,750/-          | 675/-   | 4,425/-   |
| Membership                                    |                  |         |           |

| **Institutional Member**                     |                  |         |           |
| Annual (April-March)                         | 10,000/-         | 1,800/- | 11,800/-  |
| Half Year (Oct-March)                        | 5,000/-          | 900/-   | 5,900/-   |
| Conversion fee for Annual Institutional Membership to Permanent Membership | 75,000/- | 13,500/- | 88,500/- |

For further details may see society’s website “www.istd.co.in” or contact on Phone No. 011-49077807/ 011-26857157
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Chief Editor's Message

Seamless World Seamless Potential: Exploring the Disruptive Artificial Intelligence

Cognitive Artificial Intelligence, Internet of things and tech revolutions in robotic sciences as well as predictive data analytics are creating fifth wave of change in the business scenario. These disruptive drives in every human endeavor are led with precision, speed and outreach touching new heights and fueling massive transformations. Tim Zanni remarks in emerging tech trends report of KPMG, 2017 that these changes are impacting industries, business models as well as life, society and the environment.

When the drum beats change the corresponding dancing steps have to change, meaning, powerful changes are shaking foundations of policies and systems in L&D and human resource.

Virtuality, simulated learning apps, learning capabilities, organisational readiness, disruptive business propositions and digital workplaces are defining creative solutions never thought ever before. It doesn’t stop there rather new age behavioural paradigms and generation gaps are challenging the coping mechanisms. Seamless work and human integration is here and tapping seamless human potential. However, we encounter the haunting questions like - Is this only the tip of the iceberg? Is AI a boon or bane for HR? Are we heading for complete fluidity? Can we afford to replace functions of heart and emotions with pure logic and mechatrics?

The above questions as well as thought leaders, practitioners and management are waiting the “TIME” to tell the truth and witness the next turn of human endeavour.

I’m happy to bring the Oct- Dec issue of IJTD with four elaborate segments of interviews with persons of eminence, research articles, case studies and book review. We are also introducing readers corner for documenting the feedback to pave way for further improvements.

Our next issues are - **Jan- Mar 2019**: 360 Degree Wellness, Work life Balance and HR

**Apr-Jun 2019**: Changing Paradigms of Work Culture: India & Asia

**Jul-Sep 2019**: Futuristic Talent Management: From top to bottom of pyramid

**Oct-Dec 2019**: Corporate Social Responsibility, L&D and HR: Touching lives

I request quality contributions from all on the above focus areas and thank Shri Varadarajan and Prof Govindrajulu for their editorial support.

Humbly, last but not the least, I would like to apologies profusely for inadvertent spelling errors in last issue especially in the interview coverage of Dr T V Rao.

Sincerely

Dr. Rajeshwari
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Sincerely
Dr. Rajeshwari
Chief Editor
Kindly share your personal and professional journey milestones as this sharing may inspire many aspiring L&D and HR professionals.

The first major milestone in my personal and professional journey was my completion of Matriculation, called SSLC, (Secondary School Leaving Certificate), those days in Tamil Nadu, in 1955. on completion of Class 10. I was only 14. I was under-age for college admission. So, I had to wait for a year. As many would think, an idle year at that age could have been a hazard, with the risk of picking up some bad habits, and even more dangerously losing the desire and aptitude for further education. But, I decided to seize that externally imposed waiting period as an opportunity. I focussed on self-development. I converted it into what would now be called a "break year". I focussed on intellectual growth and physical fitness. I had studied some Sanskrit, including "Subhashitam". One of these said 'Shariramadhyamkhulu dharma sadhanam', meaning, only through a fit body can one perform one's duties well. Another saying is "Kshanekshanevidyam, evamkanekaneartham cha sadhayet" --- Accumulate knowledge every second and accumulate wealth by every bit. From the library of the village school as well as some books in the family, I read classics from English literature; History; Biographies, etc. They expanded my understanding of life, the world, India, progress and problems. I laid the foundation for my lifelong good health. I took long walks; did yoga and other flexibility exercises, and also some weight lifting. So, at the end of that year 1955-56, I was probably more mature and better prepared to enter college. I did the PUC, (Pre-University Course), from the Hindu College, Tirunelveli, 1956-57.

The second major milestone was in the June 1957, when my family left our native village, and moved to Chennai (then called Madras). This was a major change for me. Also, another immense opportunity. Out of the six subjects in PUC, I had got 4 Distinctions and 2 A grades. This helped me earn admission to some of the top colleges in Chennai. I decided to join the Loyola College, both for its reputation and for the particular course, that I found most beneficial for my aptitude for further education. But, I decided to seize that externally imposed waiting period as an opportunity. I focussed on self-development. I converted it into what would now be called a "break year". I focussed on intellectual growth and physical fitness. I had studied some Sanskrit, including "Subhashitam". One of these said 'Shariramadhyamkhulu dharma sadhanam', meaning, only through a fit body can one perform one's duties well. Another saying is "Kshanekshanevidyam, evamkanekaneartham cha sadhayet" --- Accumulate knowledge every second and accumulate wealth by every bit. From the library of the village school as well as some books in the family, I read classics from English literature; History; Biographies, etc. They expanded my understanding of life, the world, India, progress and problems. I laid the foundation for my lifelong good health. I took long walks; did yoga and other flexibility exercises, and also some weight lifting. So, at the end of that year 1955-56, I was probably more mature and better prepared to enter college. I did the PUC, (Pre-University Course), from the Hindu College, Tirunelveli, 1956-57.

Loyola gave students the option of joining the NCC, (National Cadet Corps). I was advised by some elders and teachers to focus on studies, and not get diverted by NCC. They had a point that as a boy coming from a village, I already have a challenge to catch up with some of my classmates from some elite schools. But, I saw NCC as a great opportunity to absorb some of the discipline, fitness, stamina, commitment, man-management, leadership and similar values and skills of our armed forces. I joined the Naval Wing of the NCC. I stayed with it for all three years at Loyola, (1957-60). During term time, there were two parades, per week, Wednesdays and Saturdays. The timings were 0645-0815 hrs. I had to be up at 5.30 am, and leave my house at 6.15 am. This reinforced in me the principle of "Early to bed, and early to rise". For the last forty years, I have generally maintained the personal discipline of sleeping at 10 pm, and waking up at 5 am. This has stood me in very good stead, with time for work, exercise, reading, culture and interactions. The NCC also opened my eyes to many fascinating issues in training and learning --- the command, communication, leadership, team building and discipline styles of our many Instructors from the NCC cadre, as well as the Navy. I had to attend two open-air camps, in tents, for two weeks each, at Visakhapatnam and Kochi. It included going out to sea in a battleship.
The third milestone was my departure in 1961, from Chennai to Kolkata, to work in industry and study at the same time, for the professional qualification of a Cost and Management Accountant at the Institute, with headquarters in Kolkata. I had the opportunity to work in three different companies. The first was an Indian family business which had taken over, in the 1950s, an old British firm, Fort Gloster, from the departing expatriate owners. The second was Voltas, a Tata Group company. The third was GKW, a reputed British MNC, with a factory in Howrah, and all Indian sales and exports. Although, at that point of my life, I had not studied the concepts of entrepreneurship; organisation culture; professionalism in management, etc., I could intuitively feel the differences between the three types of organisations; and their strengths and weaknesses.

From the training perspective, there was no formal, classroom or shopfloor training. It was primarily learning on the job. Some bosses and senior colleagues were available as informal coaches. It was up to the employee to observe, interact, seek and learn from them. I soaked up a lot of learning not just about my job, but about the company, its business, products, strategies, customers, competition etc. For example, there was keen competition between Voltas, Blue Star and Arco. Later, many foreign companies have entered the scene. GKW’s slogan was “Engineers to the engineers”. It made high quality fasteners, railway products, special steels etc. Alas, for various reasons, including labour disputes, the company later went down.

The fourth milestone was my being invited to teach at the Cost Accountants Training School, newly set up by the Government of India, to train Cost Accountants for Government. The opportunity was given to me by Shri N. Sundaram, the first Director of CATS. He did see me win the Gold Medal in the Final Examination of the ICWAI, in January 1963, with all India first rank. It was my first experience as a teacher/trainer. I was about the same age as the students. Some were older. I was an amateur, untrained teacher. But, my knowledge of the subject, having just written the finals, and my command of not only English, but some knowledge of Bengali and Hindi helped me. I did extra homework. I sought feedback, and tried to act on it. It is not the length of experience, but how one reflects on it, introspects, conceptualises and takes the learning from it. The CATS experience boosted my confidence in training and whetted my appetite for it. I have always remembered that experience with gratitude and affection.

The fifth milestone was my choice of my life’s purpose --- the Indian Management Mission. The idea had germinated in my mind in my last year in B.Sc. I analysed the context of India, then, as follows. The self-sacrificing freedom fighters of 1857 to 1947, led by Mahatma Gandhi, had won us freedom from colonial rule, in 1947. We had formulated one of the world’s best written Constitutions. We had the foundations for strong Institutions, especially, the Parliament, Judiciary, Civil Service, and a professional, apolitical Armed Forces. The most needed was an Indian Management Profession to help the industrial and economic development of the country. I chose this as my Life Mission. This was reinforced when our first two Indian Institutes of Management were set up, in 1962, in Kolkata and Ahmedabad. After completing my Costing in January 1963, I started preparing for the ATCGB, Admission Test for Graduate Study in Business, now called GMAT. I came in the top 1%, globally. I decided to apply directly for the Doctoral Program in Management, rather than go for an MBA first, and then Ph.D. later. There were two reasons. The MBA degree might tempt one to opt out for a lucrative managerial career. My mission was to be a Management Teacher. One of my core values was that one’s jānma-bhumi, country of birth, should also be one’s karmabhumi, place of work and contribution. So, my place was to be India, and not the US or another prosperous and advanced economy. The second reason was that two years of MBA and three or more years of Ph.D. will take five years or longer. I finished my Doctorate in Business Administration, in 3 years --- the first year at Stanford, and the next two at Harvard. Before I left for the US, in August 1964, I met the visionary Shri K. T. Chandy, then Director, IIMC. He assured me a position at the Institute, as soon as I qualified with the Ph.D. in the US. While I was at Harvard, the creative Shri Ravi Mathai, Director, IIMA visited HBS, Boston, and offered me a job, at IIMA also on return.

The sixth milestone was my firmly holding onto my pratigyā, promise, to my mother, and myself, that I will come back home to India immediately on completion of my doctorate. As is well known, this is not easy. The US was, and continues to be, an advanced economy, with plenty of professional career opportunities, prospects of much higher income, wealth and comfort etc. But, with every passing year of stay there, the will to return to India weakens. The probability of return declines. Some in my family and friends also advised me to stay on in the US and take full material advantage of my Harvard education. Looking back, I am glad I returned in 1967. I have had immense professional and
life satisfaction, with my several involvements, back home in India. One of the most exciting, enjoyable, and beneficial to my own continued professional development has been my association with the Indian Training Profession, and the ISTD since its founding and launch in the early 1970’s. It gives me great joy to share my experiences with all our members, especially, the younger ones and readers of IJTD.

The seventh milestone was my decision to accept the job offer from the IIMC, and join its faculty, at Kolkata, in October 1967. This was also, to some extent, a contrarian decision. The IIMA was started with the technical collaboration of the Harvard Business School. So, it would have been natural for me to join the IIMA, with my HBS doctorate. The IIMC had been started in technical collaboration with the MIT Sloan School of Management. My reason for joining IIMC were two. I felt that we did not need a Harvard Institute and a MIT Institute, in India, but many truly “Indian” institutes of management. I hoped to help cross fertilise the Harvard and MIT, as well as Indian approaches. The second was that I did not accept the warning of some, not to go to Kolkata, in October 1967, since the Naxalbari insurrection movement had broken out in February 1967, initially in North Bengal, but was fast spreading to the whole state, including, especially, the state capital of Kolkata. I felt that it was my duty to go to a place which may need professionals more, where they can both contribute something, and also learn more. It was a great social education to live in the midst of industrial and ideological debate and unrest, during my five-year tenure at the IIMC, 1967-72.

There are further milestones in my half a century of involvement in the Indian L&D and HR profession.

**How do you see the changing landscape of learning and development broadly keeping in mind past, present and future?**

Let me begin from 1967, when I joined the IIMC. Both the first two IIMs started, immediately along with their two-year MBA program, an annual calendar of EDPs, (Executive Development Programs). Broadly, the IIMA was recognised for its distinctive strengths in Marketing and Finance, and the IIMC in Quantitative Methods and Behavioural Science. I was actively involved in the BS EDPs. One of our star programs was MLCR, Managerial Leadership and Conflict Resolution. It became a brand in itself. It was a ten-day intensive residential program, in the army bungalows, given to the Institute, in Barrackpore. It involved sensitivity training, through small learning groups and larger community sessions. It imparted the attitudes and skills of self-awareness, interpersonal relations, team work, and total organisational effectiveness. It also brought out and confronted intra-personal, interpersonal and intergroup conflicts for resolution towards harmony and productivity. We took the program around the country. One of these was in April of 1971, in Krishna Raja Sagar, Mysore. In all these programs, I had the fortune to meet several middle and senior managers, who later became part of the top management of public and private enterprises, and gave a strategic push to L&D. For example, I met Col. S. P. Wahi at KRS, from BHEL who later became Chairman of ONGC.

The faculty were also encouraged to do consultancy work, both to help industry, and also for their own practical learning. I found three different cultures in our target companies. At that time, around 1970, there was practically no training in Indian family businesses. There was some training in Indian professional companies. There was more training in the MNCs. In the second category, I recall very committed L&D events at the Tata Steel Plant, Jamshedpur. Mr. Ananth, GM had attended the AMPs, (Advanced Management Program) of the AIMA, All Indian Management Association, run by IIMC. I was part of the AMP faculty, and its coordinator. On return, he stepped up executive training, in addition to their ongoing worker training. I also remember visits to TELCO, Jamshedpur, under the leadership of the very committed Mr. Sarosh Gandhi. Among the MNCs, ITC, Metal Box, ICI and others invited me to contribute to their training programs at Aldeen, Tollygunge. One of the pioneers was Sharu Rangnekar of Union Carbide, who later became one of the sustained contributors to ISTD.

Most of our leading PSUs have been committed to L&D from the very beginning. They have invested on training facilities and people. I have conducted training in HMT, HAL, ITI, from 1968. A collaborative involvement, along with Prof. Udai Pareek, from IIMA, was in Indian Airlines. This was catalysed by my membership of the GoI Committee to Restructure Indian Airlines to which I was invited by Dr. Karan Singh, Union Minister, for Civil Aviation. There were three committed ICAs, internal change agents --- Shri Mihir Basu, Director-Personnel; Aftab Niazi, who later became CMD of IBP-Balmer Lawrie Group; and Prem Chadha, who became Head of HR in EIL. Another experience is with all the three
companies transformed by Mr. V. Krishnamurthi -- BHEL, Maruti and SAIL. In the 1980s, there was a boom in PSU training, including IOC, ONGC, OIL, HPCL, BPCL, SBI and many others. I was involved in a major long term HRD project in IOC, with Shri P. K. Sarangi as a lead ICA.

Since the 1991 economic reforms, the Indian private sector has become more dynamic and professional. Hundreds of family enterprises were making the transition from family-managed to family-governed enterprises. L&D has made a historic contribution to this process.

The present of L&D, starting, roughly from 2001, has seen many innovations and improvements. Training methodologies have gone beyond the green board, OHP, flipcharts, etc. to include videos, films, outbound etc. There is also a great stress on training tools. Companies encourage self-learning, through intranet, with training modules available, online, on need basis.

The future of L&D is brighter. The rate of obsolescence of knowledge is only getting higher. So, there will be even greater need for unlearning, relearning and new learning. The role of the trainer will keep changing, but will not be eliminated. He will become more of a facilitator, coach and counsellor. Learning is required on all four dimensions of KASH -- Knowledge, Attitudes, Skills and Habits.

**Training as a function is yet to find a foothold in the corporate world in India as many organizations have training as a ritualistic function and do not take it seriously. Can you suggest a framework where L&D can lead to transformative approach and be a strategic partner in the growth of business?**

In the last fifty years, more and more organisations have moved beyond the ritualistic stage of training. There have been several efforts for improvement. Make L&D business oriented. Greater stress on training needs assessment, including role clarity; interim and final appraisal; future career path; self-assessment etc. The trainer must improve her/his own change management skills, including internal marketing, and delivery.

I am happy to offer the following model where L&D can help business growth and transformation, as a strategic partner. The trainer should understand the two major components of business growth and transformation. These are -- (a) Strategy Formulation; and (b) Strategy Implementation. Let us start with the following model of Strategy Formulation.

![Strategy Formulation Diagram]

Any business can not exist for itself. It exists primarily for the stakeholders. The main stakeholders are -- customers; investors; employees; and society. To meet their combined needs, business has four universal objectives -- Profitability; Growth; Image; and Continuity. On each of these objectives, specific goals have to be set for the medium term, say three years, and short term, one year. Also, it should have a mission statement defining the core business; and a long term Vision of its dreams and aspirations. These three -- Mission; Vision and Goals have to be chosen keeping in mind two factors -- Environment and Resources. The same data analysis will also help select the right Strategies. The trainer need not be an expert in these, but he should have a basic understanding. He should organise
internal Strategic Planning training, with suitable experts. He can also suggest the nomination of senior executives to suitable external training programs in Strategic Planning.

The Strategy Implementation Model is as follows –

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<td>Strategies</td>
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<td>Organisation &amp; HR</td>
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<td>Management Systems &amp; Processes</td>
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<td>Actual Execution</td>
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<td>Feedback-based Monitoring, Control and Organisational Learning</td>
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The strategies have to be implemented through people, with the appropriate organisation structure, and behaviour. They have to be supported by IT-based contemporary management systems for Information, Planning, Operations, and Control. The trainer’s professional training already includes Organisation & HR. He needs to learn the basics of the other elements of the model, to organise business-relevant internal training, and external nominations.

Today in India many individuals have started training as their own venture and we still are in a nascent stage in certifying the qualified trainers and facilitators. How can ISTD align its objectives with such challenges and what actions are desired for ISTD to lead as a certifying national body of eminence for trainers?

The potential market for training is a huge one in India. It will continue to expand. It will be more and more demanding of quality. Training is a partnership between the internal Training Department, and relevant external trainers. ISTD can play a vital role in helping India meet its huge training challenge. For that, it will have to scale up both quantitively and qualitatively. It can learn from the examples of other large national and global professional bodies, such as the Institutes of Chartered Accountants, Cost/Management Accountants, CPA, CFA, etc. It has to expand its computerised systems capability for registration; examination; certification; update etc. There have to be different development events for Trainers in Service; and Trainers in Practice. Without legal powers of discipline, ISTD will have to pursue an educational; developmental strategy. The above steps will require higher capital and revenue expenditures. It should charge the students and other participants, accordingly. It may also appeal to alumni and leading companies, and governments for funds, to upgrade Indian training. ISTD should also partner with central and state governments, chambers, sectoral councils, etc. for Skill Development, for employability.

In the era of virtual learning, Artificial intelligence, MOOC, COURSERA, UDEMY and all platform based learning how critically you foresee the paradigm shift in training profession and what is your suggestion to aspiring L&D professionals in India?

The rate of technological development has accelerated in the 21st century. It is entering every field of life -- commerce, finance, health and education. Training is no exception. There is a lot of online learning available, under the broad concept of MOOC, (Massively Open Online Courses). There are also branded products available for a fee. The L&D professionals can use such technology in several ways. First, they can keep updating their own repertoire, using the relevant online sites and offerings. Second, they can recommend relevant sites and modules for their clients, and also be available to them for pre-course briefing, and post-course assimilation and action. Third, trainers can join such platforms, and develop course material for them. The future trainer has to be a blend of trainer; training organiser; training entrepreneur; training material developer, etc. Flexibility and speed are important. All businesses now have to cope with a VUCA environment -- Volatile, Uncertain, Competitive and Ambiguous environment. Training can not and should not be an exception.
Tell us about your professional and personal journey briefly sketching the milestones.

Post my Higher Studies in Applied Psychology, I was selected through the prestigious Combined Defense Service and served the Indian Army and was fortunate to be part of the Kargil War in 1999.

The world had come shattering down being medically boarded out after the Operation was over and my stint in the Army came to an abrupt end. However I picked up the threads and I landed myself as Green Horn in the Corporate World and was in East Africa – Kenya within a month of hanging my battle gear – in 2000. This time went on deputation for ICC (International Cricket Council) to be working on Leadership and General skill development for Developing Cricketing Nations. Was fortunate to have been associated with all the marquee cricketing legends of the modern era then.

As opportunity to come into mainstream Learning & Development through a stellar organization of those times- NIS Sparta in 2002, and I came back to India. From then for the last two decades, have been cutting my teeth in the field of Gamification, Digital Learner experience and in building physical and distributed learning centers across the World. Have since worked in organizations in senior global capacities like Wipro, Cognizant and Cargill Corporations in US and India.

What organizational roles inspired you and challenged you to do things differently and how did you manage to keep the spirits high

The one thing always inspires me and I keep asking myself is “When is the last time you did something for the first time?” Well if you look at my career graph, it seems like a roller coaster. Coming from an extremely pyramidal structure like the Army, I dived into the deep end of fluid matrixed cauldron of global cultures of multinational organizations. Sometimes serendipity and at times my deliberated decision and luck favored me to be able to work under very visionary leaders and Institutions, which allowed me to create new spaces, fail and more importantly learn from them, and stand up and build new horizons.

I strongly feel that one needs to build redundancy every 18-24 months in our profession to say the minimum, to stay current. I have changed roles and the nature of what I want to work on, constantly scanning the macro landscape beyond my own domains and connecting the dots. That’s what keeps me going

Is India and Indian corporate mindset ready for Artificial intelligence? What are the challenges and prospects in the AI based interventions keeping in view the status of Indian corporates having four and more generations working together?

Like they say that there is a Mini India while one travels every 200 Kms, there seems to be so much vibrancy and diversity in the social fabrics of the Indian work culture. Interestingly, one study suggests that there more commonality between the Under 30 age groups world demographics, then people above it as far as their games / hobbies, music they listen to, purpose they have and the likes. Hence the work streams of the future though being fluid also would be
more adaptable. So while crafting Interventions for Multi Gens, there is no one size fits all, but one size fits one, but there are still some common corner stones, which is a wave, that one can ride on. In those cases it can be the Purpose Statement.

AI shall have its own place. There is a time for awareness and then stability. As of now, I feel there is level of fuzziness, I call it the four room of change …and now it’s the stage of denial and confusion for many of lower level transactional level jobs

**It's great to learn that you have led work in Artificial intelligence interventions about it would be interesting to know how it's changing the landscape of work in modern organizations?**

The Mindset of the adaptation of AI or Technology in India or for that matter anywhere stems from the basic human nature of the what we don't know of what we don't know. The Basic Instinct of safety net of security of a job still seems fuzzy in the minds of people. In many functions across domains, transactions, which are repetitive, are under the scanner. However like I always say “human stupidity would always score over artificial Intelligence” and that still has many years to evolve by Robotics.

**Which traditional roles of HR may have a threat of extinction due to the emergence of AI? What new roles HR professionals can think for themselves in next one decade and what should we all be prepared for?**

I would not state extinct, but would rather state, that if I had to do a work break down structure of the Human Resources Function of an organization, I would not be surprised if around 80% of the work is transactional and non-cognitive in nature. From key areas like Talent Acquisition, Employee Engagement, Compensation & Benefits, L & D and many other sub functions, one can find, that many of the tasks are pure transactions and following up and matching and seeking information through piles of data lakes scattered across the enterprise and silos of islands of information. These I call it as L0-L1 probably L2 levels. These are definitely the lowest hanging fruits and are under threat first.

The first casualty may be the help desk, and we are already seeing it. The employee is also a consumer and s/he expects the same level of experience when they walk out those gates every evening and call for that cab or shop at Walmart. I call it the “Friday Evening Rave vs Monday Morning Holocaust”. Why is there so much of a different experience in the employee currency while they engage in the Open World vs restricted in the Corporate Environment. Yes there are statutory and governance protocols to be followed, buts those are not their problem.

The HR function needs to first take a multi disciplinary approach in their team composition and also influencing the hiring. Why should only some with HR specialization be an HR Specialist in Employee Engagement. Why don’t they hire someone with Hospitality or Consumer Experience backgrounds? They should also look at roles rather than jobs. A role of an Ambulance or a Fire Engine driver vs a job of just a driver is different.

Next empathy mapping would be the key differentiator which machines are yet to replicate. They can probably spot the pain in the body but they may not be able to emotionally describe the pain…

**Shall leave it at that for now!!**

My Favorite Adage

“a Man is not known from the heights he has conquered
But from the depths from where he has scaled it”

(LinkedIn Profile: www.linkedin.com/in/capt-shantanu-chakravorty-47120b3)
Interview with
Dr Ajit Mal Singhvi
Philanthropist & Management Expert

With the best exposure within India and globe what has been your life journey and professional journey? How do you see self as a visionary leader who believes in human excellence in every act?

My life’s journey has been a unique amalgam of varying jobs in different countries for some of the global players. I could thus enrich my life with the experiences of dealing with people of different colours, languages and customs. I could enjoy many aspects of both developed and developing countries. Even now I enjoy being in touch with people from many cultures although India itself is full of such rich diversity.

My professional journey got enriched through interactions and learning from several bosses in my career in the last fifty years. In more than one organization I was the first ‘coloured’ person in their management staff. But when it came to recognizing performance I noticed no difference due to colour. Also many bosses insisted that I continue further studies, and sponsored me to some of the best institutions in the world. Not only I continued further studies till the last few years of my working life. I always shared my experiences with my team, motivated them through a package of challenges, appreciation and knowledge transfers.

But there were many common traits. People need to be initiated into hard work, inspired through a combination of knowledge sharing, caring, and challenge them for improved performance.

Enhancing the potential of the person is as important as enhancing the job performance. I believed that I needed to keep pace with the developments in my field so specialty along with general management. Both seniors and juniors were the source of leaning many things. I often used to say that the people who sent a man on the moon did not have two brains or four legs; we all have one brain and more we challenge ourselves more productive and earn respect, the key to happiness. Besides money, people take pride in doing a difficult job when challenged to do so. Recognition and Rewards must go hand in hand to continuous learning and opportunity to produce superior results. While we talk about various ‘M’s like Men, Machine, Machine and Methods in any value adding process, it is a fact that it is only the People who can assure the QCD (quality, cost and delivery) in all the inputs, in all the conversion processes and in deliverables, the outcomes. Thus we need to focus on the Mindset and Culture of the people in the supply chain, besides management tools and techniques for achieving the best of our people and therefore infusing excellence in the organization/state we work or live in.

One of my bosses made it abundantly clear, that I must

1. Have a clear vision for 5 years, where we are and where wanted to reach in five years, and how: explain with proposed Action Programmes.
2. In the joint ventures, develop local talent and management succession along with local content development plan.
3. Train people to achieve the Vision. Deploy in house management system, called MBP (Management Plans and Budgets), right from Section level to Division and Company level.
4. Strategy is not a substitute for Operational Excellence (QCD and some Financial Ratios) where whole organization is involved.
5. Show potency in Management; your own self, not run by others.
You can see the focus of a visionary leader on development-development of people, alongside development of business and management models.

You have been exemplary in giving back to Nation. Kindly tell us more about what has been the philosophy of donating chair professorship at IITs and several educational institutions and how do you see your this philanthropy at institutions of excellence can make a difference.

A stage comes in life when personal expenditure drops in the last innings of our life, and children are on their own legs. This is the time when, as my late father said, we could give something back to the society in which there are many institutions which can still do a better job given further support from both alumni and non-alumni members.

I decided to give away 85% of my savings to IIT Roorkee and IIT Madras along with support to a few other Educational Institutions in Rajasthan, West Bengal and Tamilnadu. We recognize the good work they do.

The World over, good educational institutions, are built and supported with private contributions, and I believe that India cannot be an exception. Let us do our duty to the Society.

What role trainers and professional training bodies like ISTD can play in bringing the best talent and it's utilization in India?

As People are our greatest assets, we cannot organize any activity, competitive or otherwise, without people, it is only appropriate that we improve the competencies of people. As I often say, God will not do it for us, only competent trainers working within the ambit of a professional institution can help improve the quality of thought, quality of action so that the entities they are associated with achieve world class performance, and thus be able to survive in this globally competitive world. In a world of disruptions and new technologies, all these people will have to tech savvy besides the art and science of inspiring people along with requisite tools and techniques. ISTD has more than a significant role and duty in lifting the standards of our People abilities.

How can Human resource management be a route to business leadership bringing best value to the board?

Surely, HR can help many ways. By focusing on Performance Management, one could eliminate wasteful resources including efforts. The deliverables will be more aligned to the business entity's goals. In order to face the future, focus on Talent Management would go on opening minds for more innovate and better results in a tech savvy environment.

By eliminating frictions and overlaps, the work environment becomes more congenial and productive. Value at the Board level will depend on additional skills that HR personnel need to acquire and deploy depending upon the nature of the business entity. By devising correct organization structure there could be many gains. As an example, the responsibility for producing Quality products in any plant lies with the Manufacturing Manager, he is to be hired or fired, not the finance, HR or any other function. HR can put in place many checks and balances in the system such as avoiding indiscriminate hiring services of friendly consultants.

In the Age of Artificial intelligence how human excellence will be challenged and can we ever replace HRM with AI?

If you look at the answer to Q4, you will appreciate that AI cannot fill in the role of HR in the areas mentioned. Yes, AI would help machine to machine talks and instructions or take charge of operator routines, HR trained people and highly accomplished Engineers and IT experts would be needed to get the best out of AI. It would be wrong to expect HR having a say in every new initiative be it Six Sigma, World Class Manufacturing and support technology like robots and AI or in product development like solar energy films. HR has to continue focusing on making people more competent, more value adding and happier to say the least. This way India will become a more competitive nation.
Tell us about your professional and personal journey briefly sketching the milestones.

I have always viewed my career as a sequence of experiences and practices rather than a vertical movement in few roles. I have experience of working in diverse industries like IT and BPO, consulting, and retail and manufacturing, which has provided me with a rounded perspective on the world of work. I’ve also had stints with start-ups and mid to large organizations. In the early stages of my career I alternated between sales, HR and people development roles. In the process I got some much-needed exposure and grounding in the essentials of business. The experience I gained at the frontlines has helped me tremendously in my HR roles, in connecting the dots and understanding the language that multiple stakeholders speak. Along the way, I completed my PhD (in Org Capabilities). I believe that diversity and variety of experiences can only add to one’s learning and I’ve tried to follow my heart in terms of my professional choices.

WIPRO has set many benchmark practices in HR and L&D. How do u perceive the way forward with AI enabling these initiatives in HR and L&D?

Given the size and scale of the organization, integrating AI systems can be a useful disruptor in a wide variety of internal applications. However, the benefits of AI for HR and the workforce won’t come with one swoosh of the AI Wand. One needs to embark on a journey and can only then truly understand the short-term benefits through automating routine systems, the medium-term benefits of augmenting employee experience in the real world and finally the long-term benefits in the magnifying task and human efficacy.

Some of the major HR processes exploring potential use cases for AI:

- For starters, a simple AI solution can now automate time-consuming, repetitive tasks within essential processes like employee claims management, travel and hospitality, technical help lines etc. e.g. Organizations are increasingly adapting to Virtual Assistants (VAs) or intelligent bots at various employee touch points to assist with their decision making. VAs can take over everyday tasks like answering common and frequently asked questions and can be a huge time saver for the HR managers.
- **AI in recruitment** has the potential to be huge. Algorithms based on AI can churn through a huge no. of resumes, video interview data, map good-fit candidates, profile high performers, and highlight candidates for suited for a role.
- **A Predictive Data Mining AI** can equip management with actionable insight into employee satisfaction levels, reasonably predicting potential cases of attrition, and maintain a real time view of key people metrics like attrition, gender ratios, manager span of control, bulge in org, hierarchy etc.
- There’s excellent research happening in the space of **Sentiment analysis** as well. These systems pick up data points on speech, photos, employee moods, engagement levels and sentiments during various stages of their employment tenure. A live and thought-provoking application of this technology can be observed in China’s Social Credit Scoring system as well.

The L&D community also will need to understand how to leverage the value AI means to design a strengthened learning experience for the workforce. With the baby boomer generation on its way out, the rules of engagement for L&D professionals are undergoing a massive rejig.
For the HR community, a forward approach could fall along these lines:

- **L&D is seen to be moving from the classroom to an on the move, anytime, anywhere model.** The need of the hour is to deliver the right amount of content at the right time, grounded in the consumer’s learning preferences.
- **Personalized adaptive learning programs** for each consumer, tailored to their individual needs, career objectives and learning styles.
- **Virtual Reality and Gamification** has proven to be a game-changer for industries like healthcare, aviation, manufacturing & education by providing virtual “real-world” situations for people to practice academic learning in a safe environment.

Less time spent on transactions leaves more time to devote to the thought and creative elements of the job. To sum up, AI has immense potential to transform very key aspects of HR profession and has the tools to aid it in developing the new workforce.

**Which traditional roles of HR may have a threat of extinction due to the emergence of AI? What new skills and abilities can HR professionals focus on themselves in next one decade and what should we all be prepared for?**

As I mentioned earlier, it seems that the earliest impacted of AI and automation will be in the repetitive, time-consuming administrative areas of HR. Given the influx of HR/People management tools that are automating and enhancing routine HR processes, major sub-functions are now adopting automation or at least under the scanner for it across industries.

Here, lies an opportunity for HR managers to leverage the collective years of experience and up skill a ‘freed-up’ workforce to higher in the value chain. With machines needing lesser administration with each interaction, business leaders will also be free to increase their focus on efficiency, quality and customer service.

While the value of AI is clear, modern day organizations would need to undergo a systemic upgrade w.r.t. culture, enabling infrastructure, employee adopting to new ways of working, new job descriptions and enhancing the use of talent analytics to name a few.

For the HR community, a forward approach could fall along these lines:

1. **Integrating the new technology** and ways of working into the existing work environment. Bringing new technologies into the current fold is one of the biggest talking points in the industry. Point to ponder: How can we leverage our existing IT infrastructure to enhance employee touch point experience? Where are the upgrades needed and how?
2. **Employee Algorithm aversion** post implementation of new systems. Introducing new systems to an employee base can bring about initial adoption challenges by employees. In a paper published last year, Berkeley and Wharton researchers found that people are less trusting of algorithms if they’ve seen them fail. Point to ponder: How can we use employee feedback to constantly evolve job systems?
3. **Personalized Employee Services** tailored to match an employee’s needs and incentive structure. Today’s workplace rules and policies will have to evolve rapidly as employees become more tech savvy and receive similar personalization with other aspects of their life like Netflix/YouTube. Point to Ponder: How can we customize the workplace that allows for greater autonomy to employees?
4. **Understanding and imbibing Blockchain technology.** A Blockchain-based model could solve the issues concerning the authenticity of human resource information and provide authentic and effective decision support information to the HR community of an organization.
5. **Moving from Performance management to Coaching and development.** While organizations have taken a step towards a development mindset by removing the bell curve approach to performance management, a quantum shift is needed in the way employees are guided towards higher standards of performance by introducing Coaching techniques by the management.
6. **Remember the movie Money ball?** Data can provide much needed insight to effectively understand contribution to the business down to an employee level. Acquiring subject matter expertise in HR domains along with certifiable knowledge of business intelligence programs like Power BI, Tableau, or R Studio, will be an essential skill for HR managers. Point to ponder: How can we gain actionable insights from existing employee data?
Preparation of the existing talent to embrace the change is going to be central to all HR enhancements and is necessary to produce a new human resources agenda linking man and machine.

**Can India be a test ground for mass AI interventions or are we going to be game changers to the world? What are the nuances in other countries?**

In my opinion, the AI uprising needs India, as a key element, for it to advance globally. India offers a training set for AI systems like no other due to its diversity of languages, dialects, accents and cultures. India has the 2nd highest consumer of internet users and this is attractive from a data source point of view for new and budding AI systems. India is tipped to be a “perfect practice playground” for enterprises and institutions globally to design, test and develop scalable solutions. Some of the reasons are highlighted as below:

- Digital data is likely to shoot up to 2.3 million petabytes by 2020. If India holds all this data, it will become the second-largest investor in the data center market by 2050 and hence a heavy-duty training ground for AI systems.
- India’s proven track record at building complex technology at a price lower compared to the AI hot spots like China and the US. These solutions can then be customized for application in the rest of the developing and emerging countries.
- Influx on voice-based AI products like the Amazon Alexa and Google home in the Indian market with considerable success. In my view, as AI systems mature and become more common place, India can expect to be at the center of mass AI R&D activities.

However, there are serious challenges that need to be overcome for India to truly become an AI superpower. AI research in India is still in its infancy and requires large scale concerted and collaborative interventions to boost the growth of AI in India.

At present there are about 400 start-ups working on AI/ML/NLP domains in India. Approx. a $520 million dollars in funding was raised for AI related firms till 2018. Although there has been growth, India lags far behind countries like US and China in terms of investment and enabling environments on AI.

- China is investing at least $7 billion in AI R&D through 2030; this includes a potential $2 billion for an AI research park in Beijing alone. The Chinese government aims come up with the most comprehensive national plan to become a leader in the technology in 2050.
- Similarly, Japan has conducted extensive research to that suggests almost 50% of all jobs can be automated going forward. Clearly, our eastern neighbors are on an accelerated path towards a robust AI infrastructure. Large economies like India will do well to learn from China and incorporate practices within its own.
- Our western counterparts seem to be fairing extremely well on AI research as well. While most of the projects are funded by government organizations like DARPA and IARPA, world leading organizations like IBM, Microsoft, Google, Facebook, Tesla and Amazon are investing heavily in AI research which eventually a country wide advantage.
- Europe on the other hand seems to have taken a slow-and-steady approach to build their AI eco-system with formal large-scale investments for AI R&D. However, UK’s Deep Mind AI firm, acquired by Google in 2014, is currently leading the AI pack of companies across the world, closely followed by Sense Time, the firm behind China’s Social Credit System.
- Russia’s strength in AI comes from the ability for the government to build collaboration between its public and private organizations. Many of Russia’s AI demonstrations are military in nature, like jets and automated artillery.

Integrating AI into day-to-day systems would mean for users to share personal data and allow movement tracking at the very least. As explained earlier, changing people’s attitude towards adopting AI enabled practices are in my view is one of the bigger challenges for HR professionals in the future. The entire eco-system of privacy policies, security and ethical regulations would need a hard re-look to be able to function successfully with the value system of the Indian population. In conclusion, there is an immediate need for the HR and Business community alike to understand the nuances of AI/ML, its applications on the ground and envision a productive eco-system of man and machine employed in harmony.
Tell us briefly about your professional and personal journey of excellence.

The journey of 14+ years include diverse experience in talent development, learning technology & talent marketing in start-up & large organizations, including involvement in managing new initiatives in learning technology, user experience, change management & communication. I am a social media enthusiast & was one of the Top 20 HR influencers list by SHRM. In my personal journey, I enjoy travelling to new places and 2 years ago I took up Scuba Diving (you can read more in my blog https://www.linkedin.com/pulse/success-vuca-world-5-lessons-scuba-re-ignited-rajlakshmi-saikia/) and got my PADI Advance Open Water certification. Since, I have been Scuba Diving with many global divers across the global as well as working with micro-biologists on various ocean restoration projects. Diving continues to allow me to follow my passion for travel and over the last few months I have been lucky to have done over 45 dives. My linkedin profile has more about me (https://www.linkedin.com/in/rajlakshmisaiikia123/) and includes my blogs that are mostly about my learning either when working or diving.

Whom you consider your role model in L&D and how do you see L&D has enriched you as a professional?

There are many L&D leaders that I have learnt from so it would be unfair to name few and not all. I have been fortunate to have got the chance to work with many forward thinking L&D professionals. That gave me exposure to learning technology and new age learning approach very early in my career. The L&D profession makes you a natural ‘every day learner’ and this ability to continuously learn & stay curious is something that I have lived because of opportunity that came along on this L&D journey.

Is India and Indian corporate mindset ready for Artificial intelligence? What are the challenges and prospects in the AI based interventions keeping in view the status of Indian corporates having four and more generations working together?

I believe Indian corporates are as ready as anyone else in the globe when it comes to Artificial Intelligence. The beauty of AI is that the subject itself is continuously evolving and we are all on this journey of discovery. I believe it is more to do with having the right mindset to accept and embrace what is coming our way, and in that sense India is a perfect example of how that is shaping up so fast.

The biggest challenge in AI working effectively in any organization or ecosystem is the non-availability of structured data. Historically, we have not focused on data storage formats or tools and therefore, while there is adequate data available today, the shape & form it is in is varied and that needs a lot of attention. My view about having a multi-generational workforce is that it does not pose a challenge per se for AI interventions. The problem is rather different - multi-generational workforce brings along different expectations and that maybe something that companies would like to focus on so we can gain from the collective whole. Our current culture may not necessarily be ready to embrace diversity at such a scale. There is far many benefits of having multi-generational workforce as it brings in diversity in thought and ideas which is most critical for any company on a digital transformation journey.
Kindly tell us about your experience from Artificial intelligence projects broadly in HRD and L&D. And more about how it’s changing the landscape.

I worked on the AI-ML driven learning content platform Edcast and it is fascinating how the tools picks learner behavior to make learning so personalized. Today we do not have to launch programs in batches but there is possibility to allow each learner to curate their own learning path basis interest & learning needs. AI is surely changing the HR and L&D landscape – there are a lot of repeatable standard tasks that can now be automated and that’s is slowly opening up bandwidth for HR and L&D to focus on more strategic work to improve business impact. Technologies like machine learning and artificial intelligence are reshaping our ways of working in all aspects including recruitment, talent retention and better engagement with people.

Which traditional roles of HR may have a threat of extinction due to the emergence of AI? What new roles HR professionals can think for themselves in next one decade and what should we all be prepared for?

The role of HR will only strengthen with the emergence of AI. HR needs to look at how AI can empower HR more by helping it make more objective & data driven decisions about hiring, better predictability of talent movement, more accurate assessment of capability readiness & many more. In the near future, HR will see their roles more enhanced. We will see a lot of change in Learning & Development, where number of facilitators will reduce as people take on to more online, digital and self-paced learning where L&D is needed to play a role more of a content curator than a facilitator.

The role of HR will evolve to becoming partners that can implement HR technology & understand the importance of future-proofing its workforce to help drive change & transformation. It will definitely take away all the administrative work that HR is mostly involved with and this will be an opportunity for HR to bring back the ‘human’ back into the role of HR and actually focus on business, people & strategy.
Artificial Intelligence, Impactful interventions & Value adds

- L S Murthy
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Artificial Intelligence: (AI) is “the intelligence exhibited by machines or software. It is also the name of the academic field of study which studies how to create computers and computer software that are capable of intelligent behaviour.”

Simply Defining “intelligence” is tricky, but key attributes include logic, reasoning, conceptualization, self-awareness, learning, emotional knowledge, planning, creativity, abstract thinking, and problem-solving. From here, we move onto the ideas of self and of being. Artificial Intelligence is, therefore, a machine that possesses one or many of these characteristics. One of AI’s central aspects is learning. For a machine to demonstrate any kind of intelligence, it must be able to learn. When most technology companies talk about AI, they are in fact talking about Machine Learning (ML) — the ability for machines to learn from past experiences to change the outcome of future decisions.

Stanford University defines Machine Learning as “the science of getting computers to act without being explicitly programmed.”

In this context, past experiences are datasets of existing examples, which can be used as training platforms. These datasets are varied and can be large, depending on the area of application. For example, a Machine Learning algorithm can be fed a large set of images about dogs, with the goal of teaching the machine to recognize different dog breeds.

Artificial Intelligence has the potential to provide large incremental value to a wide range of sectors globally and is expected to be the key source of competitive advantage for firms.

Artificial Intelligence, or AI, is one of the most promising technologies of our times - from saving lives to online shopping predictions and raising crop productivity. AI can already help doctors to identify cancers and other diseases, thereby prolonging human life. In the future, it could be used to predict and locate earthquakes. AI-based services, such as detecting transaction fraud. AI stands to benefit society, across all sectors, for people going about their everyday lives as much as for business.

What makes AI unique is that it is a generic umbrella technology that is an enabler of many different disruptive technologies and solutions; it has the power to add great value and be a force for good in every field. (Ref: The New Wave of Artificial Intelligence By thomas.hafsad@evry.com)

AI technology, we would use to do tasks that require intelligence to accomplish. With the added feature that AI systems often are the kind of systems deployed in domains where there is a lot of uncertainty.

A.I.: a computerized brain capable of doing every intelligence task that a human can perform. A.I. technology will be like a utility in the future. This way of looking at intelligent computation really broadens the scope of what one can imagine using this technology for. (Alexandar Linde, Gartner -Webinar)

The decreasing cost of computing power

Thinking, for all practical purposes, is computation. And in order to simulate a system that is even remotely intelligent, a great number of computations are needed. Moore’s law, which says that the number of transistors on integrated circuits double roughly every two years, has provided growing computational capacity for the last five decades.

It was discovered during the last decade that GPUs, the chips used for generating computer graphics in video games etc., were eminently suited to run the sort of massive parallel computations needed for building A.I. architecture.
practical terms, this has meant that calculations that used to take up to several weeks, now take less then a day, and the
time is shrinking.

The availability of data

A.I. from the tech industry comes right after Big Data. A.I. technology large users are Facebook, Google, Yahoo, Baidu
and Microsoft. They have hired almost all the leading researchers in the field and setup their own research labs
internally. The common denominator for these companies is that they sit on truly massive amounts of data that they
need to analyse. A.I. bears the promise of an automatic analysis and management of this data. There is an interesting
symbiosis between A.I. research and data: A.I. system needs huge amounts of information in order to learn. And
companies who sit on huge amounts of information usually wants to minimize the human effort of analyzing this data.
This relationship is bound to fuel the development of A.I. going forward. A nice example of this is IBM’s Watson engine.
Watson is a distributed cognitive system, meaning that it is spread out in the cloud, collecting information every time it’s
being used, everywhere. This means that the more people use Watson, the better the system becomes at its job.

Better algorithms

A new type of algorithms lies at the heart of this new A.I. wave. algorithms has now spawned its own sub field of A.I.
known as deep learning. There is now an entire class of algorithms known as Swarm Intelligence algorithms that
attempt to solve problems in this decentralized, self-organizing way.

The combination of the factors outlined above have laid the ground for a wealth of consumer and business facing
applications, there exists a big gap between where businesses could be and where they are in terms of building internal
competency with, and implementing, this technology. It is precisely because of this gap that we maintain the
hypothesis that the disruptive force of A.I. is almost completely independent of the future progression of the field. It has
already arrived.

What Emergence means for A.I.

This whole new wave of artificial intelligence research and technology really hinges on this “emergence-view” of intelligence being a useful way to analyse intelligent systems.(Ref: The Interventions Of AI:
Sudhakar M, Aug. 15, 2018, Al Zone, Analysis.D-Zone)

The machine intelligence business landscape

A good way to get a feel for an up-and-coming technology industry is to build what is called a technology landscape. A
technology landscape is nothing more than a big picture with a lot of company are segmented by the problem they are
trying to address or value they want to offer.Ref.In 2014, a Venture Capitalist at Bloomberg Beta named Shivon Zilis
spent three months building just such a technology landscape for what she calls the machine intelligence sector
(Shown in a too small picture in Figure 5). She built a list of over 2500 A.I. or machine learning related companies and
start-ups and narrowed it down to what you see in Figure 5. The landscape is sliced nicely into the following segments,
which we will go through in turn: Core Technologies, Rethinking Enterprise, Rethinking Industries, Rethinking
Humans/HCI and Supporting Technologies. Ref.evry.com/innovationlab.

Core technologies

The companies in the Core Technologies segment are the ones working directly with advancing the A.I. and Machine
Learning fields. They range from technology providers to other A.I. driven companies, to companies providing
advanced analytics products directly to the end user.

Rethinking enterprises

This segment contains the companies attempting to leverage machine intelligence in order to build smarter enterprise
solutions for companies in general. Examples of this range from advanced churn prediction software, that can alert sale
teams that a customer is growing dissatisfied (Preakt), to smart fraud detection, that analyses fraud in real-time using over 5,000 signals (Sift Science).

Rethinking industries

The Rethinking Industries segment is composed of companies using A.I. to change the way things are done in existing industries. It is here you will find many of the more “sexy” A.I. start-ups. Among them, we have Knewton, which aims to deliver personalized education to every student. Lex Machina, which offers an analytics engine that lawyers can use to search for similar cases, relevant laws etc., and many others.

Rethinking humans

This is the wild card category containing the more sci-fi like companies. Here you will find companies attempting to make computers understand human emotions and designers of various augmented reality products.

Supporting technologies

The companies in this segment offer products or services that enable the companies in the other segments to do their thing. This ranges from chip makers, to providers of user friendly software for web-scraping and other information gathering. Among the more exciting and ambitious projects in this segment, we have HP and IBM’s attempts to rethink the way we do computing by designing what is called neuromorphic (brain-like) hardware.

How A.I. is driving new types of businesses, some of the companies from the landscape: Deep-mind, Numenta, Vicarious. All three companies are trying to solve the Strong A.I. problem, are backed by titans of the Tech industry: Deepmind is backed by Google, Vicarious by Mark Zuckerberg and Elon Musk, and Numenta by Palm Computing founder Jeff Hawkins. While all three companies have examples of applications for their products, they more resemble private sector research labs than conventional companies.

These companies mark an interesting shift in the development of core A.I. technology. The technology used to drive the current generation of A.I. applications was usually conceived at academic institutions and then later adopted by corporates. Now, we have a situation where the tech giants have placed a large number of the industry’s experts in their internal laboratories, which might lead to less openness about technical breakthroughs going forward.

The next significant intervention is VIV - The Global Brain

VIV is the brainchild of the original team behind Apple’s A.I. assistant Siri. Siri is one of the first examples of an A.I. helper that the public has appreciated. She could search the web for you, send texts, set alarms and even had a sense of humour. VIV is to create a truly generalist A.I. assistant for all platforms. VIV is a good example of the companies that believe that a lot of people will soon interface with some form of machine intelligence instead of using e.g. web browsers when carrying out tasks like buying airplane tickets. As the technology becomes less visible and more human-like in its capabilities, it becomes easier to use for everyone.

The Grid

The founder of The Grid, Dan Tocchini, used to work as a website designer. After a couple of years in the industry, he began to find the tasks menial and repetitive. Every time a business is changing something about itself, offering a new product, entering new markets etc. that change needs to be reflected in the website. This usually means that a person needs to do the painstaking work of changing the design of the website to reflect the change in the business. Enter The Grid. The Grid is designed to be a A.I. driven website builder. The Grid represents the type of companies that want to alleviate the load of performing certain types of work by using A.I. instead of outsourcing. For example, instead of having
a call center in an offshore location, a company can have a call center at home manned by artificial intelligence agents. This is a phenomenon that is bound to become more and more prevalent as the range of tasks that A.I. agents can perform continues to grow.

**AI in Banking:**

AI Technologies could be tweaked and applied to banking. One problem of technology with broad applications is that it can be hard to know where to start applying it. Another question is the maturity of the technology across application areas. One of the banking areas that have seen a lot of investment in machine intelligence is wealth management.

By automating large parts of the wealth management process, they are able to offer personalized, tax optimized investments to clients who have far less in investable assets than what would usually qualify for professional wealth management.

**Customer support/help desk**

Everyone hates being "next in line" on some phone call when all they want is just to have their online bank work etc. As speech processing and natural language processing technologies mature, we are closing in on the day where computers can handle most customer service questions for us. This would mean an end to the waiting in line, and happier customers.

**Advanced Analytics**

Another area which has seen a lot of investment are is the use of machine intelligence for advanced analytics. An example of this is the young company Kensho, which just received $15 million in funding from Goldman Sachs. Kensho has built a natural language search engine capable of answering questions like "What happens to stocks when inflation falls below 2% and GDP growth is flat" or "Which stocks to buy when the oil price falls". While this does not seem like an application of immediate importance for retail banking it's a good example of how companies are trying to make advanced analytics more user friendly, in essence turning business analysts into potential data scientists capable of performing sophisticated querying against available datasets. As Banking is one of the worlds most data-intensive industries, and becoming ever more so, the capability to actually analyze all this data will be of growing importance.

**Fraud Detection**

Most industries operating on the world wide web are susceptible to fraudulent users, and banking is no exception. As technological infrastructure grows more complex, so do the demands on those protecting companies and people from fraud. This has led to an arms race between online security providers and fraudsters involved in everything from email scams to credit card fraud. As security providers improve, the criminals change their ways. This moving target calls for platforms that can learn to identify changing patterns of fraud.

**Underwriting**

The newcomers in the underwriting business, like Zest Finance, really cut to the heart of the business of banking. Using as much data as they can get their hands on, in combination with advanced machine learning algorithms, they are able to more effectively price personal credit risk. Their business model is based on helping lenders in different credit segments by assessing their clients for them, and according to them their Big Data model is a 40% improvement over the best-in-class industry score. "All data is credit data". That means that they track everything they legally can about the user, to identify what interest rate he should pay. This includes, browser type, device, location, time, how long you spend reading the conditions of the loan etc. By building internal competencies in the field of data science and machine learning, banks can adopt the same AI tools
Learning today.

Deep Neural Networks (DNNs), also known as deep learning, are the most popular techniques used for Machine Learning. DNNs are resource heavy. Performing inference on new data is comparatively easy and is the essential technology behind many recent innovations.

Machine Learning has two distinct phases: training and inference. Training generally takes a long time and can be resource heavy. Performing inference on new data is comparatively easy and is the essential technology behind many recent innovations.

One of the biggest use cases currently seems to be in getting basic measurements in countries where there are lots of gaps in the basic statistics.

A lot of this work is using either satellite data or cell phone record data to try to predict poverty at a granular level for entire countries or continents. Other such outcomes being predicted from satellite data include agricultural yields, Urbanization and conflict-affected infrastructure.

At the moment such data seems useful for descriptive work, but it is unclear whether accuracy is enough to measure changes well over time – so if you are trying to evaluate the impact of regional or macro policies, there may not be enough signal to be able to detect the impact of interventions, especially over short time horizons. But satellite data are now getting much more accurate, with daily data at relatively high resolution. Christian Clough gave an example of work they are doing in Dar es Salaam, where their challenge has been to detect new buildings going up and changes in building heights to measure where urban growth is taking place. This level of detail could be useful for measuring impacts of transport infrastructure interventions for example.

Machine Learning has two distinct phases: training and inference. Training generally takes a long time and can be resource heavy. Performing inference on new data is comparatively easy and is the essential technology behind computer vision, voice recognition, and language processing tasks.

Deep Neural Networks (DNNs), also known as deep learning, are the most popular techniques used for Machine Learning today.

11 STEPS TO CREATING VALUE WITH AI.

Ref: Maximising value from AI: Tessella, Altran’s World Class Centre for Analytics

1. Build trust in AI: Take a rigorous approach to data and AI training methodology.
2. Maintain oversight: AI needs human governance
3. Users first: Maintain an unwavering focus on user experience
4. Talent: AI is as much about talent as technology
5. Become an AI extrovert: Engage external expertise to boost your internal capability.
6. Mix people: Embed AI professionals within your business units with customer teams.
7. Build momentum: Progress via small steps, moving rapidly and with purpose.
8. Parallize: Become more agile, exploring multiple AI projects in parallel.
9. Early attrition: Fail fast to give AI quick successes and richness of experience.
10. Don’t blindly hoard data: Master its meaning first, so that AI is applied in a clear context.
11. Quantify value: Use data to track and quantify and business outcomes.

How can machine learning and artificial intelligence be used in development interventions and impact evaluations? We can think of machine learning and artificial intelligence as possibly affecting every term in this expression.

World Bank study: AI and ML as part of the treatment (Treat) There currently seem to be fewer cases where artificial intelligence and machine learning are being used for the interventions themselves, but the promise lies in using them for individualized and dynamic treatments. To develop artificial intelligence chatbots that act as digital guides and advocates to help the poor navigate through bureaucracies. Examples included chatbots that could provide immigration help in the Dominican Republic and help navigate people in the Philippines through a social welfare program. Another example comes from agriculture, where Ofir Reich explained how they were trying to provide customized agricultural advice to farmers through mobile phones, with rapid testing and feedback being used to provide actionable customized information that farmers could use.

One of the biggest use cases currently seems to be in getting basic measurements in countries where there are lots of gaps in the basic statistics.

Today, the majority of DNN training and inference happens in the cloud. For example, when you use voice recognition on your smartphone, your voice is recorded by the device and sent up to the cloud for processing on a Machine Learning server. Once the inference processing has occurred, a result is sent back to the smartphone.

Cloud Server deployments:

1. Traditional: Have your servers in the cloud.
2. Hybrid: A mix of on-premise and cloud.
3. Edge: On-premise servers at the edge of the network.
4. Serverless: Pay for the computing power you use.

While the cloud model has allowed ML to enter into the mainstream, the real power of ML will come from the distributed intelligence gained when local devices can work together with cloud servers.

There is also the issue of latency. If the inference is done locally, then the results will be delivered quicker. Plus, there are bandwidth. Second, it saves power — both on the phone and in the server room — since the phone is no longer using its energy to upload data to a cloud server.

Heterogeneous Computing:

As a result, you can then use the network to predict output data given input data with a certain degree of confidence. DNN design is complicated, but put simply, there are a set of weights (numbers) between the neurons in the network.

Once a network is trained, it is basically a set of nodes, connections, and weights. At this point, it is now a static model.
Traditionally, computer programs are built using logical statements which test conditions (if, and, or, etc.). But a DNN is different. It is built by training a network of neurons with data alone.

DNN design is complicated, but put simply, there are a set of weights (numbers) between the neurons in the network. Before the training process begins, weights are generally set to random small numbers. During training, the DNN will be shown many examples of inputs and outputs, and each example will help refine the weights to more precise values. The final weights represent what has really been learned by the DNN.

As a result, you can then use the network to predict output data given input data with a certain degree of confidence.

Once a network is trained, it is basically a set of nodes, connections, and weights. At this point, it is now a static model, one that can be used anywhere needed.

To perform inference on the now static model, you need lots of matrix multiplications and dot product operations. Since these are fundamental mathematical operations, they can be run on a CPU, GPU, or DSP, although the power efficiency may vary.

**Cloud Server deployments:**

Today, the majority of DNN training and inference happens in the cloud. For example, when you use voice recognition on your smartphone, your voice is recorded by the device and sent up to the cloud for processing on a Machine Learning server. Once the inference processing has occurred, a result is sent back to the smartphone.

The advantage of using the cloud is that the service provider can more easily update the neural network with better models; and deep, complex models can be run on dedicated hardware with less severe power and thermal constraints. However, there are several disadvantages to this approach including time lag, a risk of privacy, reliability, and providing enough servers to meet demands.

**AI Engine: On devise Inference:**

There are arguments for running inference locally, say on a smartphone, rather than in the cloud. It saves network bandwidth. Second, it saves power — both on the phone and in the server room — since the phone is no longer using its mobile radios (Wi-Fi or 4G/5G) to send or receive data and a server isn’t being used to do the processing.

There is also the issue of latency. If the inference is done locally, then the results will be delivered quicker. Plus, there are myriad of privacy and security advantages to not having to send personal data up to the cloud.

While the cloud model has allowed ML to enter into the mainstream, the real power of ML will come from the distributed intelligence gained when local devices can work together with cloud servers.

**Heterogeneous Computing:**

Since DNN inference can be run on different types of processors (CPU, GPU, DSP, etc.), it is ideal for true heterogeneous computing. The fundamental element of heterogeneous computing is the idea that tasks can be performed on different types of hardware and yield different performance and power efficiency.

The possibilities for smartphone and smart-home experiences augmented by AI are almost limitless. Improved visual intelligence, improved audio intelligence, and maybe most importantly, improved privacy since all this visual and audio data remains local.

But AI assistance isn’t just for smartphone and IoT devices. Some of the most interesting advances are in the auto industry.
AI is revolutionizing the future of the car. The long-term goal is to offer high levels of autonomy; Driver assistance and driver awareness monitoring are some of the fundamental steps towards full autonomy that will drastically increase safety on our roads. Plus, with the advent of better natural user interfaces, the overall driving experience will be redefined.

Wrap-up

Regardless of how it is marketed, Artificial Intelligence is redefining our mobile computing experiences, our homes, our cities, our cars, the healthcare industry — just about everything you can think of. The ability of devices to perceive (visually and audibly), infer context, and anticipate our needs allows product creators to offer new and advanced capabilities.

With more of these capabilities running locally, rather than in the cloud, the next generation of AI augmented products will offer better response times and more reliability, while protecting our privacy.

Citations & References per APA

How AI is impacting training, learning and development in workplace

Coined by John McCarthy back in 1956, AI was initially described as machines that can perform tasks that replicate human intelligence. A few years later, in 1959, Arthur Samuel defined AI as the ability of a machine to learn without being explicitly programmed. A few more years down the line, and the first AI Chatbot, Eliza, was “born” in 1966. Today, AI is seeping into our workplaces and daily lives as a tool that augments tasks and streamlines monotonous labor. From pricing and estimated arrival time of your cab to your recommendations on Amazon and Spotify, to even more complex interactions in customer service, AI is reshaping everything. Some companies are even listening to customer service calls and assigning an empathy score based on how compassionate agents are and how fast and capably they settle complaints. AI is running in the background, recognizing patterns and interpreting data more quickly than humanly possible.

According to the CEO of Google, Sundar Pichai, the importance of AI is way more profound than the impact of electricity or fire. The McKinsey Global Institute predicts that AI is likely to create between $3.5 and $5.8 trillion in annual value each year, in the global economy. The rise of AI is such that even governments, which are generally know to lag behind when it comes to technology, are making use of AI to serve the citizens better. The US government, for instance, established the Joint Intelligence Center that unifies its AI research and development and speeds up the adoption of AI tools.

For these very reasons, the domain of HR, corporates, and workplaces in general have also experienced significant changes in the last decade. Advanced data-driven technology is rapidly making its way into the HR industry as businesses focus more on creating an employee-oriented corporate culture. Recruitment no longer remains a tedious process for HR practitioners as it doesn’t entail time-consuming manual activities such as screening the resumes of the prospective candidates, making phone calls, or replying to candidates via emails. These mundane errands are now managed by smart technologies designed to replicate human conversation, thus enabling HR experts to contemplate the bigger picture.

According to the India Report of Deloitte’s 5th Annual Global Human Capital Trends, 53% of companies are revamping their HR programmes to deploy digital tools, while 22% have already leveraged AI to deliver HR solutions. Today, employee engagement is crucial for every business agenda because it plays a key role in boosting productivity and helping businesses stay competitive in the market. Gone are the days when HR experts relied on burdensome annual surveys to evaluate employee engagement that often generated erroneous results. In order to redefine performance management, the progressive HR leader can count on real-time data to measure employee engagement and identify problem areas to improve work culture by predicting workforce trends. Moreover, real-time data enables HR experts to take prompt action in a personalised manner.

The insights put forward by AI/ML generate suitable data to help HR practitioners retain and motivate existing employees and to also recruit new ones. Moreover, AI and ML-powered suggestions utilise historical records to recommend the best solutions to resolve expected problems, thus helping HR leaders develop HRM programmes based on smart data.

**Artificial Intelligence in Corporate Training**

As the global corporate training market exceeds $300 billion, learning platforms have begun to mimic the successful qualities of consumer content platforms like Netflix and Spotify. Organizations are transitioning from the legacy learning management systems (LMSs) traditionally designed and used for HR, compliance and formal training to learning experience platforms (LXPs or LEPs) to accommodate for the digital, remote and on-the-go workplace.
Similar to how Spotify “suggests” playlists personalized to your music tastes and delivers the music with a simple interface, accessible wherever you have a device, LXPs use Experience API, artificial intelligence and machine learning to aggregate data and curate personalized content. Just as AI and automation will undoubtedly make some jobs redundant, using AI and LXPs can reskill employees to new roles by delivering relevant learning content. LXPs have begun to contextualize content, delivering it from millions of sources based on individual preferences, behavior, background, interests and skills. AI is helping to improve corporate training in many ways. It is offering individualized experiences for employees. Training programs are more successful when employees are more engaged and seen as unique individuals. AI responds to individual needs making employees feel like they aren’t just a cog in a giant machine. AI also responds and adapts to an employee’s individual learning style. The use of AI in training programs produces more detailed reports on effectiveness and ROI.

The main focus of any training program is to achieve a measurable return for the business and evaluate how employees are learning and the impact that learning has on their future ability to work. AI measures employee engagement more effectively and compares the results to determine if the program is doing its intended job. AI also offers tests and quizzes for employees to recap what they’ve learned and to measure the effectiveness of the program. This increases employee enjoyment of the training program and the program’s capacity to teach. AI is improving training programs a great deal and the next step is to develop smarter, more intuitive interfaces that employees can use to engage with each program more effectively.

**AI in Corporate Training and Development**

AI is adding context, relevance, and personalization to learning experiences when it comes to corporate training. AI is growing the knowledge businesses and employees have when it comes to completing their jobs successfully. AI is also improving feedback training programs provide to employers and is creating unparalleled opportunities for employee development in the workplace. The future of AI in corporate training will include more 3D experiences to train employees. As the cost of virtual reality training comes down, employers will be able to use it to provide hands-on training for any scenario they want to simulate instantly.

AI will also begin to be used as virtual mentors more to increase the number of experiential learning employees are put through to ensure their comprehension and retention of the learning material is effective. AI creates the ideal learning experience for employees to ensure they meet business and performance objectives. AI also allows employees to be more connected to the work environment and creates a personalized experience to retain employee’s attention better. When employees are more focused throughout the learning experience, they retain the information they’ve learned better.

**Artificial Intelligence in E-Learning Systems**

AI makes data-driven analysis and decisions faster than humans and is already making huge impacts on medicine and transportation. AI is beginning to have a major role in training for adults. AI is allowing teaching software to be adaptive to individual learning types to increase positive outcomes of online learning. AI also emphasizes areas that need improvement in teaching software. This is allowing online systems to generate better material and more comprehensive testing.

AI is not only adaptive to problem areas of users, it’s more comprehensive than typical classroom learning structure. AI can create immersive exercises that help users learn better than just lessons. Meaningful lessons help learners learn better than just material that helps them pass quizzes. AI creates meaningful lessons by identifying particular learner needs and comes up with models that focus on methods and reason to improve problem areas. AI has the ability to evaluate, learn and adopt new strategies to come up with solutions for problem areas users may be facing. One of the best benefits of AI in e-learning is that learners can learn at their own pace to retain the information better.

AI is being used in many aspects of businesses and improving the way companies are training and developing their employees. The future of corporate learning is improving with AI and the use of AI in training. Artificial intelligence in
learning and development is allowing people to retain and understand information in more comprehensive ways. Businesses that use AI are improving the way they teach their new employees, train new and existing employees and business operations in general. Companies are finding that AI is allowing them to succeed more than their competitors that don’t use artificial intelligence.

The Future of AI in the Workplace

The rise of AI in learning, development, training, and the workplace in general has come in at just the right time. It is forecasted that by 2020, millennials would have made up at least 75 percent of the workforce. According to another research conducted by Gallup, 87 percent of this generation says professional development or career growth opportunities are very important to them in a job.

So, with a vast majority of the future workforce craving professional developments, businesses are already offering learning opportunities and skill development in order to attract and retain quality employees. Not only is AI helping create learning experiences delivered at a pace suited to one and all, but it is also learning the data in order to reskill the workers whenever needed.
Innovation Powered by AI: A HR Perspective

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It is well known that humanity has immensely benefited from innovation. Scholars of Management have extensively studied the phenomenon of innovation and have established its role in economic development (Schumpeter, 1983). The last few decades have seen the emergence of new technologies that have fundamentally changed the way we live. Innovation has had a positive impact in every industry that is known to mankind and the rate of change has been unprecedented. Organizations are increasingly challenged to do more with less and produce impactful outcomes – this has increased the dependence on innovative technologies. While some innovations have been incremental in nature, some have had a transformative impact on lives.

The third industrial revolution marked the introduction of information technologies that have tremendously accelerated the pace of development (Markillie, 2012, Rivkin, 2011). The advent of the computer has enabled the manifestation of ideas into reality and computing power is being harnessed in practically every dimension of life – be it agriculture, finance, health, energy, governance, security, transportation, justice and so on. What has enabled this transformation is the concept of Artificial Intelligence or AI.

While there is no single definition for Artificial Intelligence, it is generally accepted to refer to “machines that respond to stimulation consistent with traditional responses from humans, given the human capacity for contemplation, judgment and intention”. In his seminal paper ‘Computing Machinery and Intelligence’, Alan Turing mooted the idea of thinking machines and laid out criteria to assess whether a machine could be considered intelligent (Turing, 1950).

Fast forward 65 years – we are now talking about AI reshaping the way companies manage their workforce and drive development, to improve performance, productivity and engagement. Today, AI is a technological reality that businesses are embracing to remain relevant and competitive. Some early adopters are moving ahead, relying on different types of AI to perform or augment tasks traditionally done by humans. As reported in a recent publication in MIT Technology review, a Deloitte survey of 1500 senior executives in the US revealed that 76% said AI would transform their companies in the next 3 years.

In the last several decades, there has been a lot of emphasis on innovation. While some innovative ideas materialized into products, solutions or services, many others are yet to be realized due to various reasons – the significant one being the unavailability of technology to support their realization. Artificial intelligence makes it possible to bring complex ideas to reality with its computing capabilities. The field of AI has seen several advancements – Machine learning, a subset of AI, enables machines to learn from a given data set and adapt itself without being explicitly programmed. Taking this one level further, Deep learning extends the machine learning concept to multiple layers of data – this provides machines the ability to take decisions since they’ve been exposed to millions of data samples and are able to create internal models that aid in decision making.

Below, we list a few innovative offerings powered by AI:

Programma, a company based in UK has developed an AI based solution for brands and retailers to predict customer behavior and improve advertising campaigns. It captures and analyzes target customers’ traits and purchase patterns to provide insights into their preferences and likelihood of purchase.

Doxel, based in the United States has developed an artificial intelligence system consisting of drones and robots that can monitor every inch of a construction project and alert managers of potential cost overruns, inefficiencies and errors.
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In the last several decades, there has been a lot of emphasis on innovation. While some innovative ideas materialized into products, solutions or services, many others are yet to be realized due to various reasons – the significant one being the significant one being the lack of acceptance of new technologies.

In his seminal paper ‘Computing Machinery and Intelligence’, Alan Turing mooted the idea of thinking machines capable of performing any intellectual operation that a human being could do. This concept, now known as artificial intelligence (AI), has been a driving force in shaping the way we live, work and interact with technology.

The third industrial revolution marked the introduction of information technologies that have tremendously transformed the way we work, live and interact with each other. This transformation is the concept of digital transformation.

Innovation has had a positive impact in every industry that is known to mankind and the rate of change is unprecedented. Organizations are increasingly challenged to do more with less and produce impactful outcomes – a situation that has been further exacerbated by the COVID-19 pandemic.

According to a Deloitte Global survey, 76% of executives believe that AI will transform the workplace. MIT Technology Review revealed that AI would transform professional careers.

Today, AI is a technological reality that is reshaping the way companies manage their workforce and drive productivity.

To understand why AI is so powerful, we need to understand how it works. AI is a type of machine learning that enables computers to learns from data and through repeated analysis and feedback, the machine can learn to predict outcomes from similar data inputs.

We can classify AI into three categories – weak AI, strong AI and super AI.

Weak AI: Also known as Narrow AI, this type of AI is designed to carry out a single task. For example, Siri and Alexa are Weak AI.

Strong AI: Also known as Artificial General Intelligence, this type of AI is designed to perform any intellectual operation that a human being could do. For example, AlphaGo is Strong AI.

Super AI: This type of AI is designed to perform any intellectual operation that a human being could do and also can create new ideas.

The development of AI is driven by the proliferation of computing power and the abundance of data. With the advent of AI, machines are becoming more efficient, productive and adaptable.

The impact of AI is felt across all industries, from healthcare to finance, from education to manufacturing. AI is transforming the way we live, work and interact with each other. AI is reshaping the way we live, work and interact with each other.

AI enabled HRD

Artificial intelligence has the potential to transform the entire HR field – talent acquisition, performance management, learning & development, employee engagement and payroll/benefits management, to name a few. Organizations of today are looking at combining people, processes and technology to deliver transformational value, while being cost effective. From a HR perspective, many large organizations are welcoming AI into their HR departments to simplify and improve the overall employee experience. New capabilities in automation and machine learning are enabling faster, better and mature solutions in people practices. Below we state a few applications of AI in HR:

Information retrieval: Employees depend on their HR teams to request for policy related information or to seek clarity in case there is ambiguity. The use of AI-powered chatbots is gaining rapid adoption as it has the capacity to learn from queries and provide appropriate responses to users. The obvious advantage here is that employees can find answers to their queries instantaneously 24 x 7 and personnel in the human resource department can focus on more important and productive tasks, rather than answering the same repetitive questions throughout the day.

Talent acquisition: Companies such as IBM are leveraging AI based software to aid in selecting the best-fit candidate for jobs. This includes screening resumes, work samples, facial expressions, speech patterns, professional and social media posts for signs of violence, empathy, communication skills, reputation etc. to identify candidates who best fit an employer’s culture and role requirements. Many organizations believe that this would help hire a more diverse, dynamic, inclusive and empathetic workforce while also eliminating selection bias.

People analytics: HR departments have access to a lot of people-related data, which can be used to take informed decisions. AI has the ability to correlate an employee’s track record with his/her statements, participation in internal/external media and other sources to determine or validate overall levels of engagement in the organization. Deeper analytics with this data can help identify key contributors and those who add to the company’s brand value – providing useful pointers to the management to address potential attrition. At the same time, it also helps isolate cases where there is strong evidence of who are disengaged and may be demonstrating deviant behaviors.

Learning & development: Using artificial intelligence, we will now be able to pull data quickly and easily sort through demographics like age, gender, culture, level in the organization, educational background and previous learning experiences, as well as patterns of employee behavior, requests, needs and work experiences. AI will also make it possible to assess and recommend tailored learning solutions quickly. Several organizations are now investing in creating on-demand learning modules to cater to the needs of their employees. AI has the potential to create adaptable learning courses in near real time and enable easy access to any material that an employee may require to perform his/her job effectively. Organizations are also looking at reducing their learning and development costs by adopting AI driven learning programs for non-complex courses. The biggest gain for L&D departments is that the introduction of AI creates more bandwidth for people to focus on niche skill development and mature their face-to-face course offerings.

3DSignals, a startup based in Israel has developed an AI based solution consisting of wireless ultrasonic sensors to track changes in the sounds made by machinery, to predict when breakdowns are about to occur. The technology uses deep learning to listen for deviations from the norm in musical and mechanical acoustics. It identifies anomalies, classifies patterns of equipment failure and predicts issues before they interrupt production.

Flixsense, based in Australia has developed a solution based on deep learning to access instant match footage analysis for soccer and cricket – it provides real time insights on a player’s strokes, movement etc. which helps coaches improve their team results.

RapidMathematix, based in the United States has developed an AI based solution that provides automated retail pricing for fresh produce, changing the prices of produce depending on freshness, market conditions and competition. This ensures that customers get their money’s worth of what they pay and that stores are able to reduce food waste by offering discounts.

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**Talent acquisition:** Companies such as IBM are leveraging AI based software to aid in selecting the best-fit candidate for jobs. This includes screening resumes, work samples, facial expressions, speech patterns, professional and social media posts for signs of violence, empathy, communication skills, reputation etc. to identify candidates who best fit an employer’s culture and role requirements. Many organizations believe that this would help hire a more diverse, dynamic, inclusive and empathetic workforce while also eliminating selection bias.

**People analytics:** HR departments have access to a lot of people-related data, which can be used to take informed decisions. AI has the ability to correlate an employee’s track record with his/her statements, participation in internal/external media and other sources to determine or validate overall levels of engagement in the organization. Deeper analytics with this data can help identify key contributors and those who add to the company’s brand value – providing useful pointers to the management to address potential attrition. At the same time, it also helps isolate cases where there is strong evidence of who are disengaged and may be demonstrating deviant behaviors.

**Learning & development:** Using artificial intelligence, we will now be able to pull data quickly and easily sort through demographics like age, gender, culture, level in the organization, educational background and previous learning experiences, as well as patterns of employee behavior, requests, needs and work experiences. AI will also make it possible to assess and recommend tailored learning solutions quickly. Several organizations are now investing in creating on-demand learning modules to cater to the needs of their employees. AI has the potential to create adaptable learning courses in near real time and enable easy access to any material that an employee may require to perform his/her job effectively. Organizations are also looking at reducing their learning and development costs by adopting AI driven learning programs for non-complex courses. The biggest gain for L&D departments is that the introduction of AI creates more bandwidth for people to focus on niche skill development and mature their face-to-face course offerings.

**3DSignals,** a startup based in Israel has developed an AI based solution consisting of wireless ultrasonic sensors to track changes in the sounds made by machinery, to predict when breakdowns are about to occur. The technology uses deep learning to listen for deviations from the norm in musical and mechanical acoustics. It identifies anomalies, classifies patterns of equipment failure and predicts issues before they interrupt production.

**Flixsense,** based in Australia has developed a solution based on deep learning to access instant match footage analysis for soccer and cricket – it provides real time insights on a player’s strokes, movement etc. which helps coaches improve their team results.

**RapidMathematix,** based in the United States has developed an AI based solution that provides automated retail pricing for fresh produce, changing the prices of produce depending on freshness, market conditions and competition. This ensures that customers get their money’s worth of what they pay and that stores are able to reduce food waste by offering discounts.

**AI enabled HRD**

Artificial intelligence has the potential to transform the entire HR field – talent acquisition, performance management, learning & development, employee engagement and payroll/benefits management, to name a few. Organizations of today are looking at combining people, processes and technology to deliver transformational value, while being cost effective. From a HR perspective, many large organizations are welcoming AI into their HR departments to simplify and improve the overall employee experience. New capabilities in automation and machine learning are enabling faster, better and mature solutions in people practices. Below we state a few applications of AI in HR:

**Information retrieval:** Employees depend on their HR teams to request for policy related information or to seek clarity in case there is ambiguity. The use of AI-powered chatbots is gaining rapid adoption as it has the capacity to learn from queries and provide appropriate responses to users. The obvious advantage here is that employees can find answers to their queries instantaneously 24 x 7 and personnel in the human resource department can focus on more important and productive tasks, rather than answering the same repetitive questions throughout the day.

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Compliance: Human resource departments spend significant time and effort maintaining and managing compliance records of their employees. With the power of AI, it is possible to personalize compliance related information for each employee and send automated alerts for any outstanding items that need attention. AI algorithms can also be trained to source new policy related information from the web and feed it to those who can take decisions. Thus, HR personnel can spend their time in non-transactional value added activities.

The human factor

While AI can bring about a massive transformation in the field of human resources, it is also important to realize the human factor that is essential for it to add value. Several HR professionals are concerned if their jobs will disappear due to the introduction of AI. While it is true that the rapid deployment of intelligent machines will drive new innovations and fundamentally change the way we work, the role of humans cannot be understated. Instead of being replaced, humans will see unprecedented job creation as well as new opportunities to add more value. We will potentially see new ways of communication, engagement and working styles with the use of new technologies – people must reskill themselves in order to take full advantage of the additive benefits that Artificial intelligence offers to the HR department.

In the words of Dr. T.V. Rao, widely regarded as the father of the HR movement in India, “Human Resource management is about human possibilities”. Artificial intelligence will fuel new innovations that will push the boundaries of human possibilities – are we ready to take the plunge?
Impacting Learning & Development Through Artificial Intelligence

- Pooja Rao
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Abstract

Information technology has had intense effect on L&D processes and practices. As we move towards building smart organizations, Artificial Intelligence plays a fundamental role towards the success of transforming human knowledge into organizational knowledge. Artificial intelligence is an emerging area in the field of L&D Technology which can replace or enhance the effectiveness of the organisation’s learning curve. Artificial Intelligence can be used by organizations for creating learner’s path, training, talent management and development, engagement succession planning and career development. It can be applied to strategize, plan, execute, assess, evaluate, audit and redo every aspect of learning and development and enhance the effectiveness of learning outcome. The study will analyse the emergence of Artificial Intelligence in Learning and development and the potential benefits of artificial intelligence through secondary data. The paper generates insights on the utilization of technology for conversion of effective L&D into sustainable L&D.

Keywords: Learning & Development, Artificial Intelligence, AI, Machine Learning, Deep Learning, Chatbot, Learning Management System

Research Objectives

Following are the objectives of the study:

1. To find out the benefit or importance of using the artificial intelligence for L&D
2. To evaluate how artificial intelligence can revolutionize the L&D

Research Methodology

This study is using the descriptive research design to describe the scope of artificial intelligence in learning and development. Secondary data collection method is used for the study. The data has been collected through the articles published in HR magazines, training blogs, research journals, survey reports published by various research organizations, books and online sources also.

Introduction

AI enhances organisations to understand that automation and digitisation needs to impact skills and not vanilla job roles. With the fusion of Tech and Touch the way forward is emerging of reskilling which calls for futuristically aligned workforce.

It's no secret that technological advancements are causing unprecedented disruption in the business world — but the question for L&D professional's remains: What do you do about it? How can you ensure that your training strategies stay perennially up-to-speed so your organization remains competitive? Artificial Intelligence has re-positioned L&D to the front lines as a driver of today’s increasingly demanding talent agenda.

It’s critical that organisations get this right: Employee training is one of the top areas targeted for reinvention.

Today talent is not just defined solely by what employees did in the past, but also what they could do in the future. By matching the delivery of employee learning opportunities with the evolving business needs, AI can help individuals...
and teams respond to constant change with speed and agility.

As James Paine points out, “It wasn’t so long ago that artificial intelligence was reserved to the realm of science fiction according to the public.” AI grew exponentially in 2017 and is projected to be even bigger in 2018 onwards.

So, what will we need to know to make the best use of artificial intelligence in L&D?

**A Brief History of AI**

First coined in 1956 by John McCarthy, artificial intelligence (AI) was described as machines that can perform tasks that are characteristic of human intelligence. In 1959, Arthur Samuel defined AI as “the ability to learn without being explicitly programmed.” In 1966, the first AI Chatbot, ELIZA, was “born.”

Today, we see artificial intelligence seep into the workplace and our daily lives as tools that augment tasks and streamline monotonous labour, from the estimated arrival time and pricing of your Uber ride, to your recommendations on Spotify and Amazon, to more complex interactions in customer service. For example, some companies are listening to customer service calls and assigning an empathy score based on how compassionate agents are and how fast and capably they settle complaints. AI is running in the background, recognizing patterns and interpreting data more quickly than humanly possible. Even Google CEO Sundar Pichai has proclaimed the importance of AI to be “more profound” than the impact of electricity or fire.

**Role of AI in Learning &Development**

L&D has to stay abreast of the latest approaches and methodologies as they develop their learning strategies. Customised learning plan is key to sustainable growth. AI can be the guide to getting insights based on the enormous amount of data that has been collected and analysed, to facilitate the creation of customized learning programs in a matter of seconds.

According to Doug Harward, and Ken Taylor, in their article for Training Industry this can help in developing a better understanding and predicting learner needs, behaviour, perceptions by recommending and positioning content based on past behaviour.

Adaptive learning that is personalized to the individual is a powerful way to engage today’s workforce, but Harward and Taylor point out that the challenge facing L&D is to be able to make sense of the data and to leverage those insights to drive business value.

“As with AI in all its applications across diverse industries, there will be many positives, negatives, and...unknowns,” says Massimo Canonico, Head of Solutions Engineering for Docebo. He sees a potential for reduction in the time spent in...
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Taylor points out that the challenge facing L&D is to be able to make sense of the data and to leverage those insights to drive business value. Adaptive learning that is personalized to the individual is a powerful way to engage today’s workforce, but Harward and Doug Harward have proclaimed the importance of AI to be “more profound” than the impact of electricity or fire. AI can be the guide to getting insights based on the enormous amount of data that has been collected and analysed, to facilitate the creation of customized learning programs in a matter of seconds.

Customised learning plan is key to sustainable growth. AI can be the guide to getting insights based on the enormous amount of data that has been collected and analysed, to facilitate the creation of customized learning programs in a matter of seconds. According to TalentLMS, among the numerous reasons for this, this principle shows that employees are more engaged when they’re seen as unique entities, rather than just a as part of a big crowd.

Each person has a different learning style, learners’ programsshould be able to adjust a training program to those learning styles on the fly. For example, machine learning could transform a portion of written coursework into visuals for more visual learners.

Automating Feedback process

Training program cannot be perfect in the first go. With most training programs having a digital element, making changes of any kind frequently can be time consuming, not forgetting the financial pressure involved in the same. A simple solution to this issue would be to use automation to evaluate training effectiveness.

An A.I. program could feasibly handle scheduling training feedback by gathering information about employee engagement or failure points within the program, and automatically testing new variations to try and solve the problem on its own.

Exhaustive and detailed reporting

Achieving a measurable ROI for the business is what is quintessential for analysing training effectiveness. That means evaluating how each employee is learning and what type of impact it has on their future ability to work.

An A.I. program can effectively measure each employee’s engagement, intelligently compare their results to figure out whether the program is doing its job and make adjustments to the program for improvement.

Smart Evaluation and Assessment Techniques

Modern L&D programs, especially those automated with software, include some kind of test or quiz to help employees with what they’ve learned and to measure the effectiveness of the program to some extent. Tests and quizzes developed with A.I. extending beyond the basic question-and-answer format, and may adapt themselves based on individual progressions and needs. This would increase learner’s interest in the program, as well as the program’s capacity to train.

Smarter Interfaces for Workers

We’re already starting to enter an era where engaging with A.I. programs is borderline creepy. We have chat bots that can pass the Turing Test, and voice recognition software that understands exactly what we’re saying.

The next step for A.I. in training programs is going to be developing smarter, more intuitive interfaces that employees can use to more effectively engage with each program. This may include human-like conversations and engagements, or simply smarter UI for on-screen interactions. In any case, this area may also be capable of recursive self-improvement, so the potential is practically infinite.
Use of AI for various L&D in different Industries

Source: www.venturescanner.com

Impact of AI on Employee Training on Construction Industry

According to PwC’s 2017 Global InsurTech Report, the challenges the insurance industry faces in their ability to innovate are:

- Talent (87%)
- Data storage, privacy, and protection regulations (63%)
- IT security (53%)
- Digital identity authentication regulations (45%)

Talent with direct reference to employees and internal stakeholders, use of AI in L&D could be a game changer. AI based tutorials and games can be valuable marketing tools and can help gather customer insights and reduce the cost of training by enhancing the learning experience. Zurich improves L&D for its employees through mobile apps, and some companies are using Augmented Reality/Virtual Reality.

While AI can improve the overall training process for employees, measurable results from the training can also be collected. For instance, in addition to tracking the rate at which employees complete their compliance training, such as food safety and sexual harassment courses, AI can monitor whether or not violations and complaints are decreasing or increasing in the workplace. AI gives a possibility to measure the efficiency of training methods, the engagement levels of employees, speed up the training, and save resources on corporate education. For instance, employees will be able to adapt to fast changing trends and technologies with personalised learning. Also they will feel more engaged giving potential for more innovative ideas from talent in various aspects.

Enhancing Learning Experience for Employees in Retail Industry

One of the controllable costs in retail is human capital, and many retailers attempt to cut costs by reducing staff. This is the wrong approach. Employees are a company’s greatest asset, and for retailers, they’re the emissaries to the client base. In a recent survey conducted by Microsoft, 96 percent of people said customer service is critical to brand loyalty. The same study revealed that 54 percent of people expect better customer service today than a year ago.

To adapt to this increasingly customer-oriented environment, retail employees need to be more productive, capable, confident and skilled. That’s where artificial intelligence (AI) comes in. Virtual assistants are the next generation of retail tech support.

Empowered by AI, employees will provide a better customer experience and gain a greater understanding of the products and services they sell, as well as their customers’ tastes and preferences. Employees and customers alike will be more satisfied.
For example, if a customer is looking for a suit, a virtual assistant can quickly help a sales associate access that customer’s personal preferences, sizes and other details to recommend options that the customer is most likely to buy. This personalized interaction can lead to customers feeling a sense of trust and personalization rather than feeling like they’re just another sale. In essence, the store has created a personal shopper experience and has established a personal connection. This is a relationship that online retailers — based on faceless, frictionless consumption — lack.

**How Does AI Benefit Food and Beverage Performance if used in Training Employees?**

Restaurants across the globe use AI to improve their operations, increase efficiency, and maximize profit. For example, let’s say a restaurant is collecting data that details the entire process of a drive-through order. To increase efficiency, a number of factors are considered, such as the volume of traffic, transaction time, cash or debit, time of day, price changes to the menu, weather, and holidays. With the help of AI, restaurants can track all of these variables. While restaurants may provide their employees with training, the actual process of improving upon the process is often deficient when the right data isn’t being collected. This is what makes AI indispensable. For instance, if the training is being facilitated through an online portal, AI can collect information on how long employees linger in the portal, how often they log on to review materials, the success rate of their quizzes, and the completion rate of certifications.

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**L&D Trends for 2019 as per peoplematters.in**

1. Digital transformation will go mainstream
2. The technology skills gap will reshape learning methods
3. Data training will become an imperative
4. Agility will continue to be an organizational mission

This concludes that with AI, organisations from every sector are positioned to collect relevant data, thereby improving their customer experience, creating a better training experience for employees, and fostering a safe workplace culture. At this point, as companies face an existential threat, AI isn’t just an option but a key to survival. To succeed with AI, Companies can’t treat the technology as a test. It has to be an immersion and a strategic priority.

**Findings and Recommendations**

Everyone has their own unique learning style. So why don’t corporate training programs typically take this into account? One-size-fits-all training modules are not an effective way to train employees.

To prove training success, learning leaders must measure and track employee results. Demonstrating learning effectiveness and measuring success is about more than quiz and test results, satisfaction surveys and the number of courses completed. AI plays a significant role in the same. It streamlines the process, makes implementation and execution smooth and organised, speeds up the training feedback and evaluation and forecast for re-training needs.

Regular training, education and professional development is essential to keep employees growing in their skill set and their desire to fulfill their roles. Developing customized career development tracks is another detail-oriented task that can be successfully streamlined with the use of AI. Employees can have a recommended series of development activities given their tenure, background, role and personal objectives.
Conclusion

Machine can surpass the human level of intelligence and ability. The data processor in the AI system finds the effective way to achieve the objective of any task. This technical innovation can help the L&D professionals to manage the complete learning process and help develop employees effectively. Machine Learning and Artificial Intelligence are sure to play a prominent role in the future of eLearning. Especially given the numerous benefits they can bring to individual online learners and organizations. The secret is to stay one step ahead of the tech trends and evaluate your current eLearning strategy to forecast AI applications.

AI is beneficial for both employee and employer. It is however evident that the fear of human factor being replaced by AI in the coming decade can be unnerving. As AI advances in all spheres, including in learning and development, there is more corroboration to support the idea that both intelligent systems and humans are essential to manage different aspects of learners’ competencies. There may be internal and external forces impacting the new technological AI systems. Internal factors such as employees’ resistance to learn something new, unskilled workers, unavailability of resources etc. External factor which may affect the system such as change in government could have different political ideologies, with direct influences on business, the economy of country, legal aspects, new legislations, trade agreement etc. With volatility, uncertainty, complexity and ambiguity in the environment technology has been successful in changing the way organisations handle employee learning paths and modes. More skilled and technical workforce is now in demand and better LMS is what AI provides for and the credit goes to the programmers, processors, computers and internet. To conclude, AI will likely not replace but will act like a catalyst in improving learning by being a support system to the human factor in the long run. Sure, AI conquers the field of corporate training quite gradually. However, it has slowly but surely come to be a true game-changer on our way to educate staff.

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Research Papers

Artificial Intelligence has come to hiring

In this fast-paced world of technology, companies are growing and so is the need to rapidly staff up. Recruiters are spending hours at a time going through huge piles of resumes which is simply overwhelming. “AI” has turned into a popular expression of the late. Artificial Intelligence in its present state has discovered far reaching applications in the general masses – Amazon’s Alexa, Google’s Home, Tesla’s self-driving cars to our very own Mahindra’s connected cars. With AI proving useful in all spheres of our lives, it’s only natural that it finds application for recruiters.

 Corporates behemoths are implementing technology solutions to help smoothen their recruitment process, but, most of them are still content with the ‘Recruitment Process Outsourcing (RPO)’. If 300 lives in an airplane can be trusted with auto-pilot (AI) why not take a look at “Recruitment Process Automation (RPA)”.

“Artificial Intelligence has come to hiring” what does this really mean? Predictive algorithms and machine learning are fast emerging as tools to identify the best candidates. Companies are using AI to assess a candidate’s qualities, depending on research to investigate everything from word choice and micro-gestures to psycho-emotional and psycho-passionate qualities. Data is crucial here. AI’s strength is the capacity to go over such information, inspect various factors, and discover patterns that humans might not see. Simply put, this is what’s called “supervised” learning: HR administrators and information researchers together may set up and change factors that ought to be weighted in - in light of characteristics of high performers.

“Traditional v/s Modern”

While we are talking about the changes, there are few myths that are to be broken –

1. **Their Star May Not Be Your Star** – An employee performing great in a competitor company may not fit into your organization or may not be a great performer for your organization.
2. **Experience isn’t everything** – Google’s recent internal team survey shows – graduates part of the extracurricular activities outperformed leaders leading these activities. This is really important and to be kept in mind always, because companies need team players more than stars.
3. **Grit Matters More Than IQ** – Passion and persistence matter more than IQ, social intelligence amongst other things and hence, cognitive hiring is more important than ever.

**Breaking the screening bubble** –

Imagine, recruiters running into dilemma of attempting to fill a role requiring two years of previous work experience or three? By setting the cutoff at three, the recruiter shrinks the candidate pool taking a generous time trouble off. Be that as it may, you could likewise be passing up a major opportunity for some awesome candidates who just have two years of experience. When using traditional screening methods, it is difficult to expand this search inconclusively. Recruiters, can thereby offer Talocity’s TxOne-Way interviews to a larger segment and save themselves from missing out on some great candidates.

**Screening** –

Recruiters spend 20-40 mins screening candidates. If on average 1 recruiter screens 6 candidates and shortlists 2, that’s almost 3 hours, which he or she could have spent on more productive endeavours. Talocity’s TxOne-Way video interview let the recruiters to see the responses to questions they would have asked during the screening. Now they can focus their screening time on more targeted candidates. Also, recruiters will be able to replace the 60-90 minutes of face-to-face interaction with Talocity’s TxOne-Way video interviews.

*Email: dev@talocity.in*
Also, consider the “Campus Hiring” scenario –

1. You can only consider students from a few colleges as it is very difficult to scale a campus presence.
2. Screening is not consistent. Recruiters might be screening out future top performers solely because they haven’t visited their career center yet.
3. The process is slow. Interviewing college students with irregular schedules is different than interviewing candidates with a steady 9-to-5. Scheduling conflicts can slow the hiring process significantly.

When recruiters and hiring managers can select talent in a clearer way with more knowledge of who they are selecting conversations about candidates’ actual skills and abilities, rather than vague comparisons.

Different interviews with different questions and settings. Clearing the noise from the interview process leads to when a video interview is shared, candidates are compared to each other objectively, not in relation to two or three leaders.

This puts the impetus on the talent acquisition, to build a brand that students on campus recognize. With Video Job Descriptions, Video Job Previews, Video Company Floor walks shown before Talocity’s TxOne-Way and the same being marketed from the Talocity’s marketing channels, the candidate is able to relate to and better understand as to what is expected of him/her for the role. It also gives the candidate a glimpse into the company’s culture and along with the experience of the potential co-workers, the candidate is able to feel comfortable and see his progression in the company.

**Shift from being a messenger to advisor:** Most recruiters and hiring managers have a shorthand way of talking about candidates that develops over time. When a hiring manager and a recruiter have worked together for a time, vague responses like “This candidate was too” or “Candidate was not confident enough” convey the complex evaluation that has taken place.

In the traditional phone screen and in-person interview process, these types of conversations close the feedback loop. The interaction between recruiter and hiring manager is transactional: the recruiter is a messenger between candidate and manager.

When recruiters and hiring managers watch the same video of a candidate, the bizarre conversation of feedback created exclusively through shared experience is replaced with a universal translator.

Each candidate responds to the exact same question set, and the only difference in the process is their unique response to each question. Recruiters and hiring managers see the same response from the candidate, regardless of time or place. They also have the same opportunity to apply ratings, recommendations, comments, and tags.

Each evaluation is clear feedback on a candidate, and every evaluator can refer back to it when evaluating new candidates. This effectively makes the hiring process more consistent and more connected to the business goals of leaders.

When a video interview is shared, candidates are compared to each other objectively, not in relation to two or three different interviews with different questions and settings. Clearing the noise from the interview process leads to conversations about candidates’ actual skills and abilities, rather than vague comparisons.

When recruiters and hiring managers can select talent in a clearer way with more knowledge of who they are selecting and why, everyone becomes more strategic – and hiring can be more closely tied to future success.

With TxOne-Way interviews, the rich information shared in conversations between recruiters and hiring managers becomes even more valuable. It can be shared with HR leaders, other hiring managers, and anyone else inside the organization. It can be used to substantiate past decisions and creates a reference guide for directing future hiring efforts on the basis of past success.

**So, ready for the shift?**
A Study of Artificial Intelligence in Small and Medium Enterprises

Abstract:

Artificial intelligence becomes one of the integral parts of the business in a highly competitive business environment. This article focuses on Artificial Intelligence in small and medium enterprises. Small and medium enterprises have a limited capital, lack of skilled manpower, lack of technology infrastructure, etc. to implement artificial intelligence. The various benefits of artificial intelligence compelled organizations to think on this opportunity and make it one of the competitive advantages. Though small and medium enterprises are having various limitations, artificial intelligence can add value and give competitive advantage.

Keywords: Artificial Intelligence, Small and Medium Enterprises, Competitive Advantage, Information, Technology infrastructure.

Introduction:

In recent past, small and medium enterprises (SMEs) were highly reluctant or less enthusiastic about adoption of new technologies. Technological advancement and digital innovation in the last few years have been influential in crucial the success of business. However, SMEs today are still suspicious to adopt new and embryonic technologies such as Artificial Intelligence and data science. One of the motive that make them incredulous is the acuity that Artificial Intelligence implementation is not an appropriate for small and medium enterprises (SME’s) due to the lack of resources and adequate funds to arrange AI-powered technologies.

While at present the access to essential datasets, the capability to build data lakes and the competencies essential to build algorithms may be one of the challenge encountered by Small and Medium Enterprises, in the immediate imminent, we are likely to have Artificial Intelligence (AI) based structures influencing the data related to an amalgamation of small and large clients developing recommendation systems. This would enable small and medium enterprises (SMEs) to avoid the segment of building their particular Artificial Intelligence (AI) systems around their own databases and power the readily available off the shelf AI systems trained on multiple databases. Thus, in due course of time, matured ready-to-use AI platforms or tools for various functions would be accessible for businesses to adopt and integrate with their business transactions.

In preparation for this, emphasis on catching and building a vigorous data structure is crucial. For Artificial Intelligence (AI) tools to deliver required results, businesses should start preparation for proper classification of data in which artificial intelligence (AI) systems can be developed and therefore small and medium enterprises (SMEs) would do well to give sufficient consideration to treat data as an important resource.

Literature Review:

Ryszard Tadeusiewicz (2016) acknowledges that Artificial Intelligence (AI) for many years established in a multiple direction. Stacey Kuyf (2017) offered an article, “How Small and Medium Enterprises (SMEs) can practice Artificial Intelligence to scale their business enterprises”. She has stated a few zones where small and medium enterprises (SMEs) can use Artificial Intelligence (AI) in small and medium enterprises (SMEs) to grow their business functions such as: legal, big data, customer relationship management etc. Chad Kutting (2016) expressed that the businesses which are capable to influence artificial intelligence (AI) early will realize operational competences.

Vanson Bourne (2017) has surveyed business policy of decision makers from around the world and founded that 80% of businesses already have some sort of artificial intelligence (AI) such as machine learning in production. 30% are
planning to stretch their investments into artificial intelligence (AI) in 3 years. Regrettably, 91% of respondent shared that they have faced issues with artificial intelligence (AI) execution, with incompetent manpower or skill set mismatch and meager Information Technology (IT) infrastructure etc.

**Objectives of the Study:**

- To understand the artificial intelligence.
- To study the barriers of artificial intelligence implementation in small and medium enterprises.
- To study the various benefits of artificial intelligence to small and medium enterprises.

**Research Methodology:**

Research Design: The data is collected from various sources like journals, magazines, reports, newspaper and books. Sources of Data: Secondary data.

**Challenges of Artificial Intelligence Implementation in Small and Medium Enterprises:**

The artificial intelligence implementation in small and medium enterprise is becoming challenging due to lack of physical, technological, psychological and intellectual infrastructure. Few factors have been identified as barriers to artificial intelligence in small and medium enterprises.

- Lack of talent in artificial intelligence,
- Lack of leadership interest,
- Lack of technological infrastructure,
- Lack of available data,
- Lack of focused strategy.

**Lack of talent in Artificial Intelligence:** Lack of talent of artificial intelligence in small and medium enterprises is one of the tough jobs. Organization which are operating at small and medium levels do not have highly skilled and qualified human resource to take up job assignments. Organizations needs to take more efforts to attract new employees and develop internal resource. A majority of organizations are not attentive in such investment in human resource.

**Lack of Leadership Interest:** The psychological block of majority promoters of the small and medium enterprises is introducing innovation with investment. Leaders of small and medium enterprises want to do business in a very steady business environment. They want to do very fractional changes in their existing infrastructure. The willingness of a businessman might become a barrier for artificial intelligence in small and medium enterprises.

**Lack of Technological Infrastructure:** It is observed that you need to have strong infrastructure of digital automation to implement artificial intelligence. Most of the small and medium enterprises lack in technological infrastructure, so it becomes difficult to small and medium enterprises to implement artificial intelligence.

**Lack of Available Data:** As we know that small and medium enterprises are operating at a small level, lack of skilled and qualified employees and lack of system automation. This leads to non availability of needful data or information for artificial intelligence.

(please first say who Ryan is) – Ryan Says: “We must give them high quality data of information. Data is the fuel for artificial intelligence. Artificial intelligence solutions trained on data that is incomplete misrepresentative or biased will make decisions that would be obviously seem incorrect to a human.”

**Lack of Focused Strategy:** Operational strategy requires significant capital investment, skilled investment and physical infrastructural investment. Small and medium enterprises are not in position to generate such crucial
resources for artificial intelligence. Most of the small and medium enterprises are working on traditional business model. Because of lack of various resources organization does not focus on artificial intelligence strategy.

**Benefits of Artificial Intelligence to Small and Medium Enterprises:**

Artificial intelligence allows small and medium enterprises to fit in customer services at minimum cost. It can use data processing capability to scrutinize available information on any customer and automate answers based on this, thus dropping the load on the staff head. In addition to this, it may eventually allow these companies to cut down on operational costs, based on its ability to sort out messages and tickets and forward them to the right departments that can deal with them -- say, human resources or IT. In this manner, the required number of human resource can be reduced without hurting the level of service offered to clients.

**Empowering Human Resources:** Artificial intelligence enable all employees to contribute in decision making. This is very suitable for small and medium enterprises where very few employees are working. These empowered employees contribute more in terms of productivity.

**Save Time:** Employees use to spend more time on data entry and manipulation but now artificial intelligence tools take care of it. Now employees can have a utilized saved time for more creative and innovative jobs.

**Provides more precise information to clients or customers:** It helps in profiling of client or customer like target customer, buyers preference, availability of customer etc. Application of artificial intelligence is enabling organization to concentrate more on focused customer group.

**Identification of Right Sizing Areas:** Small and medium enterprises operate with very less capital. Artificial intelligence enables organizations in budgeting, human resource planning, marketing planning and other micro-functions and helps in minimizing the cost of production or services.

**Information Provider:** It enables promoters or leaders of the small medium enterprises to get required information on few clicks like access to sales data, buyer, employee, customer contact etc. for further business decision.

**Conclusion:** Today’s business environment is highly competitive in nature. Artificial intelligence and small and medium enterprises need to strategize and align these business applications with their concern business objectives to get the competitive advantage. Artificial intelligence can be useful for small and medium enterprises if they understand the importance of this emerging technology and accordingly prioritize to achieve success in long run.

**References:**

FOR MEMBERS / CONTRIBUTORS / AUTHORS

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IJTD looks for stimulating articles based on research and scholarship or significant experiences of learning in the field of management, human resource & development. It encourages writings rooted in Indian conditions for problems unique to India and confirming to International reference points. Its ambit includes management problems and their innovative and effective solutions in business enterprises of both public and private sectors as well as socially oriented non-profit seeking organizations and institutions.

We invite research papers, case studies and book reviews around the following themes for the next 3 issues:-

1. **Jan- Mar 2019:** 360 Degree Wellness, Work life Balance and HR
2. **Apr-Jun 2019:** Changing Paradigms of Work Culture: India & Asia
3. **Jul-Sep 2019:** Futuristic Talent Management: From top to bottom of pyramid
4. **Oct-Dec 2019:** Corporate Social Responsibility, L&D and HR: Touching lives

The Length of the Article to be 2500-3000 words (approx. 5-6 pages) and case study length 5000 words. The last date for submission: 15th April, 2019

“All papers have to be strictly as per APA format only and the papers must have relevant data Analytics and implications included in Asian context largely and Indian context specifically.”

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Look forward to your active contribution of sharing articles for Indian Journal of Training and Development (IJTD)
The Impact of Leadership Style on employee's job behaviour in Production Industry

- Susmita Bose
Email: susmitabosesarkar@gmail.com

Abstract:

The present study aims to analyse the possible impact of various leadership styles on followers’ job behaviour in Production industry. Twenty five identified leaders along with five followers under each of these leaders were taken as the sample of the present study, thus making the sample size 150. The leadership style of each of the leaders was measured by administering the Leadership Behavior Description Questionnaire to each of the follower of a particular leader. In addition, the followers’ job behaviour has been obtained from Followers’ Reaction Questionnaire.

The result of the present study seems to suggest that in a Production industry, followers are most willing to contribute and perform under value-based. They tend to perform well under the humane, team-oriented and participative style of leadership also. In Production industry, employees seem to perform well under autocratic leaders as they are habituated with this type of leadership. However, followers seem to reject the self-protective style of leadership, and show poor performance under this kind of leadership.

Keywords: Production industry, Employee Performance, Leadership style, Charismatic leadership, participative leadership, team oriented leadership, humane leadership, autocratic leadership, self-protective leadership.

Introduction:

Production industry is one of the most important industries in the economy of any country. Like any other industry, in production industry also Leadership style plays a pivotal role when it comes to the matter of achieving organisation’s goal. In that backdrop Human resource of any organisation becomes the most crucial resource as it gives the organisation edge over to the other organisations by providing sustainable competitive advantage.

Keeping the view of the advancement of the production industry along with the growth of economy, importance and significance of appropriate leadership style has increased in organisation, because apart from other area of influence, to a significant extent employees’ performance, behaviour, perspective get influenced by the leading style of a leader.

Depending on the situational demand, organisational culture, socio-economic structure leadership style varies from leader to leader. The way a leader thinks, the way he handles his subordinates makes a huge difference in the behaviour of the employees of the respective organisation. In this study we will discuss about the leaders from the production industries, their various leading styles and the influence of their leading styles and attitude on their subordinates.

Literature Survey

In order to develop an empirically based theory to describe, understand and predict the impact of leadership and organizational process, a major international research foundation, named GLOBE (The Global Leadership and Organizational Effectiveness) was established during late 90s. GLOBE foundation was created by Robert J. House of University of Pennsylvania and was later joined by a host of social scientists, co-investigator from 170 countries and management scholars from 62 countries across the world.

Nidadhavolu 2018, in his study on construction industry of India showed that leadership styles have a significant impact on employees’ job satisfaction and organizational commitment. Bhatti, Maitlo, Shaikh, Hashmi and Shaikh (2012) showed that Leadership style has a positive impact on job satisfaction and public teachers have high level of job satisfaction rather than private teachers. While in a study on about 320 employees of different bank branches in Pakistan, Rehman, Mansoor and Bilal (2012) showed that the bank manager should follow consideration style of leadership at work place to make his employee more productive.
The results of the study conducted by Chipunza, Samuel and Mariri (2010) indicated weak but significantly positive relationship between different leadership styles and employee motivation and commitment, after a merger in a retail bank operating in an economically volatile environment.

Dolatabadi and Safa (2010) in his study indicated that, participative leadership has direct influence on Shared values and ECSQ (employees’ commitment to service but this leadership style did not influence on Employees’ role clarity. This study demonstrates the importance of leadership styles of managers in service climate on employees’ responses. The result of the study by Fernandes and Raed (2004) revealed a strong effect for transformational leadership on satisfaction.

To examine the perceptions of politics among public sector employees as a possible mediator between the supervisor’s leadership style and formal and informal aspects of employees’ performance (Organizational Citizenship Behavior – OCB) Gadot (2007), in his study, partially supported the mediating effect of organizational politics on the relationship between leadership, in-role performance and OCB.

In a comparative study on 43 middle-level managers and 156 subordinates, Pradeep and Prabhu (2011) have shown that the transformational leadership style has significant relationships with performance outcomes.

Thus it is evident from the above mentioned studies that, the follower’s job behaviour, performance and commitment towards the achievement of organization goal get affected to a significant extent by the leadership style of the leader he is working under.

**Aim of the present study**

The primary aim of the present study is to analyse the possible impact of various leadership styles on followers’ job behavior, viz. their levels of commitment and willingness to contribute towards the organization, in Production industry. Efforts have also been made to identify the leadership styles prevalent in Production industry in and around Kolkata.

More specifically, attempts were made -

- To determine the leadership style of a particular leader.
- To find out the prevalence of a particular type of leadership in Production industry considered for the present study.
- To find out whether various leadership style has influence on employees willingness to continue in the organisation and willingness to contribute in the fulfillment of organisation’s goal.
- Analyse the possible impact of various leadership styles on followers’ job behavior, viz. their levels of commitment, willingness to continue in the organisation and willingness to contribute towards the fulfillment of organisation goal in Production industry.

**Operational Definitions**

- **Leader**
  In the present study, Leader was a person, who could take independent decision, had the power to give orders or instructions to a group of followers and had the ability to influence them towards the achievement of organization’s goal. E.g. Business Executive, Senior Manager, Project Leader, Team Leader etc.

- **Leadership style**:
  In the present study, leadership style referred to an individual’s propensity to behave in a particular manner within the organization, which could be accessed through the response of his/ her follower to GLOBE Study Questionnaire.
• **Follower:**
  In the present study, follower of an individual was the person who used to report directly to the individual and take directions / instructions from him.

• **Production Industry**
  In the present study Production industry is defined as the branch of products from raw materials and commodities. This includes all foods, chemicals, textiles, machines and equipments

• **Employee satisfaction:**
  In the present study, Employee satisfaction will be a measure of how happy workers are with their job and working environment.

• **Followers' willingness to contribute**
  In the present study Followers' willingness to contribute has been defined as the followers' wish and effort to contribute significantly in the achievement of organization's goal.

• **Followers' willingness to continue**
  In the present study Followers' willingness to continue has been defined as the followers' wish to be the part of the organization for longer period of time.

**Hypotheses of the Present Study**

1. Leadership style has no impact on followers' willingness to contribute followers' effectiveness.

2. Leadership style has no impact on followers' Followers' willingness to continue

**Methodology**

**Sample:**

Twenty five identified leaders from Production industry along with five followers under each of these leaders were taken as the sample of the present study, thus making the sample size 150.

**Exhibit 1:**

<table>
<thead>
<tr>
<th>Production Industry</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average age of the sample</td>
<td>46</td>
</tr>
<tr>
<td>Average Education Qualification</td>
<td>12+4</td>
</tr>
<tr>
<td>Average Experience</td>
<td>17</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>107</td>
</tr>
<tr>
<td></td>
<td>43</td>
</tr>
</tbody>
</table>

**Tools:**

The leadership style of each of the leaders was measured by administering the Leadership Behavior Description Questionnaire individually to each of the follower of a particular leader. In addition, the followers' levels of commitment and willingness to contribute towards the organization were obtained from the response to the part of the same self reporting questionnaire.


**Method of data collection**

The Leadership Behavior Description questionnaire was administered individually to each of the respondents to identify the leadership style of each of the leaders and to understand the job behaviour, motivation and the commitment of the follower.

**Data Analysis**

Leadership score obtained from followers’ response to the Leadership Behavior Description questionnaire. The maximum score obtained by the trait is the leadership trait.

Similarly, the followers’ reaction, motivation and job behaviour were obtained by averaging the master score of the responses of the follower to Leadership Behavior Description questionnaire.

**Findings**

- **Objective**—was to determine whether Leadership style influences Followers’ willingness to contribute in the fulfillment of organisation’s goal.

Hypothesis: Leadership style has no impact on followers’ willingness to contribute followers’ effectiveness.

**NULL hypothesis** -

\[ H_0: \mu = \text{Leadership styles has no influence on Followers' willingness to contribute} \]

**Alternative Hypothesis**

\[ H_1: \mu = \text{Leadership style influences Followers' willingness to contribute} \]

Dependent Variable: EmpContribute

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>5</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 1

Table 1 shows \( p<0.05 \).

**NULL Hypothesis rejected**

So by rejecting NULL Hypothesis we get the result that Leadership style influences Followers’ willingness to contribute in organisation’s goal.

- **Objective** was to determine whether Leadership style influences Followers’ willingness to be in the organisation.

Hypothesis: Leadership style has no impact on followers’ Followers' willingness to continue

**NULL Hypothesis:**

\[ H_0: \mu = \text{Leadership style has no influence on Followers' willingness to be in the organisation} \]

**Table 2**

Discussion and Conclusion

From the result of Table 1, Table 2 and Table 3 it can be stated that, in Production industry, the employees show great level of dedication towards their work and organisation, they are very positive and optimistic about the environment of the organisation when they work under a leader who adopts Value-based and/or humane, team-oriented style of leadership. Some Leaders from this industry have found to be humanitarian who rush to the assistance of his colleagues and employees in a crisis and employees also show greater commitment under this type of leaders.

Though some young leaders from this industry have been found to prefer democratic and participative style of leadership, senior leaders are found to adopt autocratic style of leadership. Employees are also found to perform well under autocratic style of leadership as well as they are habituated with this type of leadership. Production industry
Method of data collection

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Findings

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<tbody>
<tr>
<td>Leadership</td>
<td>5</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 2

Table 2 shows \( p < 0.05 \).

NULL Hypothesis rejected

So by rejecting NULL Hypothesis we get the result that Leadership style influences Followers' willingness to contribute in organisation.

Also, the result of the studies shows the impact of various Leadership Styles on employee’s willingness to contribute and willingness to be in the organisation in percentage.

<table>
<thead>
<tr>
<th>Leadership Style</th>
<th>Followers' Job Behaviour</th>
<th>Result in percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Value-based Style</td>
<td>Willing to contribute</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>Willing to be in the org</td>
<td>78.5</td>
</tr>
<tr>
<td>The Team-oriented Style</td>
<td>Willing to contribute</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>Willing to be in the org</td>
<td>83</td>
</tr>
<tr>
<td>The Participative Style</td>
<td>Willing to contribute</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>Willing to be in the org</td>
<td>87</td>
</tr>
<tr>
<td>The Humane Style</td>
<td>Willing to contribute</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>Willing to be in the org</td>
<td>75</td>
</tr>
<tr>
<td>The Self-protective Style</td>
<td>Willing to contribute</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Willing to be in the org</td>
<td>39</td>
</tr>
<tr>
<td>The autonomous Style</td>
<td>Willing to contribute</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>Willing to be in the org</td>
<td>69.5</td>
</tr>
</tbody>
</table>

Table 3

Discussion and Conclusion

From the result of Table 1, Table 2 and Table 3 it can be stated that, in Production industry, the employees show great level of dedication towards their work and organisation, they are very positive and optimistic about the environment of the organisation when they work under a leader who adopts Value-based and/or humane, team-oriented style of leadership. Some Leaders from this industry have found to be humanitarian who rush to the assistance of his colleagues and employees in a crisis and employees also show greater commitment under this type of leaders.

Though some young leaders from this industry have been found to prefer democratic and participative style of leadership, senior leaders are found to adopt autocratic style of leadership. Employees are also found to perform well under autocratic style of leadership as well as they are habituated with this type of leadership. Production industry
generally nurtures power and dictatorial cultures. It has been observed that the average age of the managers of this industry is generally high. Aged managers are generally authoritarian in their relationship with management and labour. Therefore, the employees are also used to this kind of leadership. Production or engineering industry involves complex procedures and systems and also involves employees of different categories, a percentage of which lack education and sophistication. Every now and then these leaders face demands of labour union, lockout, strike etc. Managing all these properly and efficiently, demands administrative effectiveness, toughness. The leaders from this industry have been found to be administratively very effective. They are well organized and methodical with the ability to manage complex procedure and system. Employees, under this style of leadership show a significant amount of commitment towards the organization.

However, followers seem to reject the self-protective style of leadership, because this type of leader is generally selfish and are concerned about their own well being only. At the time of crisis, this kind of leaders prefer to take safer route rather than facing challenges and leading from the front. Naturally, followers of these leaders show very poor commitment towards the organization and also show reluctance to be in the organization for a long span of time.

References:

Case Study

NTPC- Award winning innovative L&D practices

A K Tripathi
Addl General Manager & Sr Faculty (Strategy)
NTPC Regional Learning Institute, Western Region-II

Introduction

Business Focus and Talent Development has always been deeply ingrained in NTPC’s culture. While the company makes significant strides as the largest power producer in the country, it has also consistently figured as best places to work for. In the recently declared results in Jan 2019, NTPC figured prominently within top 25 companies as Great Places to Work for, in the manufacturing category. As the company marches ahead and creates many milestones, it also faces formidable challenges like intense competition in the sector, complexities in adoption of emerging technologies, fast advent of renewables causing grid integration issue, challenges to optimally utilise the scarce resources - water, coal and gas, mounting environmental concerns, regulatory constraints and attracting and retaining top talent. In spite of such challenges, company has consistently maintained its leadership position in the sector. Company has also made significant changes in its strategy creating a roadmap till year 2032. It is consolidating its position across entire power value chain including mining, renewable energy, hydro and power trading and e-mobility. By 2032, about 30% of our installed capacity will be non-fossil based from currently less than 2%. All through this journey, the human resource of the company has always ensured that the company soars high, no matter what. All the laurels and future ambitions of the company are powered by its human resource which is cared for and nurtured by the company carefully to remain future ready. Perhaps no other company in the country provides the diverse and ample opportunities for learning and development as NTPC does.

The four pillars of NTPC’s talent strategy

Resting on four pillars – Competence, Commitment, Culture and Systems, our talent strategy takes shape in the way we acquire, engage, groom, motivate and retain talent. It is not a mere chance that the company figures in great places to work for year after year, most of the employees chose a lifetime career with us and our attrition rate is only 0.52%.

We adopt a 3R (Reorient-Reposition-Revamp) Strategy for L&D. Comprehensive, nine pronged Training Need Analysis is done to create business focused L&D interventions. Through this extensive TNA process, we constantly Reorient our L&D programmes towards emerging business needs. We also ensure that Return on Training Investment (ROTI) is measured to track effectiveness of the programs. We measure Return on Training Investment for nearly 80% of our programmes at varying levels as per the Kirkpatrick Model. We Reposition L&D as a learning partner rather than a passive training provider. This is supported by best-in-class faculty, new learning platforms and co-created learning solutions with employees. We also consistently Revamp our learning delivery systems employing contemporary pedagogy like Simulators, Augmented and Virtual Reality, Theatre Workshops, Village Immersion, Outbound Activities and e-Learning with increasing emphasis on technology-driven platforms. Minimum seven days training per year per employee is the norm.

L&D actively supports the eight stated strategic goals of the enterprise which are as follows.

- **Business Portfolio Growth:** diversifying into hydropower, renewable energy, coal mining, power trading, e-mobility, energy-related services, etc.
- **Customer Focus:** Fostering collaborative style of working with customers.
- **Agility:** Responding quickly to opportunities and threats.
- **Performance Leadership:** reducing project construction time and generation cost and ensuring quality in all systems and processes thereby generating affordable power in clean and sustainable manner.
Human Resources Development: creating a learning organization of world-class professionals. Developing leaders who are future ready.

Financial Soundness: prudent financial management by reducing cost of capital, ensuring remunerative tariffs, minimizing receivables and reducing generation cost.

Sustainable Development: leading in environment and societal support practices.

R&D: adoption of reliable, efficient and cost-effective technologies and fundamental research in relevant areas.

### Young talent taking the first flight with us

Recruitment is done at entry (executive trainee ET) level through a national level common test (GATE), followed by group discussion and interview in the company. Recruitment is followed by extensive 12 month induction programme (ET Training). This program provides a unique blend of technical, functional, management and leadership skill inputs. On technical side, it covers the entire gamut of power sector including design and engineering, commissioning, power generation, fuel management, operations, efficiency management, renewable energy, renovation and modernisation, transmission and distribution. On the functional, management and leadership side, it encompasses elements like planning, project management, quality control, contracts and procurement, finance, CSR, HR, communication skills, innovation, design thinking and leadership. There are several value added elements like immersion stay of few days into the villages near our projects where ETs get a first-hand experience of lives of people around our projects, a 15 days theatre workshop in association with artists of National School of Drama, wherein the young ETs learn and perform drama in front of large audience thereby learning communication and team building skills, outbound programs to natural hills and beautiful landscaped areas to foster risk taking, team building and target setting competencies. Several such elements make the program unique, innovative and interesting. About half of this program period of one year happens on-the-job wherein the ETs get exposed to actual working environment.

This programme has contributed immensely to the growth and excellence of the company by developing a cadre of excellent power professionals who are taking the Maharatna NTPC forward as a global giant. As of today, all the members of NTPC board have, in fact, risen to this level through our ET program. This program has not only created leaders within the company but has given leaders to the sector who are today occupying senior positions in other companies. NTPC can be rightly said to be a nursery (gurukul) of leaders in the power sector of the country. Many other organisations have realized the value of such comprehensive induction programmes and regularly request NTPC to design and conduct similar programmes for them. NTPC Power Management Institute (PMI) provides such services to many companies like Siemens, Alstom, L&T, UPRVUNL, Adani Power, OPGCL, Bajaj Energy, SJVNL, THDC, Lanco, Awantha Power and Jaiprakash Power Ventures. This programme is now being customized and delivered in shorter formats as per needs of various clients like, PFC, NHPC, REC, EDCIL, etc. Once the young ETs are inducted and taken through the ET program, they are further integrated into the company culture through a Mentoring Program.

**Introducing a new concept in mentoring – Daksh Program**

We have started an innovative concept in mentoring called **Daksh** which is a unique combination of experienced senior experts who have superannuated from the company, one- to-one mentoring the young engineers of the company. Based on the relationship of Arjuna and Krishna where Krishna mentored young Arjuna, in this program, acknowledged experts of technical domain who have since superannuated from the company are identified to be mentors for one or two young budding executives. There is a system of formal and informal interaction between the mentors and mentees.

### Creating a Leadership Pipeline

As employees grow in the organization, they need to acquire certain leadership and general management competencies at different levels, all across functions and departments. NTPC conducts specially designed leadership and management development programmes for all the executives at certain identified stages of their careers in order to build these competencies. These programmes are called “Planned Interventions”. A schematic representation of these interventions is depicted below.
There are planned learning interventions at various stages of the career journey of an employee. A program called EDP (Executive Development Program) inculcates management abilities to those promoted from non-executive to executive cadre, after a rigorous selection process. For fresh entrants in executive cadre (ETs) who are graduate engineers, there is a year-long ET program. Thereafter, there are programs administered at about 7, 13, 20 and 30 years of service for grooming the executives for further higher positions. All the planned interventions have different focus. At the level of ETs, the focus is on the technical and functional competencies to emerge as a power professional. The focus of the Foundation course is on becoming a good team player. EMC focuses on becoming good team leaders whereas the focus of the AMP is on developing leadership. Senior management (GMs and EDs) are sent to attend a customised program on strategy and leadership called SMILE (Strategic Management Initiative for Leadership Excellence) in premier institutions like Harvard and Wharton. We have already sent five such batches of 40 each in the last two years under this program, thus exposing about 200 senior executives to the Ivy League top-notch learning. SMILE program fosters strategic thinking and leadership in the VUCA world. The top leaders, i.e., Directors and CMD participate in Director's Conclave which are organised as strategy meets led by an eminent faculty.

**Leader10X Program - Catching them young**

A unique program titled "Leading and Delivering Enterprise Results (LEADER-10X)" has been launched since last three years. Under this initiative, high performing and high potential young executives at middle management levels are carefully selected by their Business Unit Heads or Executive Directors and nominated to this innovatively designed programme. The objective of this intervention is to expose the cross-functional select groups of brilliant executives working in different areas, to advanced learning of subjects, tools and techniques that are essential for taking critical long-term business decisions. The chosen executives are required to undergo intensive training on ten identified discrete themes. The 10 themes/modules have been identified by the organization as vital requirements for making key decisions and, therefore, having a crucial bearing on the success of the business. These modules include Advanced Excel and modelling, Understanding finance, Project financing, Long term planning process, Power sector policies/ regulations/power market, Cost benefit analysis, HR-Organizational Behaviour, Communication and presentation skills and New business and technologies. In each module, the participants have to take intensive pre and post-tests. The trainings are imparted by academicians from the country’s top rated colleges/institutes and highly reputed professionals and consultants, all outstanding in their respective fields. Top management attaches lot of importance to this programme. Director (HR) specially interacts with the participants. Further, the participants are divided into cross-functional teams of 5-6 executives and each team is made to work on two live projects of the company.

**Three tier L&D Governance Structure**

The L&D governance system in NTPC is decentralised having three tier structure, keeping in the view the vast geographical spread and diverse L&D requirements of the large company. At the project level, there are dedicated centers called the Employee Development Centres (EDCs, around 35 in number spread across all our projects /
stations in India, on the second layer there are 6 Regional Learning Institutes (RLIs, one each in each region in the country) and at the apex level there is Power Management Institute (PMI) situated in Noida, NCR.

The EDCs and the RLIs have their own training calendars focusing on training requirements especially technical and functional skill domains. PMI has a separate training calendar for more focussed on leadership skills. EDCs, RLIs and PMI all have a fixed annual calendar as well as a progressive quarterly calendar. The progressive add-on calendar takes care of emerging needs that crop up during the year.

**Comprehensive Learning Need Assessment**

Learning and Development system focuses on enthusiastic participation of employees as well as addressing company’s business needs. The aim is to create a vibrant ecosystem of learning wherein people voluntarily come for learning. We select and design our programs after an extensive nine dimensional TNA process where employees and other key stakeholders participate. Individual needs are blended with company’s business needs and then programs are designed. The employees’ choice of L&D programs is captured through SAP embedded Performance Management System (PMS) wherein executives submit their individual development plan (IDP) as part of their performance planning. Further, learning-need inputs are also taken from the Assessment and Development Centres (ADCs) run by external consultants who identify AOI (Areas of Improvement). Then there are inputs from Core-Values, Periodic surveys on Organisational Climate, directions from top management on learning priorities of the employees, inputs from NTPC business plan, inputs from exit interviews, inputs from emerging business needs continuously tracked by L&D professionals and needs expressed by external stakeholders like customers, vendors, school principals etc. The collated individual training needs are integrated with the departmental/functional and organizational needs to prepare the annual training calendar. L&D executives track interactions of senior management including CEO with employees/customers at various platforms and relevant inputs related to L&D are captured on progressive basis. These inputs are periodically discussed to refine and finalize the learning events and new programs are floated on quarterly basis, over and above the annual calendar. Engagement of external stakeholders is done through interactions with vendors and customers, co-development of programme and long-term MoUs with them. We also develop and organize learning events for our community stakeholders after capturing their skill development needs through regular interactions with our CSR group e.g. Safety training, GST Training to contract workers etc.

**Rich blend of learning delivery systems**

We employ a well thought out, judicious blend of learning delivery methodologies. Presently, traditional instructor-led real classroom delivery constitutes about 65% and the other technology driven platforms- namely virtual classroom (synchronous), self-paced online and all others (including mobile learning) together constitute 35% of delivery modality, in terms of learning man-hours delivered. The various methodologies / learning channels in the organization include –

- Formal (event based) learning activities (e.g classes, workshops).
- Formal mentoring programme for fresh hires (Executive Trainees).
- Social networking tools that support communication and learning like WhatsApp, Facebook, Twitter and Linked-In.
- Virtual learning space called E-Guru, which is a web based application for e-learning programmes and training content. E-Guru is used to manage online content and administer distance-learning programmes. It allows NTPC to create and support an unlimited number of online learning courses that can be accessed from all over the world. This application includes E-learning programmes and training content, courses and online events, tracking and reporting of the e-learning programmes and interaction between instructor and learner. It also displays the scores of the exams. Some of the online learning courses available through E-Guru are courses on boiler, ERP for end-users, commercial aspects, turbine overhauling and Contracts & Materials system.
- Learning through attending various Conferences.
• Stretch assignments – Stretch assignments are part of our ERP enabled Performance Management System (PMS)
• Professional and Quality Circles – Formal groups created to share learning and experiences. Company has around 150 professional circles, members of which meet periodically to share knowledge, learning and experiences. Around 250 Quality Circles are also functioning. They foster creativity and innovation within the organization.
• In-house business games contests and competition on current themes which have been institutionalized and are held every year.
• Computer Simulated business games
• Outbound activities
• Training on full replica power plant Simulators

The company has taken online e-Learning courses from Harvard Manage Mentor (HMM) in last two successive years and assigned these courses to 2000 executives at middle management level in each year. The courses are being accessed over internet, anytime, anyplace through computer or mobile. HMM has set the standard for on-demand leadership development. It combines the highest quality content with a unique design focused on putting learning into action. Similarly 1000 executives have been assigned GPILearn courses. GPILearn founded by GP Strategies, USA, specialises in technical Learning solutions and engineering services. 200 HR executives have also been provided with Strategic Human Resource Management (SHRM membership).

Business book summaries (from Ebscohost) and audio books (from audiobooks.com) have been made available to senior executives and top management considering the pressure of time that they face and consequent constraints in making use of traditional learning opportunities. The summaries and audio books facilitate learning on the move, thereby saving time of top executives.

A Knowledge Management system, learning centres and libraries, including an e-Library of 25,000 books, 1,000,000 articles and journals, support knowledge enhancement. These resources are available to all employees.

**L&D as business partner**

We believe that L&D should partner with business in creating solutions for the business challenges. An example of such effort is one of our programs called RiPLE (Reduction in Project Lead Time), which is an L&D led business solution. In this program a cross-functional team of 30 senior level executives was constituted to go through an initiative named RiPLE (Reduction in Project Lead Time). This innovative intervention provided low-hanging execution based solutions to the team, which motivated members to diagnose the bigger issues. At the end, the team was able to come out with a pilot plan which was implemented. Support was available throughout from the management which was actively engaged in continuously reviewing, curating and guiding this program. The initiative focused on solving pain areas in project execution. Behavioural change in participants was also embedded in this holistic solution. The project was completed ahead of schedule by addressing the issues of cost and schedule overrun thereby resulting in substantial savings over lifetime of the project.

**Harnessing Latest Technology for L&D**

**Use of AR and VR**

We are harnessing latest technology to deliver L&D solutions effectively. Since each location of the company has machines of specific design, training our executives particularly the new entrants (ETs), on several different designs would entail sending them to several locations requiring enormous cost and time. Moreover, machines in running condition may not always be accessible for learning at plant locations. In such situation, the use of Augmented Reality
Virtual Reality refers to the experience of being totally immersed in a virtual world. When using VR devices, the user wears a dedicated headset with built-in display or two oculars, powered by a computer, game console or smartphone. This technology has been used to develop a plant walk-through experience for our employees. For example, a module has been developed to show the procedure to safely isolate the LT and HT switchgear. This module teaches the participants to identify the correct equipment part, use the tools correctly, use the safety equipment, lock the module after the fuses are removed etc. It also teaches the participants on how to correctly document entries about the isolation in the isolation register, how to lock safety keys in the Lock-Out Boxes (LOBs) etc. Augmented Reality refers to the experience of actual reality enhanced with virtual images or data which coexist with the real world. The company has engaged external experts to develop the AR based learning experience for the participants on the skills required for dismantling and assembling the turbine governing system parts. The benefits are include Transcending the barriers of time, space, cost, and feasibility, enabling access to transformative real life-like learning content in traditional classrooms, creation of active, contextualized learning by combining kinaesthetic, auditory and visual experiences. These systems can create life-like simulations – e.g. simulating unsafe conditions and actions, as they would appear in reality, which is not possible in other modes of learning.

This new endeavour has been generating much interest and buzz in the company about L&D.

**On line psychometric profiling**

To ensure best performance of individuals by getting insight as to fit / suitability for critical roles, a new system of online profiling of work-style and 360 degree feedback has been introduced. About 400 senior executives at Additional General Manager level shortlisted for consideration for elevation to General Manager were profiled through this mode with the help of globally renowned company.

**Samvaad App**

An all-encompassing, interactive, mobile based medium for company news and updates and learning pieces called Samvaad creates a buzz on all the latest developments, awards and accolades and other news. It is proving to be a very effective communication and learning tool.

**Innovative L&D Interventions and Systems**

We have introduced several new programs and systems, which are pioneering efforts in the sector. Some examples are as below:

**NTPC Eminent Speaker Series**

Eminent personalities, renowned thought leaders and achievers from different walks of life are invited to deliver motivational talks / speak on their work, life and teachings. One special thing about this program is that the talks are beamed live to all company locations (projects / stations / offices) of NTPC. This enables our entire workforce as well as their families to participate simultaneously. The videos are also subsequently made available on company intranet so that it is accessible to employees. At least one such eminent personality is invited every quarter. Till now, we have invited many eminent speakers from India and abroad including personalities like Sadhguru Jaggi Vasudev, Professor Vijay Govindarajan, Paralympic medal winner Ms Deepa Malik, Waterman of India Dr Rajendra Singh, Dr Sanjay Kothari, Swami Lalitananda Giri, Dr Devi Prasad Shetty, Dr E Sreedharan, Dr Devdutt Pattanaik and Chairman ISRO Dr K Sivan.

**Three dimensional assessment for leadership positions (LEAD Program)**

In NTPC we had been considering performance and potential for merit cum seniority based promotions. For senior
levels these were measured through two dimensions - PMS ratings and an interview. A new initiative has now been started for promotions to General Manager. In this process, we have added a third dimension of performance measurement. This dimension is Learning and Application. Thus, in the new system, shortlisted executives at AGM level, due for promotion to General Manager level, are measured on 3 dimensions: (1) Past performance and potential rating captured through PMS, (2) live project which they undertake after undergoing 1 week training at IIMs (Ahmedabad, Bangalore, Kolkata) or ISB, Hyderabad, followed by a project (3) Personal Interview (for comprehensive assessment). The second element is the new component added in the evaluation process. Prior to allocation of the projects in this second phase, the candidates are sent to premier business schools like IIMs and ISB wherein they get a one week special learning on strategy, finance, entrepreneurship and innovation. This program is called LEAD program (Leadership Excellence and Development). After this training, participants are given time to work on the projects and come up with implementable business plans.

Program for parents of differently abled children – Navcheta
A program called Navcheta has been launched for parents of differently abled children in the company. Delivered through renowned NGOs, psychologists and medical experts, this program aims at increasing morale and competence of the employees to handle their differently abled children. In this program, parents and their children participate together.

Storytelling and skits as part of L&D Delivery
We harness the power of storytelling and skits as an effective learning delivery system. This method is particularly used in the dissemination of Core Values wherein we have created stories and skits around each Core Value of the company. Our executives, including the young entrants are encouraged to recite the stories and play skits around the Core Values.

Anubhav
Under this initiative, we capture the expertise and experience of our senior executives leaving the company upon superannuation. The experts are invited to create eLearning packages on the subject of their expertise.

Programs for inner well being
Realizing that better performance comes from better inner health and calm, we have introduced a series of new interventions which focus on mindfulness, internal and holistic wellbeing. These programmes administer unique blend of spirituality, meditation, yoga and management. We are running these programmes in association with renowned organizations and NGOs like Isha Foundation, Brahmakumaris, Art of Living and Prasanna Trust etc.

Measuring Return on Training Investment (ROTI)

Measurement of training and development outcomes is also an important area which creates faith in the L&D systems. In this respect, we obtain feedback of participants on the programme content, faculty and arrangements etc. for nearly all the training programmes (Level 1 of the Kirkpatrick Evaluation Model) through an in-house developed mobile app. For most programmes (70%), pre and post-test is taken to assess learning (Level 2 of the Kirkpatrick Model). For some selected programmes (about 20%) behaviour (Level 3 of the Kirkpatrick Model) is measured by taking commitment from employees and then taking feedback from the employees and their reporting officers regarding actual implementation / change in behaviour. Further, Level 3 measurement is also done through allocating projects based on the learning in the programme.

A new methodology implemented by us to measure the learning impact in some selected programs is called “Letter to Self”. Under this, a program participant is asked to write a letter to self at the end of the program. In this letter, the participant commits as to how he/she is going to implement the learning from the program at his/her workplace and what new initiatives will be taken. This “Letter to self” is signed and sealed by the participant and his/her own address is
Senior Leadership lays strong emphasis on learning and development (L&D). Remaining a learning organisation has always been part of company’s HR vision. CEO and Board members have revisited our Core Values and identified Learning as one of our Core Values. The senior leadership is closely associated with major talent development initiatives through addresses, interactions and feedback sessions. Top leadership support has ensured partnership with prestigious institutions like Harvard, Wharton, IIMs, ISB, IITs etc. Supportive policies like the Career Development,
Succession Planning, Study Leave and Incentive Scheme for acquiring higher qualification have been brought in by the leadership.

Senior leadership also supports learning by participation in Training Need Analysis – Identification of organizational / departmental needs, taking responsibility for subordinate development, nominating subordinates to L&D interventions including the mandatory planned interventions and meeting the norm of seven days training per employee per year, encouraging team members to participate in competitions, business games, seminars, conferences, present papers and professional and quality circle meets. CMD himself decides the themes for the company-wide competition called NOCET (NTPC Open Competition for Executive Talent (NOCET) and becomes a part of the jury.

**Inclusive Learning**

We believe that enhancing the competence of our employees is only part of the story. Business thrives in a holistic ecosystem which comprises other critical stakeholders. We therefore design and deliver many interventions which support the learning needs of our stakeholders. Some of the examples are Udaan- initiative for training J&K youths, adoption of 17 it is across the country where 24 new trades have been started and 1595 new seats added. 9 new ITIs are also being set up under R&R / CSR. We run vocational Training programmes like Web page designing, Computer training, fashion designing, motor rewinding, Motor Driving, General Electrical / Mobile for the local youth and women in the Skill Development Centers specially created for this purpose across almost all our projects. For our esteemed customers, we provide participation opportunity in our programs at PMI by offering seats in some of our open programs. These seats are offered free of cost to the customers.

We also organise several programs for all the contract labours working in our power projects. The topics for these program range from Safety to other functional skills. We also organise leadership program for school principals of all the schools located in NTPC Township. About 40-50 principals from various schools participate in this program.

**Business Impact of L&D**

L&D is contributing to the Business Results of the company which are evident from two indexes of productivity improvement - “Generation per Employee” and “Reduction in Man MW ratio (no of employee per MW of installed capacity) year after year. The over-all employee per MW index for the year 2017-18 was 0.41 which has improved over the previous ratio in 2016-17 which was 0.51 employees/MW of installed capacity. Similarly Generation per Employee was 13.52 MU's during 2017-18 which also shows improvement over 12.16 MU's of the previous year i.e. 2016-17. Extensive and focused training and creating learning solutions wherein L&D staff and reporting officers from the line functions collaborate together has resulted in enhancing employee capability and multiskilling contributing to these performance improvements.

**Awards and Accolades**

In recognition to its pioneering efforts, NTPC PMI has received the globally acknowledged ATD Best 2017 and 2018 Awards (Two years in succession), ISTD Innovative Practices Award 2016-17 and 2017-18 and the BML Munjal Award 2018 (Sustained Excellence Category). These prestigious awards recognise the organization’s success as a result of innovative L&D and talent development practices.
Case Study

BCPL - A Study on Resurgence through Human Capital

Prof. (Dr.) Arunava Narayan Mukherjee & Aindrila Mukherjee

Abstract

Purpose - We illustrate how after three decades of dismal performance mainly due to issues concerning industrial relations affecting overall management of human resource and work culture. Bengal Chemicals & Pharmaceuticals Works Ltd., the first chemical & pharmaceutical company of India, recently could make a turnaround essentially owing to its human resource management practices and interventions.

Design/methodology/approach – The authors use qualitative analysis particularly in depth content analysis of secondary data such as archival data, public documents, press release & news clippings, accounts in specialist books and internal company documentation supplemented by interviewing employees of Bengal Chemicals & Pharmaceuticals Works Ltd.

Findings – This study identifies a manufacturing company, for whom growth has declined, focused on reorienting human resource management approach and practice which eventually contributed in restoring profitability and led to turnaround.

Practical Implications – This research recognises the HR mechanism for successful reorientation of workforce in a declining company. This understanding can encourage executives to focus on leveraging profit maximization, quality, leadership, staff welfare, and development during the period of revival of an unit.

Originality/value – This research addresses the absence of understanding and attention so far the role of human resource management is concerned in the literature on turnaround particularly with reference to Indian Public Sector Undertaking. The research also serves to emphasize the presence and importance of human resource management reorientation as a strategy of change.

Keywords - HR initiatives, Work Culture, Turnaround, BCPL

Introduction

Chemical industry is an integral part of the Indian economy. The industry significantly contributed to the development of agriculture and has important linkages with automotive, consumer durables, engineering, food processing etc. The chemical industry of India has evolved over time to match the dynamic needs of the economy of the country. The industry has evolved from being a producer in a highly regulated environment to a participant in an open economy. In this research we have made an attempt to study the recent turnaround of Bengal Chemicals & Pharmaceuticals Works Ltd (BCPL) - the first Chemical & Pharmaceutical Company in India and the role played by HRM interventions in the said turnaround. In this process this paper analyses the reorientation of the workforce of BCPL as their ability to adapt to the changing environment.

Theoretical Underpinning

In every organization its employees are the main soldiers consolidating its foundation and legacy amidst today's cutthroat competition and unexpected threats coming from the perfectly competitive market situations. Consequently higher productivity and efficiency on the part of the workforce is subjected to their proper treatment and maintenance by the organizational management. Hence a strong mutual relationship of trust, faith and cooperation between the employers and the employees helps an organization to excel in all its ventures. Since World War II, calling the relation between employers and employees as “human relations,” “personnel management,” “labor relations,” and now “human capital”...
employee relations, it has been a long evolution. In Indian manufacturing Industry historically industrial relation plays extremely crucial role so for its productivity and prosperity is concerned. Erickson and Kuruvilla (1998) examined the ‘transformation’ of industrial relations system. They sharply differentiated between incremental (evolutionary or adaptive) and discontinuous (revolutionary or punctuated equilibrium) change in industrial relations. Discontinuous change occurs only when there are fundamental changes in what they call the ‘deep structure’, the latter implying property rights in the workplace, employer/employee relative status, individualism versus collectivism, and the nature of exchange in the labor market’ (1998: 18).

Using the above framework in a subsequent paper on industrial relations transformation in Asian countries, Kuruvilla and Erickson (1999) argue that the binding constraint in Asian industrial relations, primarily as a result of recent globalisation, has changed from one of maintaining labour peace and stability to one of enhancing competition through increased labour market flexibility. Precisely with reference to India, the authors contend that there has been genuine transformation in industrial relations according to their criterion of ‘deep structure’, and that the transformation has been ‘discontinuous’ largely due to the forces of globalisation. BCPL as an Indian manufacturing company is no exception to this trend of industrial relations. This study attempts to explore in the era of ‘discontinuity’ in industrial relations how HR practices of BCPL responded to the challenges of globalization and open market and contributed to the turnaround of the company following the principles of “human rather than harsh surgical turnaround management” (Khadwalla, 1991) by way of “rediscovering the use of workforce in revitalizing our moribund institutions” (Khadwalla, 1987)

Research Methodology

The methodology that was followed in order to frame this research paper is mainly qualitative in nature. Within qualitative methods we have relied on in depth content analysis like scanning the reports, documents and other secondary data available in order to construct the arguments. As according to Yin (2003) the benefit of using documents is to corroborate and augment evidence from other sources. This can increase the quality of qualitative research associated with internal validity (Golafshani,2003) Moreover employees from different levels of the organization were interviewed on specific issues pertaining to human resource management and their narrations have helped us to construct the analytical schemes in a better way. The average interview sessions lasted two to three hours.

The Rise and Growth: History in Making

BENGAL CHEMICALS AND PHARMACEUTICALS LIMITED started its journey in 1901. For Bengal Chemical, it was a very humble beginning indeed. Prafulla Chandra Roy, father of Bengal Chemical, spearheaded the development of different pharmaceutical products. Initially, Prafulla Chandra faced the most formidable obstacle. The biasness of the local dealers, consumers and even physicians towards imported and branded medicines caused a set-back for his indigenously made pharmaceutical products. A physician with a good practice, Amulya Charan, a fellow student of P.C. Roy, was able to get some cash flow moving into the business. More importantly, he enlisted the sympathy and support of the city’s medical profession like Dr. Radh Govinda Kar, Sir Nilratan Sircar etc. Support of such eminent doctors did result not only in increased scales but also in breaking down the prejudice against ‘native’ product. But even at the initial stage he was set on developing drugs from the country’s immense herbal resources implementing ayurvedic components.

Tragedy struck Bengal Chemical when Satish Chandra and Amulya Charan died in 1898. Prafulla Chandra knew he had to establish the organisation and must overcome all the hindrances to reach his objective. On April 12, 1901 ‘The Bengal Chemical and Pharmaceutical Works Limited’ was installed with an authorized capital of Rs. 50,000 and a subscribed capital of Rs. 25,000. Five days later, the stock, assets and goodwill- of the old private concern were brought by the new company. It started business at the same Upper Circular Road premises where Prafulla Chandra had his residence. The manufacturing section moved to Maniktala, in the eastern suburb of Kolkata. A three acre plot of land had been purchased to build a bigger and more sophisticated factory. The office however remained in the city.

The plant (chamber process) went into production in 1907. It was then a well-managed factory with about 70 workers. In 1910, the Maniktala factory was working in full swing. Besides chemicals and pharmaceuticals, the manufacturing of toilet preparations had also been taken up. Almost from the very beginning, Bengal Chemical started making scientific
give it a separate identity. Sir Prafulla Chandra Research Laboratory was formally opened at Maniktala in 1937 in a new
commissioned two years later. In 1934, Rajsekhar Bose prepared a scheme to recognize the research department and
piece of land for setting up a permanent unit. The land was purchased in 1936 at Cadell Road and the new factory
been posing problems.

In July, 1930, it was decided to set up an Employees’ Benefit Fund out of the money allotted by the shareholders at the
annual general meetings. The age of retirement had already been fixed at 55, with extensions to be given solely at the
discretion of the management. Out of the Employees’ Benefit Fund, a part would be paid as bonus to those employees
who had been with the company for not less than five years and who earned not more than Rs. 100 a month. The
balance would be paid as gratuity to those members of the staff who did not get any commission on sales or profits.
They would also have to be in continuous service for ten years.

In course of time the biological department became a vital part of the company and the products earned a national
reputation for their efficacy. Bengal Chemicals and Pharmaceutical Works started manufacturing Ethyl Ether in 1934
and Anesthetic Ether in 1935 at Panihati. In 1934 began the production of soaps at Panihati and printing ink at Maniktala.
Gradually it started producing soaps for toilet and medical use, washing soaps, antiseptic liquid soaps, shaving stocks,
all of the highest degree of purity. The popular brands included Jayanti Sandal, Jamuna, Reva and Ira. Besides soaps,
the company gradually launched other toilet preparations as well. These included medicated and perfumed hair oils,
face creams, talcum powders, perfumes and dentifrices. More significantly, Bengal Chemical and Pharmaceutical
Works started looking beyond the borders of Bengal to expand its operations. Transport of goods by rail and sea had
been posing problems.

In 1934, the company started a temporary manufacturing center at Bombay (now Mumbai). It was in search of a suitable
piece of land for setting up a permanent unit. The land was purchased in 1936 at Cadell Road and the new factory
commissioned two years later. In 1934, Rajsekhar Bose prepared a scheme to recognize the research department and
give it a separate identity. Sir Prafulla Chandra Research Laboratory was formally opened at Maniktala in 1937 in a new
two storey building named “Prafulla Bhavan”. The outbreak of the Second World War (1939-45) brought both new business opportunities and problems for Bengal Chemical and Pharmaceutical Works. There was a great demand for essential drugs and surgical dressings for men fighting in the war.

During the war period, the two production units’ ether and chloroform were shifted to the western part of the country in Lahore in the year 1942. However, the plants were shifted back to Kolkata in September 1945. The research department was carrying on its commendable work.

In June 16, 1944, Prafulla Chandra Roy passed away. In 1946, the Hindu Muslim riot was started. Maniktala was among the worst affected areas in and around the city. For Bengal Chemical, the partition however, meant loss of market as well as non-realisation of outstanding. It also resulted in its being cut off from its main source of supply of alcohol, a very important raw material for pharmaceutical preparations. The distilleries from which the company usually obtained its requirements were remained in Pakistan. It had, therefore, to look to Uttar Pradesh for its supplies. But bringing in alcohol from Uttar Pradesh posed a great problem because of transport bottlenecks. Setting up of a plant at Uttar Pradesh was considered the ideal solution as production would not suffer on account of irregular supplies of alcohol. An existing pharmaceutical plant belonging to Lesco Chemicals Works Limited was purchased at Rs. 5.6 lakh in December, 1948 at the industrial town of Kanpur, close to the source of supply. It would also serve as a convenient distribution centre for north India. The Kanpur Plant went into production in 1949.

The Decline

The demise of Prafulla Chandra Roy heavily affected the management of the company. In the various factories of Bengal Chemicals, the labourers consolidated their existing connections with the trade unions and called for strikes, lockouts and other forms of unrest to show their grievances against the management. The absence of a strong middle level management to communicate the problems of workers and employees to the top level management further worsened the situation. Consequently the productivity and annual turnover of the company got affected. Workers and employees complained of not getting adequate training and assistance on the work they were doing. Moreover they were not being compensated adequately for the work they were doing. Long work hours at minimal wage rate, unhealthy working conditions, unachievable work targets etc further worsened the situation. Bengal Chemical for the first time reported of Losses since early 1950s and the losses were increased year-by-year and it became a Industrial Relation Problem, due to which Government of India had taken over the company in 1977. Even after taken over by the Government of India and release of a number of financial packages at various occasions, Company’s performance was not improved and was reporting Losses regularly and was referred to BIFR in 1992. The Union Government granted various reliefs in terms of the BIFR approval. Although the operating results showed somewhat better trend the situation remained dicey.

Revival based on Human Capital

In order to appease the outrageous workforce, the board of directors decided to hold meetings with the different Trade Unions. These meeting were held in the factories where the directors confessed about the adverse scenario of the company thereby requested the employees to cooperate with Bengal Chemicals during its hard times. A clear-cut communication of the exact problem faced by the company instilled a sense of trust and responsibility among the employees towards the management. It was the first baby step taken towards redressing the grievance of the employees and workers.

The directors specially addressed the leaders of the particular trade unions about the future concerns of the organization. There had never been such a transparent interaction between the management and the workers of Bengal Chemicals. Despite facing multifarious problems, the management promised to fulfill the demands of the workers in course of time. Initially the management started by providing the necessary skills, trainings required for performing the various specialized tasks within the organization. They arranged for various skill-enhancement workshops and on the job training etc for enhancing workforce productivity. Many a times, for factories where the workforce was huge, the leaders of the trade unions were trained and equipped properly so that they can further train the workers under them. Division of labour was maintained strictly on a rational and egalitarian basis.
In addition, certain employee engagement and motivational interventions (like birthday celebrations of the employees, proper food facilities for them, creating congenial work environment, providing employees with adequate leaves, assistance during emergency situations, setting achievable targets for them etc.) were undertaken. Consequently labour unrest reduced drastically and workforce productivity grew rapidly. In order to compensate for the losses made by the company, many a times the management use to accept excessive bulky orders with very short span of delivery time. To ensure speedy work performance at the rudimentary levels, officials from senior management were often sent to the factories to supervise and monitor the work of the workers. These activities developed a positive outlook in the minds of the workers and motivated them to pursue their work better. It also fostered a sense of belongingness among the workers towards their organization and brought the employees close to its management.

Next the company adopted the policy of recognizing and rewarding the hard-work of the employees by providing them with greater percentage of share of the company’s profit as and when the organization expanded its business. Workers were also given hand-some over-time pay, when they worked for longer hours. Workers reported to have felt much more comfortable in approaching the management with their grievances without being shunned down on face.

It can be said, there has been a sincere effort on the part of BCPL management to “pay far greater attention to what industrial psychologists have called intrinsic motivators - a sense of challenge, a sense of participation in something big and important” (Herzberg 1968., Khadwalla, 1981).

Thus with the help of strategic human resource interventions, the organization was successful not only in pulling itself out from the burden of debt and losses, but also in generating super-normal profit margins for itself. in 2014, Company started improving its overall performance. It is immensely happy to report that BCPL has achieved a Net Profit of Rs. 512 lakh in the 1st quarter ended on 30th June, 2018, which is more than the yearly profit of Rs. 451 Lakh reported by the Company in the entire financial year 2016-17, as against reporting of a Net Profit of Rs. 1006 Lakh in 2017-18. It is relevant to mention here that BCPL had reported a NET LOSS of Rs. 3655 Lakh in 2013-14, which means in three years BCPL became a Profit Making Turnaround Company in 2016-17 and for the consecutive 2nd and 3rd years also BCPL not only reported Net Profits but also DOUBLED its Net Profits every year. Further to this, Company has reported a Net Turnover of Rs. 2386 Lakh in the 1st Quarter of 2018-19 as against a meager Turnover of Rs. 1584 Lakh reported in the corresponding quarter of previous year, which is 51% growth. With this achievement, BCPL is in the right path in achieving the milestones which were laid down in its Vision & Strategy Document. The financial highlights are given hereunder:

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<td>1584</td>
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<td>(18)</td>
<td>1006</td>
<td>451</td>
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<td>(3655)</td>
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<td>NA</td>
<td>31.46</td>
<td>26.68</td>
<td>23.84</td>
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Source: Press Release issued by BCPL

**Potential & The Way Forward**

Today Bengal chemical have their four big plants in different place in the country. Of them West Bengal have two units at Maniktala and other in Panihati. For analyzing the potential, the way forward in connection with this research the study is limited to Panihati factory because other could not be covered due time and resource constraints.

The biggest advantage of Panihati factory is its excellent railway as well as road connectivity. The nearness of Kolkata market gives the positive support to this industry.
In Panihati factory total number of people engaged in the production is 188. Of them 35 are unskilled, 34 are semiskilled and 96 are skilled. Some are engaged in miscellaneous work. Of the total 188 workers 12 are female and rests are male. Female workers are mainly engaged in production and office work. Only 2 female workers are working in office. Others are in production process. Around 95 percent workers are local. Only 2 percent are coming from other states like Uttar Pradesh, Bihar and Orissa. Earlier employments have been done through the employment exchange. But workers are employed through compassionate ground. Internship opportunities are also provided to train young minds as well as to drive in fresh talents from the pool of young candidates.

According to the grade, housing facilities are given to the workers. Labours have their own barrack with one room and a common toilet. The barrack can accommodate 40-41 labours. The factory contains 15 quarters for officers and the Prafulla Chandra Roy banglow with necessity arrangements. The factory gives provident fund benefit for all its workers. But the ESI benefit is enjoyed by those who have their monthly income less than Rs. 10,000.

In addition the company provides 8.33 percent medical facility above basic and dearness allowance. There is a hospital inside the factory premises with first aid facility. One medical officer and a compounder are resided here. Cheap canteen: Canteen is highly subsidized here. Meal coupon is found in free of cost though the cost of the meal provided to the employee is Rs. 14.65 paisa. From the manager to the sweeper equally share the same food in the dining hall.

They also have a co-operative Credit Society. Only the workers of this factory can get the benefit from this society. The society provide loan to its members at meagre interest rate. The society also has a cheap store from where the members can buy things at an easy installment. The members of the factory have their own club, indoor outdoor games etc. They organize annual sports, function and Durga puja.

Challenges

Despite aforesaid potential, the company faces few challenges which are as follows:

1. Bengal chemical is a labour intensive company. So that sometimes has to face loss.
2. Old manufacturing process.
3. Plant and machinery are very old.
4. Modern automatic machinery needed for mass production.
5. Increasing price of raw material- as a result unable to absorb the increased price.
6. Aggressive marketing of product needed.
7. Due to shortage of capital unable to invest in advertising.
8. Facing competition with the multinational companies who are far more fast and effective in their business operation with its mechanical bureaucratic structure and process which is the most crucial bottleneck as rightly pointed out by Khadwalla (1981) in his analysis of turning around of complex sick organizations: “Sizable complex organizations have … often fall victims to their organizational complexity.”

The management must take appropriate action so the aforesaid challenges can be met.

Conclusion

Like most of the organization BCPL is also fraught with certain challenges and shortcomings. Nonetheless the way it has gained back its momentum and expanded its horizon from a situation of complete loss, over the years, through strategic planning and implementation of human resource intervention, makes it a case worth analyzing. The findings of the study significantly enhance our understanding of the role of HRM practice and interventions in the reorientation of the workforce and how it can be implemented in a sharpbending or turnaround context. Moreover in analysing the importance of HRM initiative during recovery process this study provides a number of important insights that can help corporate effectively manage their recovery process to regain competitive momentum and help the management scholars in their further research as mentioned by Khadwalla (1987) “a deeper study of turnaround mechanisms may greatly enrich the armoury of the behavioral scientist.”
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Book Review

“Winning Management Practices – You Don’t Learn At Business School”

Author: O P Khetan

Published by: Notion Press, 2018

Reviewed by: Ashok Kumar Arya
MSW, LLB, MBA, FICA, LIFA
Management & Legal Consultant

The book is nothing but pearls of wisdom drawn from deep sea of over 50 years of best of corporate experiences of Mr. OP Khetan, the Author. Based on his day to day experiences while working in different Organisations with different people, it reflects the in-depth interest, involvement and observations of Author about his Bosses, colleagues and industry leaders. It shows that he was intensely involved in his work, enjoyed his work, Organisations and people with whom he worked. Otherwise, it would not have been possible for him to minutely observe their leadership styles, behaviour and concerns for people.

The book is divided into four parts. Part I deals with basic management concepts which are often ignored by Business Schools as part of its curriculum. It deals with issues like – look for ‘out of the box’ solutions; Sharpen your axe; Go to your Boss with a solution, Sincerity never goes waste; Pride in the Job, Maintain Harmony, Develop your Employees etc. Although basic in nature, but these concepts are often ignored and undermined not only in Business Schools but also in the industries in order to meet the targets. Unfortunately, there is no short cut to success.

The Part-II deals with “Good Management Practices from Steel Industry” primarily based on Mr. Khetan experiences while working at Hindustan Steels for more than two decades. It is not the length of his experience, but the quality of his experience which has resulted in turning out such a “out of the box” book. It is the sensitivity & human touch with which he has quoted various examples while dealing with his Bosses, Colleagues and employees which makes the book a real master piece.

The Part-III of the Book deals with “Good Management Practices from ICI Ltd.” now known as Akzo Nobel. Both these companies were known for their huge industrial relations issues in past leading to major strikes, lock outs, Gheraos, work to rule etc. on a constant basis. In –spite of that, the way Mr. Khetan has brought out the finer aspect of human behaviour even in crisis situations, speaks volumes about his positivity and grace with which he handled those problems. Certainly, it is to be emulated by the current breed of HR Managers.
The last Part of the Book deals with “Good Management Practices from Maruti and Honda” focusing on our perception of Problems rather than the problem itself. With Positive approach and Attitude one can solve any problem. It is a Problem as long as we think it is a Problem. It exists only in our mind. Change our Perception and it is will be solved. Tips on Negotiations with Unions are quite handy and useful for HR Professionals.

The language and style of writing is very simple and easy to understand even by anyone who does not have any formal education in management. It is collections of Management Stories from different Organisations depicting finer aspects of human behaviour and approaches highlighting the “Humane Aspect of Management”. It can be addressed as “Management Novel” being very lucid and interesting apart from imparting in-depth learning to everyone, making it ideal Coffee Table Book. This the second Book by Mr. OP Khetan. It is hoped that he will continue to share his wisdom and experience to enrich the existing literature on Management. The Book is available on Amazon and Flipkart.
Reader’s View

1. **Prof Sunil Unnigupta** – Got to see the IJTD. Read through the interview series. Wanted to compliment you for the excellent idea & the execution of it. After quite a long while IJTD appears to have a character & depth. I am sure you will keep it that way with your association. Good wishes for that.

2. **Dr Anil Khandelwal** – I received IJTD copy today. Excellent issue. Your vision is experienced in its contents. Congrats.

3. **Mr Naipal Singh** – I have received the copy of the journal today itself. The change in design give very good impression of the journal on readers’ perceptions about the training journal. Paper quality is very good, binding needs improvement.

4. **Dr. S G Bapat** – Happy to see you as chief editor IJTD journal. I am sure you will do your best.

5. **Dr. Sraban Mukherjee** – Just gone through IJTD July-Sep 2018 issue. Impressive. Good work done by Dr. Rajeshwari & her editorial team.

   **Two observations:**

   (a) ISTD membership rate & procedure form etc. should be included so that potential L & D Managers may like to take membership, in each issue of journal.

   (b) Production Editor may take note of announcement for member/contributors/authors page 46, it mentioned article should reach by August 18, 2018 to editorial committee. Date is expired before journal got finally distributed. Do you need to give deadline? It should be rolling one.

6. **Mr Raju Rathore** – Excellent issue of IJTD

7. **Mr Sanjeev Doshi** – IJTD in the new format is extremely delightful. The design as well as the contents are interesting. I am sure these issues are going to be collectors items. The journal in physical format has more reference value. Kudos to the editorial team led by Dr Rajeshwari Madam.
The Indian Society for Training & Development (ISTD), established in April 1970, is a national level professional & non-profit society registered under the Societies Registration Act, 1860. It has a large membership of individuals and institutions involved in the area of training and development of Human Resource from Government, Public and Private Sector Organization & Enterprises; Educational and Training Institutions and other Professional Bodies.

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