Talent Management Strategies in Industry 4.0
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Abstract
The current corporate world is characterized by innovative and dynamic technological wave called as Fourth Industrial Revolution. This Transformational change in business environment created a perfect storm to HR Systems. Virtual Reality, Artificial intelligence, internet of things, robotics, machine learning, cloud computing can quickly analyze and capture the wealth of unimaginable information. To meet the demand of this increased complexity and the urge to get superior business results, organizations are prioritizing to drive their interest towards Talent Management mechanisms. The organizational performance is mostly and mainly dependent on the way of human capital utilization. The success of organization is directly correlated with the efficiency of its people who put in their efforts and values to come up with new ideas, products and services by using the corporate assets. Therefore, employees must be trained to be agile and flexible to understand, learn and manage the pace of these technological disruptions. Regardless of the type of business or industry, talent shortage has become a dilemma for most of the organizations. This is because the existing skill set possessed by workers doesn't match the complex skills required by the diversification called as Industry 4.0. This new technological revolution would impact and challenge all disciplines and mainly HR system right from job design, selecting, training to till compensation management, succession planning etc. General purpose technologies and hyper competition will lead to faster, wider and deeper diffusion. Therefore, talent identification, retention and development would help to nurture future leaders that would represent the combination of cyber-physical system. Although the future is unpredictable, proper talent management programs with psychological-contract perspective would help in anticipating and coming with solutions for future challenges. Therefore, HR should invest in new talent, new business models and new processes to drive new experience and value to its employees which would further lead to spawning of innovative ideas and creations. This paper suggests some of the vital talent management strategies for Industry 4.0.

Keywords: Cyber-physical systems, Talent management strategies, Strategic Human Resource Management (SHRM), Digitalization, Psychological contract.

Introduction

1. Industry 4.0

Industry 4.0 or the Fourth Industrial Revolution is a strategic initiative introduced by German Government. Deloitte defines Industry 4.0 as "the cyber-physical systems, like IoT, that are reshaping supply chain

management, maintenance, production, logistics, and client lifecycle value for manufacturing companies."

"Machines in Industry 4.0 factory are Cyber-Physical Systems, physical systems integrated with ICT components. They are autonomous systems that can make their own decisions based on machine learning algorithms and real-time data capture, analytics results, and recorded successful past behaviors. Typically, programmable machines (CNC and NC) are used, with a large share of mobile agents and robots able of self-organization and self-optimization" (Rojko, 2017).

The goal of this initiative is to transform the industrial manufacturing through exploitation of new potentials, new technologies and digitalization, virtual reality and real-time data. Industry 4.0 is based on the combined efforts of manufacturing process along with all other actors involved in company's value chain. The 'execution system' of this revolution is based on CPS (Cyber-Physical systems) building block connections, working as an embedded system with advance connectivity and decentralized control. These blocks help to optimize the production process by identifying, tracking, collecting, monitoring and exchanging the real-time information.

For seamless integration of business and manufacturing processes, extensive support of software based on decentralized versions of Enterprise Resource Planning (ERP) and Manufacturing Extension System (MES) is required. This entire data can be stored on 'cloud storage' and extensive analytics is required to transform data to information and finally to actions.

2. Talent Management

DDI defines talent management as "a mission critical process that ensures organizations have the quantity and quality of people in place to meet their current and future business priorities. The process covers all the key aspects of an employee's life cycle: selection, development, succession and performance management". The following figure clearly depicts the important elements of talent management: practices/functions (outer ring) and guiding principles (inner ring).

Source: (MIT SLOAN, 2012)

Digital HRTech states that "Talent management is the full scope of HR processes to attract, develop, motivate and retain high-performing employees." This is not the responsibility of HR department alone. In fact, the involvement and decisions of management plays a key role to transform the plan into action. Organizations are very well aware that they should have the highly talented pool of employees to succeed in this complex and hyper-competitive global economy. Talent management strategy should be integrated into the collective consciousness of the company. Talent must be deployed to its fullest effect since it is the key to value creation.

3. Importance of TM in Industry 4.0

Industry 4.0 not only influences the manufacturing processes, it also changes the organizational structure and working culture. It is HR managements task to accompany this change by guiding and initiating in breaking away the outdated management styles and corporate cultures by rebuilding new structures, tools and methods. These developments will lead to emergence of new professions and new business categories while also eliminating some of them. This will further lead to change in skill-set required, where and how people work, requires new management protocols and finally a new set of talent management strategies. The success of organization is directly correlated with the efficiency of its people who put in their efforts and values to come up with new ideas, products and services by using the corporate assets. Therefore, employees must be trained to be agile and flexible to understand, learn and manage the pace of these technological disruption.

Understanding the talent management models and theories would help organizations face this wave of Industry 4.0 smoothly. "The skills, performance, engagement, adaptability, and continuity of an organization's workforce are indisputably a core competitive advantage and prerequisite for sustained financial success" (Hewitt Associates, 2008).

Literature Review:

The developmental stages of industrial revolution include Mechanical power generation (1800s), Electrification (1900s), Digitalization (1960s) and currently Smart Automation called as Industry 4.0.
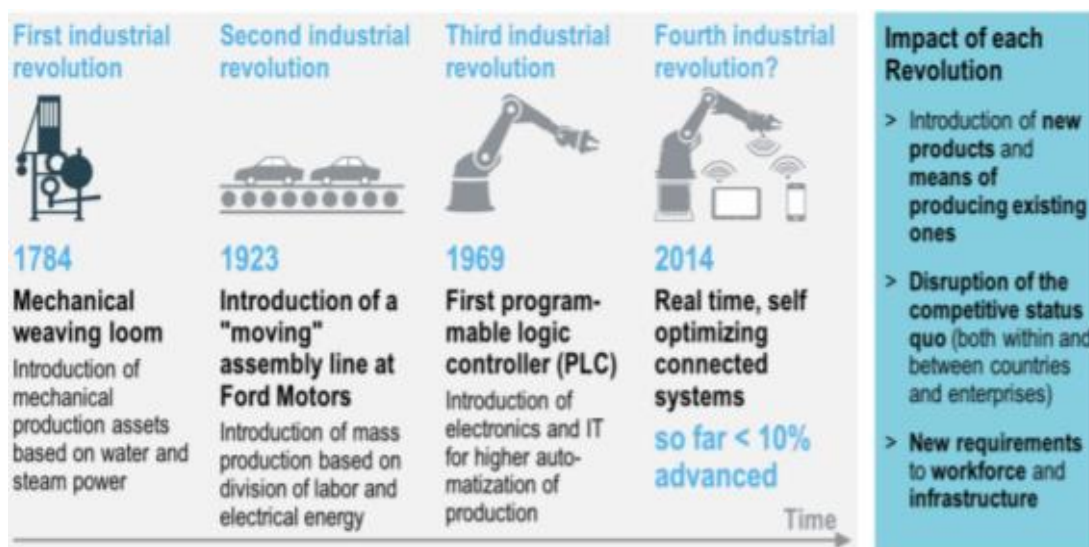
Source: (BRICS INDIA, 2016)

"Industry 4.0 is a cross-functional effort that involves the trifecta of engineering, operations and IT. The cross-pollination of personnel and skills is critical to achieving a sustainable plan. Issues with organizational structure and team dynamics are a core challenge of every Industry 4.0 initiative, so careful consideration is needed to ensure the enterprise is structured and aligned for transformation and success. The success of the initiative is dependent on business operations and the people who support it. Therefore, it is important to clearly define roles and time commitments, allowing the team to focus and avoid being distracted by the next important initiative." (ISG, 2019). The building blocks for Industry 4.0 are Connected devices, Transparency in information, Automation, Decentralized decisions.
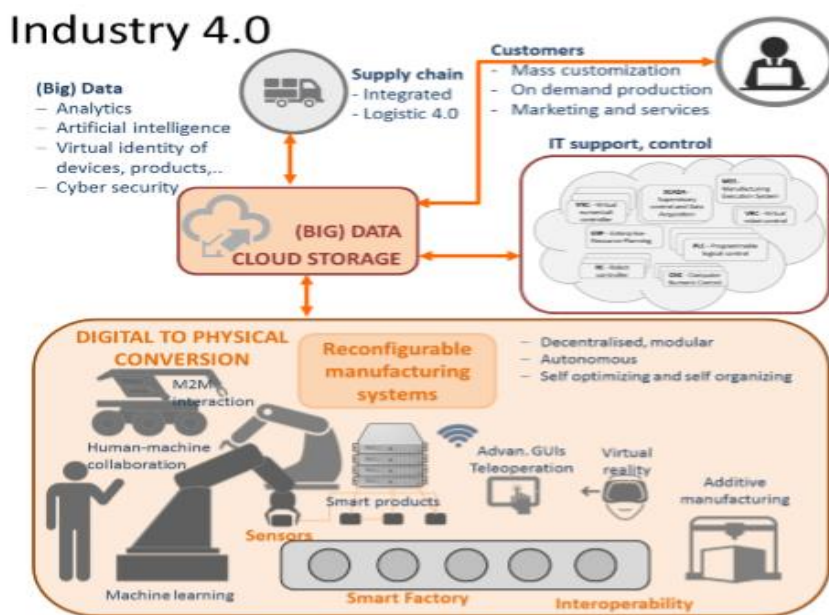
Source: Source: (Rojko, 2017)

"Humans act as the most flexible and intelligent "entity" in the CPS. Humans assume the role of a sort of "highest-level controlling instance", supervising the operation of the mostly automated and self-organizing processes" (Erricson.com, 2018). Industry week (2018) has given four ways to transform employee strategy for Industry 4.0.

Traditional Approach	Industry 4.0 Approach
1. Product was given importance than people	1. Building workforce as change champions.
2. Employee engagement is not important.	2. Critical to have highly engaged workforce.
3. Hiring people for their experience and skill-set.	3. Concentrates on the learning potential of candidates.
4. Learning at leadership level happens by trial and error method.	4. Purposeful and planned learning journeys.

Hewitt Associates states that "Talent management is a complex discipline, encompassing a wide array of programs and processes. For such initiatives to be successful, a concrete talent strategy must serve as a constant guide, providing direction for how the organization will acquire, develop, and retain employees,

while always reflecting the key business goals of the organization. Successful companies embed their talent strategy into the overall strategic planning process, integrating individual programs and practices to ensure they are all driving toward the same set of objectives." As per IES "talent management is an integration of different activities concentrated on people development to achieve business goals."


Source: (IES, 2013)

DDI through its extensive research has identified the following as the best talent management practices.
1. Business and talent strategy must be aligned.
2. HR professionals should be acting as guides, advisors and partners in decision making.
3. Look for key competencies and success profiles, maintain a talent pipeline.
4. Plan and put the right people in right jobs.
5. Software are just the support but expertise/ talent is the key.

DDI has come up with a talent management approach, encompassing the major activities, processes and best practices, to systematically manage the organization's talent.
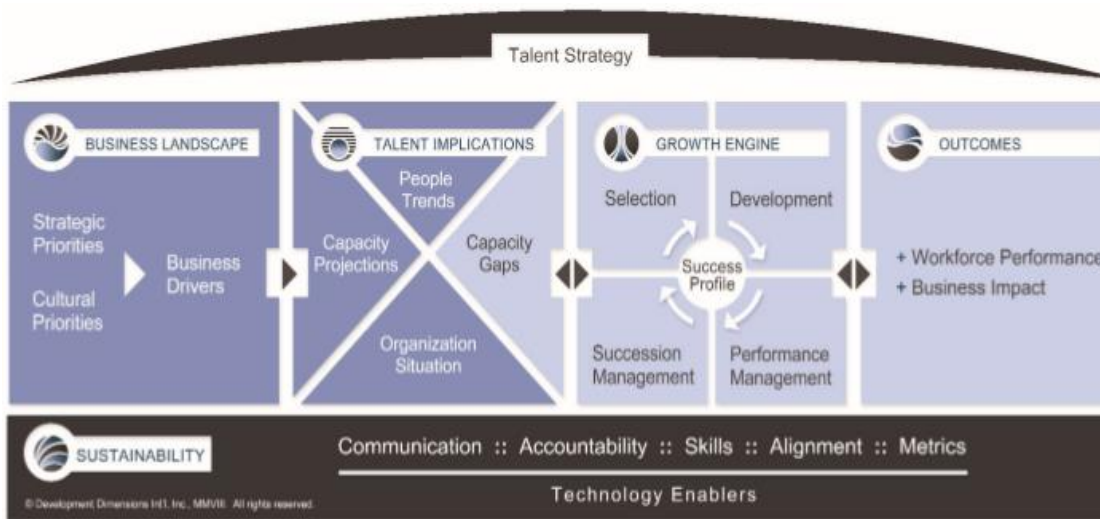
Source: (ddiworld.com)

As per the research conducted by Josh Bersin over years, factors for employee happiness are highly complex and varied. The below employee experience model – "Irresistible Organization Model" points out the matters ranging from management, to leadership, to trust, to environment, to growth opportunities to overall well-being.

Strategies Suggested:

The old and must consider matters in talent management are having a clear JD, mentoring and coaching, training and development opportunities, creating clear career paths, on-boarding, succession planning. Apart from these topics, after reading many articles and blogs, I have found the following as the most important talent management strategies for Industry 4.0 to be considered by the companies.

1) **Leadership:** Change starts and happens only by leadership. Leaders should be learning streaks and lead from the front. Behavioural competencies like adaptability, transactional communication, continuous learning, critical thinking, emotional intelligence, negotiation skills should be advocated by leaders. They should be like anchors, change champions and torch bearers for the company. Organisations can adapt to changes and can handle new challenges imposed by 4.0, only through 'design thinking'- an iterative process of linking analytical and creative methods. For this companies should develop robust digital culture and to ensure this requires a clear leadership style.

The leaders of 4.0, are called as digital leaders because they require abilities to inspire and innovate.

Source: (AIMIJOURNAL, 2018)

The above leadership matrix will help to choose the apt leadership styles for 4.0.

- 4.0 Freshman Leadership style is focused only on traditional manufacturing structures but not on employees, customers and emerging technologies.
- 4.0 Social Leader is focused in creating friendly atmosphere for employee but has no regard to technology and innovation.
- 4.0 Technological Leadership style is concentrated on ability to use new technology and being innovative to deliver enhanced value but has low focus on employees.
- 4.0 Digital Leadership style is focused on understanding what impact does technology has on people and alignment of business models with human nature.

2) **Recruitment:** The biggest challenge for HR managers and recruiters in Industry 4.0 is to attract right talent. Millennials who are currently dominating the work sphere are tech-lovers and tend to fulfill their own needs than organizational needs. They also have earned the reputation as 'job hoppers.'

ISG Innovative Sys has given the following secrets as to how to hire smartly during this complex period of 4.0.

   i. *Hire for aptitude*: Don't hire candidates based on coding and programming skills alone. Instead hire them based on their aptitude for learning fast and a passion to gain knowledge. The basic skillset that recruiters should look for is Digital literacy along with flexibility and adaptability.

   ii. *Finding creative thinkers:* Industry 4.0 would empower machines to analyze large data which would result in finding unexpected trends. Therefore, companies require talent who has high creativity to capitalize on the discoveries made by these machines. Creative thinking and critical problem solving should be the on the top of the list for companies currently. "Robots may help us get to where we want to be faster, but they cannot be as creative as humans (yet). It doesn't matter how sophisticated or intelligent a machine is, the

purpose of any machine will still be to serve human beings. The parameters and limits in which any machine will work is and will always be defined by people." (EDI Weekly, 2018).

iii. ***Background in customer service:*** Industry 4.0 has the largest task to predict customer desires through connected devices. Since machines cannot understand the customer's needs, companies should look for workforce with high sense of 'empathy' to meet the market demands.

iv. ***Open minds:*** Although machines have the power to think and act like humans, it's also important to have the willingness of humans to closely work with machines, a deeper understanding towards human wants and needs. Employees should be ready enough to accept & face the changes & challenges that the 4.0 brings into the work processes and their careers.

3) **Planning:** Firstly, management and HR should seriously concentrate on creating new roles to work and succeed in Industry 4.0. They are:

i. ***Process Engineers:*** to integrate new technology into production to enhance the worker production.

ii. ***Data Scientists:*** they use programming languages and databases and search for correlations or trends for providing industrial insights.

iii. ***Software Developers:*** Develops proprietary tools and applications and ensures that devices meet the specific needs.

iv. ***Software Technicians:*** they help in maintain machines and software systems and also help employees in understanding how to solve the technical problems.

4. **Build vs Buy the talent:** Previous leader firms use to respond to rapidly changing demands by 'Poaching'. But currently the talent requirement is different and this talent is not even existing or is not in sufficient numbers within the education system or the talent system. If at all companies find such talent externally there is a problem with internal factors like absence of proper social network systems. To build a business focus and to ensure success business leaders should recognize that the existing organizational experience of internal talents with a training in technical skills would result in higher performance within a short period of time. HR must provide a clear guidance and tools to learn new skills. This will require developing assessment tools, career coaches, data and lot more things to make people understand what new roles and transitions are and what is expected of them. This creates a sense of excitement and empowers employees. Every employee should be aware of what skills and talents are most in-demand and how to prepare, to face the challenges being imposed by 4.0.

To attract talent from outside i.e. the 'NextGen talent', requires companies to directly concentrate on the needs and career of Millennials. This can be done through:

i. ***Selling the opportunity*** – recruitment pitch to attract NextGen talent.

      ii.   ***Company's brand*** – creating identification through partnership with major tech companies.

      iii.   ***Autonomy and Career advancement issues*** – to be addressed immediately.

      iv.   ***Onboarding*** – communicate about the company's values and vision for Industry 4.0 and make candidates feel like a part of transformation team.

5. **Training and Upskilling:** Strategic decision regarding when to hire and how to develop for critical positions is vital. Companies should provide enough time, education and materials for people to successfully reinvent themselves. On-the-job training experiences should be created through apprenticeships, internships, project work programs and coaching. This not only helps employees to build the expertise but would also help in assessing the interest levels of employees to fit into the new roles. Using career development software like HRMS, iCareer Manager, mentoring software like Employee value proposition (EVP), SAP factors etc., helps to retain and engage the high performing talent. "In addition to content SAP SuccessFactors talent solutions are provided with a foundational set of capabilities such as Talent Search, Jam basic edition, Profile Builder, and SAP SuccessFactors Presentations – all to help you orchestrate your talent efforts and achieve better results from day one." - (SAP Successfactor, 2018).

These initiatives will succeed only when CHRO, CEO and top business executives put their minds together.

Human Capital Equation as mentioned by (Global CHRO, Airtel, 2017)

$HCV = h^d(ax+c)$

h= human capital investment

d= degree of digitization

a= agility of organization (to change and innovate)

x= diversity of talent and

c= culture of organization

Conclusion:

The journey of industry 4.0 is a world-shattering process, where new business models, new technologies have to be developed for new locations, new markets, new products and services as well as for new forms of collaboration and cooperation. It is not just enough if companies understand the implications of 4.0, but must also design talent strategies that best suits its needs and people. There is a need for innovation, persistence and discipline in attracting, retaining and developing the bench of talented millennials by providing inclusive culture, career opportunities, opportunity for innovation etc. to gain lasting results. There is no one best strategy for all situations. A different talent agenda is required to become a leader in 4.0. Focusing and investing in key areas like recruiting critical skills, talent technology, employee value proposition, leadership and employer brand image helps to become a market leader.

"Success is not about profits; it is about the ability to leverage and multiply the resources towards sustainable growth of business over a period of time."

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