

# Changes & Innovations in the World of Work and Its Impact on Health, Safety and Sustainability

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## ABSTRACT

*World of work is witnessing changes and innovations. Platform for the change has its own impact on work as well as work related behavior. Organization chooses mechanism to implant changes and put together organizational capabilities and competencies by change management and meeting out the impact of changes. Innovations in the place of work is proclaiming widespread transitions that have the potential to rework radically on psychological, physiological and ethical issues that employees experience with regard to their work. It is evident that the technology unlocks life that was inconceivable. Technologies made it easy to exchange information, make faster decisions, network within society, and get a hold of entertainment, process financial transactions efficiently and effectively. With scientific and technological progression, when the workplace becomes dynamic, the workforce also changes its momentum, resulting in prime concern for the occupational health and safety measures, in a dynamic world a successful organization stands in the future and thrives by recognizing the unique value to its manpower. The study of changes in the world of work also focuses on sustainability. It is a crucial point for the dialogue in dynamic environment as it intended at humanizing the quality of life for every human being at the present and for the generations to come. Sustainability encompasses environmental, economic, social dimensions. Study of sustainability of innovations is also a buzzword and it is also demanding pro-activeness in the system and its associated process. The purpose of this article is to examine the interplay between these transitions and its impact on health and safety and to identify the key priorities in the field of occupational health and safety, and to provide inputs into the understating the world of work.*

## Keywords

*World of Work, Sustainability, Change, Innovations, Occupational Safety and Health*

## INTRODUCTION

The world of work is consenting to unite emerging information technology, automation, worldwide deployments and relocation of work force as well as open market scenario in its purview. World of work is all about, controlling the work and its workforce; it incorporates tasks such as - who will perform it and how to perform it, in the process, activities and management system. Institutions and workplaces are testifying massive changes in organizational behavior. The major drives for the change are introduction and use of innovative information and communications technologies and mechanization.

The changing nature of work place adopts in it self, flexibility in work, the way work is being done, the shape of company structures and the expectations of employees. Technology, as the catalyst, gives momentum to these changes. At present, besides good salary and benefit programs, employees demands career development and a well defined organizational culture in work place. Employees won't just be happy doing one job anymore and looking for vertical progression within that job. Climbing the corporate ladder is a thing of the past. So, changes in the organizational structure could be seen in terms of flexible and flat structures, allowing employees to work across multiple areas of the business. Understanding the needs of staff, and how these needs change over time, helps the organization to create a business where employees enjoy work. It's through enjoying work that employees are able to perform to the best of their abilities and deliver results (Tonkins, 2015).

The nature of work and organization of work are changing, becoming more client and knowledge driven. The workforce has also been changing; it is ageing, less male-dominated, more precarious and more difficult to monitor, as it has spread out into small companies. As a

consequence, health issues have become more complex and it requires finding new ways to improve Occupation Safety and Health. The focus has been placed on the economic dimension of OSH. It includes issues such as the overall cost of social non-quality, costs connected to conditions of work including accidents and health-related absenteeism and long-term effect of working conditions on health (Eusebio Rial-González, 2005).

According to the International Labour Organization, Occupational health and safety encompasses the social, mental and physical well-being of workers in all occupations. Poor working conditions have the potential to affect a worker's health and safety. Unhealthy or unsafe working conditions can be found anywhere, whether the workplace is indoors or outdoors. Deprived working conditions can affect the environment workers live in. This means that worker, their families, other people in the community, and the physical environment around the workplace, can all be at risk from exposure to workplace hazards (ILO, 2014).

## LITERATURE REVIEW

### World of Work

World of work is buzzword used to denote the work environment and workplace or place of work synonymously in a business environment. Work environment is everything that forms part of employees' involvement with the work itself, such as the relationship with co-workers and supervisors, organizational culture, room for personal development, etc. A positive work environment makes employees feel good about coming to work, and this provides the motivation to sustain them throughout the day. Transparent & open communication, work-life balance, training & development-focused system, recognition for hard work, strong team spirit are some of the characteristics of positive work environment (Poh, 2018).

### Health & Safety

Collins English dictionary defines Health as - a person's health is the condition of their body and the extent to which it is free from illness or is able to resist illness. The health of something such as an organization or a system is its success and the fact that it is working well. Safety is the state of being safe from harm or danger. Safety features or measures are intended to make something less dangerous (DictionaryCollins, 2017).

### Occupational Health and Safety

According to WHO, occupational health deals with all aspects of health and safety in the workplace and has a strong focus on primary prevention of hazards. The health of the workers has several determinants, including risk factors at the workplace leading to cancers, accidents, musculoskeletal diseases, respiratory diseases, hearing loss, circulatory diseases, stress related disorders and communicable diseases and others. Employment and working conditions in the formal or informal economy welcomes other important determinants, including, working hours, salary, workplace policies concerning maternity leave, health promotion and protection provisions, etc (WHO, 2017).

International Labour Organization defines occupational Health and safety as the science of the anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environment. This domain is necessarily vast, encompassing a large number of disciplines and numerous workplace and environmental hazards. A wide range of structures, skills, knowledge and analytical capacities are needed to coordinate and implement all of the **building blocks** that make up occupational health and safety systems of any nation, so that protection is extended to both workers and the environment.

The scope of occupational safety and health has evolved gradually and continuously in response to social, political, technological and economic changes. In recent years, globalization of the world's economies and its repercussions have been perceived as the greatest force for change in the world of work, and consequently in the scope of occupational safety and health, in both positive and negative ways. Liberalization of world trade, rapid technological progress, significant developments in transport and communication, shifting patterns of employment, changes in work organization practices, the different employment patterns of men and women, and the size, structure and life cycles of enterprises and of new technologies can all generate new types and patterns of hazards, exposures and risks. Demographic changes and population movements, and the consequent pressures on the global environment, can also affect safety and health in the world of work (ALLI, 2008).

## Sustainability

Sustainability or Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland Commission Report, 1987). In practice sustainability could be defined as 'an ongoing and balanced approach toward industrial and industrial allied activities, ecological responsibilities and community benefits.' It logically involves taking a long-term standpoint on balancing economic, environmental and social impacts of the business or industrial activities (Saha & Saha, 2018).

## Change

Word change has genesis from Latin term '*cambiare*' means exchange. As a verb, it refers to transform or to make the form, nature, content, future course (of something), different from what it is. As a noun it is the act or fact of changing. Change drivers include technological development, process reviews as well as changes in personality traits of an individual (DictionaryCollins, 2017)..

## Innovation

Lorraine Sherry in his research work quotes Innovation from different perspectives such as – it can be thought of as a combination of existing concepts that, when brought together, make a particular activity possible for the first time. It implies, innovation as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption...if the idea seems new to the individual, it is an innovation." Traditionally, an innovation is a relatively discrete practice, product, process, or organizational arrangement that is to be diffused, disseminated, or introduced to users throughout the system. This process takes place in three stages: initiation, implementation, and institutionalization. Change agents or change facilitators promote the awareness of the innovation and encourage its use through a dissemination strategy that combines various incentives and supports. Since systems seek to maintain equilibrium, the innovation encounters varying degrees and forms of resistance as it diffuses (Sherry, 2003).

## Importance of Occupational Health And Safety

Work plays a central role in people's lives, since most workers spend at least eight hours a day in the workplace, whether it is on a plantation, in an office, factory, etc. Therefore, work environments should be safe and healthy. Yet this is not the case for many workers. Every day

workers all over the world are faced with a multitude of health hazards, such as: dusts, gases, noise, vibration and extreme temperatures.

Although the concern for the employees at work is changing yet, some employers assume little responsibility for the protection of workers' health and safety. In fact, some employers do not even know that they have the moral and often legal responsibility to protect workers. As a result of the hazards and a lack of attention given to health and safety, work-related accidents and diseases are common in all parts of the world (ILO, 2014).

## THE CHANGING NATURE OF WORLD OF WORK

World of work is witnessing various changes, some of them are:

- Changing Organizational Form,
- Changing Nature of work,
- Development of Contractual Relationships,
- Deployment of Work Force,
- Efficient use of Working Time and arrangements,
- Engagement of innovative trending Technologies at workplace,
- Changes in the workforce due to demographic shift and
- Changes in occupational health and safety systems.

## Changing Organizational form

Strong forces of change are- globalization, demographic shifts (for example, aging population and declining fertility rates), advances in information technology, demassification of society, and hyper competition are reshaping the competitive landscape worldwide. As a result, companies in most industries are not only undergoing rapid and radical change, but are also experiencing a fundamental shift in the rules of competition and the way the game of competition is played resulting in emergence of new work organizational forms (Ilinitch, D'Aveni, & Lewin, 1996)

Organizational form is now proposed in terms of labor power, the object, means, and division of labor, and the control of labor at the organizational and institutional level. The new organizational forms are emerging as a result of the transition from industrial to postindustrial capitalism. To specify the links between corporate dynamics and post bureaucratic organizational forms, the role of computer-integrated production system and replacement of external bureaucratic rules by software,

and the role of an ideology of responsiveness in service organizations and government agencies are playing a vital role. Characterization of organization based on ideas such as formalism, universalism, weak classification and framing of options, loose coupling, interdependence and networking, and the propagation of a corporate culture to counteract the centrifugal and deconstructive tendencies of structural flexibility. In contrast to the technical rationalization of work by computers, these elements of structural flexibility are seen as a form of social rationalization (Heydebrand, 1989)

New forms of work organization, such as combined jobs, multi-tasking, teams, telecommuting, electronic performance monitoring, use of temporary workers, contract workers and alternative work schedules, are being introduced with very little attention to their potential to hurt workers. However, these forms of work restructuring can increase workers' risk of injuries, illnesses and stress. Some common terms for work organization / reorganization include: **Lean Production:** An overall approach to work organization that focuses on elimination of any "waste" in the production/service delivery process. It often includes the following elements: "continuous improvement", "just-in-time production", and work teams. **Continuous Improvement:** A process for continually increasing productivity and efficiency, often relying on information provided by employee. **Involvement groups or teams:** Generally involves standardizing the work process and eliminating micro-breaks or any "wasted" time spent not producing/serving. **Just-in-Time Production:** Limiting or eliminating inventories, including work-in-progress inventories, using single piece production techniques often linked with efforts to eliminate "waste" in the production process, including any activity that does not add value to the product. **Work Teams:** Work teams operate within a production or service delivery process, taking responsibility for completing whole segments of work product. Another type of team meets separately from the production process to "harvest" the knowledge of the workforce and generate, develop and implement ideas on how to improve quality, production, and efficiency. **Total Productive Maintenance:** Designed to eliminate all nonstandard, non-planned maintenance with the goal of eliminating unscheduled disruptions, simplifying (de-skilling) maintenance procedures, and reducing the need for "just-in-case" maintenance employees. **Outsourcing/Contracting Out:** Transfer of work formerly done by employees to outside organizations (AFL-CIO, 2018).

### Changing nature of work

At present nature of work is trending with information outsourcing, changing worker attitudes and values, demographics and diversity, technological advancement, and globalization. **Outsourcing:** Companies have come to define which work is critical and which work is not. Organizations will move in the future to outsourcing the noncore competencies of the workplace. **Changing worker attitudes and values:** There was a time when people remained in one job their entire lives. For example—According to the Bureau of Labor Statistics, a worker in the U.S. today has an organizational life expectancy of just 3.5 years. That is going to be a challenge for HR. **Demographics and diversity:** People are living longer and, in the next 10 years five generations in the workplace could be witnessed. Traditionalists, Boomers, Gen X, Gen Y, and Gen wireless. These are people who grew up with technology in their hands they understand it; they know how to leverage those tools. **Globalization:** Before it was bought by Oracle, Sun Microsystems had employees working in the U.S., India and Europe around the clock on special projects. "Now they get 24 hours of work time. This dispersion of work geographically is the best possible way that work can get done. It implies prime importance should be given for the attainment of objectives aligning with HR strategy (Wright, 2013).

### Development of Contractual Relationship

Enforceable law of any nation or country adequately defines the contract and contractual relationships. Indian Contract, 1872 defines the Contract under Section 2 (h), which provides 'a contract is an agreement enforceable by law'. Thus a contract is an agreement made between two or more parties which the law will enforce. An agreement is defined under section 2 (e) as 'every promise and every set of promises, forming consideration for each other. In short Agreement = Proposal + Acceptance and Contract = Agreement + Enforceability. Thus all contracts are agreements but all agreements are not necessarily contracts (Universal, 2016).

A contractual job requires signing and agreeing to terms of a contract before working starts. Contractual work is usually for a specified amount of time and ends upon completion of a project or assignment. Some employers prefer to hire contractual workers if their workload fluctuates or seasonal in nature or if they want to test workers' capabilities before hiring them permanently. Contractual workers are paid a lump sum amount as compensation. It requires employees to work specific hours, or allow workers to set their own schedules with



targeted deadlines for the day. Contractual employment with construction companies, hospitals, publishers and other service industries is often scheduled by the employee, according to weather conditions, clients' expectations, workload demands and deadlines.

With the recent development in India, advocacy for equality of wages for contractual workers has given momentum. In a far-reaching verdict that brings relief to laths of contractual employees working in government departments and agencies, the Supreme Court ruled on October 2017 that temporary workers are entitled to wages at par with permanent employees based its judgment on the principle of 'equal pay for equal work'. It said. "Any one, who is compelled to work at a lesser wage, does not do so voluntarily. He does so, to provide food and shelter to his family, at the cost of his self respect and dignity, at the cost of his self worth, and at the cost of his integrity, for he knows that his dependents would suffer immensely, if he does not accept the lesser wage." Honorable Supreme Court of India, in its verdict stated that state and central must follow the equal pay for equal work principle because it was a signatory of International Covenant on Economic, Social and Cultural Rights (Sinha, 2016).

### Deployment of workforce

In this competitive era, deployment of work force became a herculean task from the Personnel Management perspectives. Deployment of employees is an activity and process and it is a personnel function carried out by the personnel department of any progressive organization. It is associated with relocation of an employee either permanently or temporarily to a dissimilar work place by means of transfer or promotional shift in organizational ladder and it ensures that the workforce of the society would be constantly in an optimal relation to the existing and forecasted jobs in an organization inline with its structure. This implies work place should be well organized. When the workplace is set in order, it implies higher morale, raising productivity.

### Use of Working Time and its arrangements

Working time has great implications for the quality of working life as well as enterprise performance. Both hours of work and the different patterns in which these hours are arranged have an important influence on a range of terms and conditions of work. For example, the number of hours that people work directly affects their compensation; not only their earnings but also their non-wage benefits, such as paid leave pensions and even their access to social protection.

Study conducted by ILO has analyzed daily schedules of work time patterns of individuals residing in four countries of the western hemisphere: Canada (1992), the Netherlands (1990 and 1995), Norway (1980 and 1990) and Sweden (1991). Effects of **demographic differences** such as gender, age, marital status and age of the youngest child on work time patterns are also assessed. Work was defined as all paid work encompassing regular paid work, overtime work and work at a second job. Work episodes were defined as single occurrences of paid work activity separated by 60 or more minutes from any other paid work episodes. The reference work episode was the one that occurred during "core" hours, which were defined as 8:00 a.m. to 6:00 p.m. for Canada and the Netherlands and 7:00 a.m. to 4:00 p.m. for Norway and Sweden. In general, men tend to be more evenly distributed over the work time arrangements defined for a typical day than do women. Women tend to be more concentrated in a single core-only arrangement, while more men are more evenly distributed over the possible work time arrangements. Among men, Canadians and Swedes distribute their work time over a larger span of the day, with around one-third only working during core hours. Dutch and Norwegian men, in contrast, are more likely to stick to core hours, with nearly half of these men working only during core hours. Swedish women work over a much wider range of hours in the day than women in the other countries. For the Netherlands, on all the seven days of the week core work time was dominant. In Sweden, part-time workers were found to be more heavily concentrated in core hours than were full-time workers. Self-employed Swedish workers primarily worked during core and post-core hours, while their Canadian counterparts were more likely to work during core hours only. Nevertheless, Canadian self-employed workers also had a more even distribution across the categories of work spanning noncore hours or entirely outside core hours. In Canada, Workers working a compressed week were less likely than other workers to work core only hours. Not surprisingly, daytime workers start and finish earlier than the evening and night time workers. Workers working split and rotating shifts were more evenly distributed over work time arrangements than those with day, evening and night shifts only. The work cited here reveals that time use data can provide considerable insight into working time arrangements. Report also highlights need for some basic work on establishing criteria to define core hours and related work patterns in a manner that will be meaningful for labour (ILO, Conditions of Work and Employment Series No. 3 1, 2003).

### Engagement of Innovative and Trending information technology

New technology always changes our life very much and takes it to a new level. It is like the new way of thinking or doing the normal things differently, better and much faster with less hassle and at a much affordable rate. Change in information technology affects the life of individual as well as workplace. From the organizations perspective, use of new technologies makes healthy communication and connects with the world. Use of newer technology will dominate the working and individual lives, some of the trending technology are: **AI permeation:** Artificial intelligence (AI), largely manifesting through machine learning algorithms, isn't just getting better. It isn't just getting more funding. It's being incorporated into a more diverse range of applications. **Digital centralization:** individual Consumers are craving centralization; a convenient way to manage everything from as few devices and central locations as possible. **5G preparations:** though tech timelines rarely play out the way we think, it's possible that we could have a 5G network in place with 5G phones by the end of 2019. 5<sup>th</sup> Generation internet has the potential to be almost 10 times faster than 4G, making it even better than most home internet services. **Data overload:** relying on digital devices for most of the daily tasks, companies will soon have access to and start using practically unlimited amounts of personal data and possibly more positive outcomes, such as better predictive algorithms in healthcare. **Seamless conversation:** Microsoft's latest test gives its voice recognition software a 5.1 percent error rate, making it better at recognizing speech than human transcribers. Similarly, robotic speech and chat bots are growing more sophisticated. **UI overhauling:** how we interact with our apps and devices users interface will play a vital role. New types of visuals and more audible clues will likely be included in next-generation UI- User Interface, and consumers will adapt to them quickly, so long as they serve their core needs (DeMers, 2017)

How we live and interact with each other matters much. Effective information and communication technology revolves around the internet and its use. If we look at the internet users in the world, the region wise data depicts use of information and communication technology in wide scale. As per the statistics published by the Miniwatt Marketing Group in their we portal 'Internet world stats', the Internet users in the world by region in the year ending 2017 is : Asia- 49.2%, Europe- 17.3%, Latin America/ Carolina, 10.5%, Africa 10.2% , North America -8.5%, Middle East -3.6 % , Oceania/ Australlia-0.7%. Total there

were 4,050, 247,583 users in December 31, 2017. In Indian subcontinent, 462,124,989 are the internet users out of 1,354,051,854 population statistics of January 2018; it is 34.4% penetration as per IAMAI (internetworldstats, 2018).

These statistics reveals that, world of work and society at large is affected by the digital movements. Without the technology life could be very complex and at the back. If individual do not have them or afford them life becomes difficult and complex and resulting in socio-psychological problems and side effects. Hence, the study of changing nature of world of work and its impact of health and safety became vital.

### IMPACT ON HEALTH AND SAFETY

Some of the impact on occupational health and safety that could be perceived in the world of work is traced here as learning objectives:

- Hazards of work organization and work-restructuring,
- Flexibilisation,
- Work Life Balance,
- Demographic Change,
- Work-related stress and its impact on organization &
- Technology impacting health and safety.

#### Hazards of work organization / work re-structuring

Recent research on the impact of new forms of work organization documents negative impacts on health and safety, and is cause for concern. The organization of work itself can influence the level of psychological stress that workers experience and can increase exposure to physical hazards, both which can lead to injuries or illnesses. New forms of work organization can result in the intensification of work, leading to working faster and harder. This work intensification may be increasing stress on the job, with low worker control over the work, often coupled with higher job demands. Changes in work organization systems have been linked to the development of musculoskeletal disorders (MSDs) in health care, automobile manufacturing, meatpacking, telecommunications, and contingent work. Work-related MSDs associated with work organization changes have been linked to exposure to physical hazards and psychologically stressful conditions resulting from machine- paced work, inadequate work-rest cycles, wage incentives, time pressure, low job control, low social support, electronic performance monitoring, and repetitive

work. Studies have shown that work stress can have serious impact on workers' cardiovascular system. High job strain (jobs with low job control and high work demands) is associated with increases in blood pressure and increased risk of dying from heart attacks. Long hours of work also appear to be hazardous to the cardiovascular system. Overtime work has been shown to increase blood pressure and increase the risk of experiencing a heart attack. Long work hours increase the risk of having a workplace injury, with the risk going up significantly beyond the ninth hour of work. Increased levels of fatigue and greater exposure to physical hazards are thought to play a major role in the increased injury rates in workers who work long hours. For broad segments of the workforce in virtually every industrial sector, the changing employment relationship can be synonymous with frustration and confusion. Increased workplace stress may lead to significant challenges to the safety, health, and well-being of workers. Increasing numbers of workers enjoy only nonpermanent or part-time contract work or "contingent employment." Known variously as temporary workers, contract workers, contingent workers, freelancers, or consultants, these workers have many faces (ALF-CIO, 2018).

### **Flexibilisation**

In the digital era, work became increasingly interconnected, more international and more flexible. Many workers are experiencing greater requirements for flexibility in terms of working hours, place of work, and forms of employment. Potential consequences for the workers can be either positive or negative. Breaking down the rigid boundaries between work and private life can lead to a spill-over of work, along with all of the accompanying disadvantages for workers' health and social lives. On the other hand, it can also create opportunities for improving the reconciliation of work with obligations and wishes in other areas of life. Potential stress factors associated with flexibilisation are not limited to constant availability and the removal of boundaries between work and leisure. Another focus is the increase in mobile working, or rather: working from home or teleworking, working at the customer's premises or working while travelling (e.g. on trains or planes or in a hotel room). The growing demand for work-related mobility is caused by the structures of business networks, as well as by decentralization and standardization processes. These are often associated with processes of globalization, as well as a perceived need to operate near to customers (Zedeck & Mosier, 2018).

### **Work Life Balance (WLB)**

Zedeck and Mosier (1990) and more recently O'Driscoll (1996) note that there are typically five main models used to explain the relationship between work and life outside work. The segmentation model hypothesizes that work and non-work are two distinct domains of life that are lived quite separately and have no influence on each other. This appears to be offered as a theoretical possibility rather than a model with empirical support. In contrast, a spillover model hypothesizes that one world can influence the other in either a positive or negative way. There is, of course, ample research to support this but as a proposition it is specified in such a general way as to have little value. We therefore need more detailed propositions about the nature, causes and consequences of spillover. The third model is a compensation model which proposes that what may be lacking in one sphere, in terms of demands or satisfactions can be made up in the other. For example work may be routine and undemanding but this is compensated for by a major role in local community activities outside work. A fourth model is an instrumental model whereby activities in one sphere facilitate success in the other. The traditional example is the instrumental worker who will seek to maximize earnings, even at the price of undertaking a routine job and working long hours, to allow the purchase of a home or a car for a young family. The final model is a conflict model which proposes that with high levels of demand in all spheres of life, some difficult choices have to be made and some conflicts and possibly some significant overload on an individual occur (Zedeck & Mosier, 2018).

The problems in analyzing work-life balance only begin with the concept of balance. We also need to consider work and life. Work can be initially defined as paid employment. But this soon breaks down when we begin to take into account extra unpaid hours, the time taken to travel to and from work. At the very least, the definition of work in the analysis of work life balance is problematic with the spillover of work into family life. However family life is only one aspect of life outside work (Singh & Kumar, 2011).

### **Demographic Change**

The American Federation of Labor and Congress of Industrial Organizations in its report, work re-organization; a hazard to workers' health and safety quotes; Demographic change is resulting in ageing workforces. In order to maintain workers' health and capacity to work over their entire working life strategic concept is required. When we look at the labour force

potential, the average age of employees rises in the medium and long term. Over the past years, companies and society have successfully challenged the ageing of the work force and succeeded in improving the employment opportunities for older workers. In recent years, labour force participation has increased more strongly among those aged 55 to 64 than in any other age group. In terms of the employment of older workers, Germany is currently in second place in the EU, only in Sweden older workers are in gainful employment (ALF-CIO, 2018).

### **Focus on work-related Stress and its effect**

The effect of work stress on individuals is being studied by World Health Organization. The report states, stress affects different people in different ways. The experience of work stress can cause unusual and dysfunctional behavior at work and contribute to poor physical and mental health. In extreme cases, long-term stress or traumatic events at work may lead to psychological problems and be conducive to psychiatric disorders resulting in absence from work and preventing the worker from being able to work again. When under stress, people find it difficult to maintain a healthy balance between work and non-work life. At the same time, they may engage in unhealthy activities, such as smoking drinking and abusing drugs. Stress may also affect the immune system, impairing people's ability to fight infections. When affected by work stress people may become increasingly distressed and irritable become unable to relax or concentrate, have difficulty thinking logically and making decisions, enjoy their work less and feel less committed to it, feel tired, depressed, and anxious have difficulty sleeping experience serious physical problems, such as: heart disease, disorders of the digestive system, increases in blood pressure, headaches, musculo-skeletal disorders such as low back pain and upper limb disorders.

World health organization in its report codifies that - if key staff or a large number of workers are affected, work stress may challenge the healthiness and performance of their organization. Unhealthy organizations do not get the best from their workers and this may affect not only their performance in the increasingly competitive market but eventually even their survival. Work stress is thought to affect organizations by: increasing absentees, decreasing commitment to work, increasing staff turn-over, impairing performance and productivity, increasing unsafe working practices and accident rates, increasing complaints from clients and customers,

adversely affecting staff recruitment, increasing liability to legal claims and actions by stressed workers damaging the organization's image both among its workers and externally. Effective measures to reduce stress are given by the WHO in its report. These include: Primary prevention, reducing stress through: ergonomics, the prevention of work stress, work and environmental design, organizational and management development. Secondary prevention, reducing stress through: worker education and training, and Tertiary prevention, reducing the impact of stress by: developing more sensitive and responsive management systems and enhanced occupational health provision (WHO, Protecting Workers' Health Series No 3, 2004).

### **Technology Impacting and Supporting Health and Safety**

The National Institute for Occupational Safety and Health states that, over the past two decades, emerging investigative technologies have allowed for greater understanding of occupational health hazards and mitigation. Development in automation, further mechanization, new materials, and implementation of biotechnology on a large scale reduce harmful waste and reduced impact on workers. One area of advancement of technology that can greatly impact the future directions of the understanding of occupational health is the advancement of health monitoring and evaluating data to better understand occupational exposures. An emerging concept from the Human Genome Project, the exposome is an umbrella term used to define the measure of all exposures of an individual in a lifetime and how those exposures related to health. Studying the exposome to characterize and quantify occupational exposures has and will continue to positively contribute to the study of occupational health and safety. Scientists were able to sequence the entire human genome, to locate human genes, and to provide information about their structure and organization. By utilizing genetic information and other factors that contribute to occupational morbidity and mortality, greater measures can be implemented to prevent occupational disease. It has been determined that only 10% of diseases are attributed solely to genetic causes. Therefore, environmental factors play a role in the manifestation of 90% of diseases. The exposome is comprised of the analysis of internal processes, specific external exposures, and wider social, economic, and psychological influence on the individual (NIOSH, 2014).

The implementation of exposomic research has introduced a paradigm shift in how we research, analyze, and



understand occupational health. By characterizing workplace exposures using a more holistic approach, researchers will be able to have a better understanding of the true occupational exposures that impact human health. Greater precision in the quantification of exposures through technological advancements has positively contributed to these advancements, introducing a modern and progressive approach to studying occupational health and safety. The development of new technologies plays an essential role in paving the way for safer workplaces worldwide (ILO, 2014).

## IMPACT ON SUSTANABILITY

Commitment for the principles of sustainable development is a world wide concern. Basically, this means that future generations should continue to have opportunities for development, and also that social justice should be improved at both national and international level.

Sustainable development is closely linked to the use of technology. The effects of modern technologies are not only positive, on the contrary, many problems such as those concerning the environment are the direct result of the use of technology. For instance, aircraft transport us rapidly and safely from one destination to other, but air traffic is a major contributor to the global climate problems. Many of the resources (Fossils Fuels such as Coal, Oil and Natural Gas) consumed will no longer be available to future generations, which from today's point of view will seriously restrict their opportunities for development. Thus technology and sustainability are in an ambivalent relationship. The use of modern technology is on the one hand partly responsible for today's problems, but on the other hand the need for more sustainability depends to a considerable extent on new technical solutions. A sustainable society will only function if it can make use of reliable technical systems. These should be highly efficient, benefit to health, be renewable, reusable, and socially affordable (ITAAAS, 2018).

Industrial robots, computer-controlled machine tools, video display terminals-these and other space-age technologies can help reduce workplace injuries and illnesses if safety, health, and work organization factors are built in during design and development. The expert of ILO agreed that new technology can reduce some safety and health hazards by relieving workers of arduous or dangerous physical tasks or removing them from exposure to dust and toxic substances. Examples include automated materials handling equipment and the growing use of robot welders and painters in the automobile industry (Linsenmayer, 1985).

## CONCLUSION

Potential of the workforce is vital for the changing business environment and dynamic organization do not afford to waste the potential. Employee's workplace environment has great impact on their level of performance and motivation. The changing employment relationship and its impact on worker well-being is matter of high concern. The employment relationship is being transformed by various economic and organizational pressures not under the control of any one employer. These pressures are changing traditional concept of the employment relationship. Organizations are keen to focus on the program addressing changing way of life, work life balance, stress free job and environment and health and safety. To motivate the workforce for the higher performance workplace plays a vital role. The performance also demands time and energy sharing, allocation of adequate resources and workplace education and mentoring. Occupational health and safety is a holistic approach, it encompasses the social, mental and physical well-being of workers that is the "whole person", moreover, organization should follow the guidelines issued by the ILO for successful occupational health and safety practice. It emphasizes collaboration and participation of both employers and workers in health and safety programs and employers have a moral and often legal responsibility to protect workers. In the workplace fear and anxiety are natural, healthy responses by individuals who are exposed to innovations. New technology brings new qualities to the lives of human beings but also has a side effect, usually human beings tolerate this side effect for as long as it takes until that current new technology becomes irrelevant and again new technology has to be invented. New technology can improve life both positively and negatively. Improving the world of work is an opportunity. Opportunity could be capitalized only if the thoughts for the impact of change are translated in to actions.

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