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Manage with Vision of Life

- M.N. Venkatachaliah*

INTRODUCTION

On this significant moment in your lives I convey to the out-going graduates my affectionate greetings and congratulations on the achievement they have accomplished. May your lives be blessed with prosperity and inspired by high ambitions. It is well to remember that as you plod through the wilderness of life's experiences you may have occasions that may compel you to surrender to agnosticism and to worship doubt. You should remember that the race is not always for the swift and the battle not always for the strong. Time and chance happeneth to all.

But remember that steadfast adherence to what you consider your values and ideals will always stand you in good stead. It is wise to remember Blaise Pascal's wager; If you believe in God and He turns out to exist, then you have obviously made a good decision. The skills you have acquired will bestow upon you great opportunities. In the pursuit of wealth, happiness and success, in the way these ideas are understood and practice today, you will inevitably face ethical dilemmas. But remember always that leadership goes with severe sacrifices. If you do not have an impersonal love for mankind you cannot be leaders of men. I wish you courage more than any other virtue – courage to be virtuous.

CHANGING CONTEXT OF THE ART AND SCIENCE OF MANAGEMENT

A scholar of management sciences uttered these words about the way ideas of management have been etched in stone and petrified in time. Gary Hamel in the "Future of Management" expressed some profound sentiments as to the future of management. I quote a passage from it which I think you have already familiar with:

"On Christmas eve, 1968, the Apollo 8 command module became the first human-made object to orbit the moon. During its journey back to earth, a ground controller's son asked his dad, "Who's flying in the space-craft?" When the question was relayed up to the homebound crew, astronaut Bill Anders replied, "I think Sir Isaac Newton is doing most of the driving now".

"Like that curious lad, I'd like to pose a question: Who's managing your company? You might be tempted to answer, "the CEO," or "the executive team", or "all of us in middle management". And you'd be right, but that wouldn't be the whole truth. To a large extent, your company is being managed right now by a small coterie of long-departed theorists and practioners who invented the rules and conventions of "modern" management back in the early years of the 20th century. They are the poltergeists who inhabit the musty machinery of management. It is their edicts, echoing across the decades that invisibly shape the way your company allocates resources, sets budgets, distributes power, rewards people, and makes decisions".

"So pervasive is the influence of these patriarchs that the technology of management varies only slightly from firm to firm. Most companies have a

**This is abridged version of the Convocation address delivered by the author to the Graduating students of M.P.Birla Institute of Management:Associate,Bharatiya Vidya Bhavan, Bengaluru 560 001 on 13th September 2014.*

roughly similar management hierarchy (a cascade of EVP's SVP's and VP's). They have analogous control systems, HR practices, and the planning rituals, and rely on comparable reporting structures and review systems. That's why it's so easy for a CEO to jump from one company to another – the levers and dials of management are more or less the same in every corporate cockpit".

"Yet unlike the laws of physics, the laws of management are neither foreordained nor eternal – and a good thing, too, for the equipment of management is now groaning under the strain of a load it was never meant to carry. Whiplash change, fleeting advantages, technological disruptions seditious competitors, fractured markets, omnipotent customers, rebellious – shareholders – these 21st century challenges are testing the design limits of organizations around the world and are exposing the limitations of a management model that has failed to keep pace with the times".

"Think about the great product breakthrough over the last decade or two that have changed the way we live; the personal computer, the mobile phone, digital music, e-mail, and online communities. Now try to think of a breakthrough in the practice of management that has had a similar impact in the realm of business – anything that has dramatically changed the way large companies are run. Not easy, is it? And therein lies the problem".

"Management is of out of date. Like the combustion engine, it's a technology that has largely stopped evolving, and that's not good. Why? Because management – the capacity to marshal resources, lay out plans, program work, and spur effort – is central to the accomplishment of human purpose. When it's less effective than it could be, or needs to be, we all pay a price".

Today, more than ever before in our civilization, the science and art of management has assumed critical importance. What you learn as a science you practice as an Art. The rewards of an art are in its practice. Time and chance have changed many institutions. E-mail and Internet, for example, have changed the way of business. "The E-mail to is to information revolution what the Rail-road was to the Industrial Revolution". Just see what social media on the Internet has done to the newspaper industry; the circulations of leading newspapers in UK have come down over the decade between 2000 and 2012. Daily Mirror, The Guardian, Sunday Mail, Telegraph lost 40% to 50% of circulation. More than all, there is one over-arching social factor that has imperceptibly changed our notions of what is good and moral. In India, a tyrannical feudal social order has collapsed. It has not happened because a bearded leader order it. It has happened because its time had come. With it are gone the conservative morality, which were components of the feudal machine, so much so, the present generation finds itself nothing to go by. In a society which is increasingly becoming a - moral is left to fend for itself. We can see a parallel with what happened in China during its 'Cultural Revolution'.

Western industrial and economic philosophy has as its twin foundational ideas, the concept of dynamic disequilibrium and creative destruction. It is said that while the 20th Century was the Century of America, the 21st is the Century of China and India. In reality the 21st Century is Century of new-medicine. It is also the Century of the science and art of management. There is a crisis of management of science in India. India in the area of availability of Scientists is ranked 3rd in the World. It is 4th and 5th in the world in domestic – market and foreign - market access. The Global Competitiveness Report ranks India at the 50th place in over-all global competitiveness. India is weakened by its Macro-economic instability. Government runs one of the highest deficits in the world and has high unsustainable levels of Government debt. In human – development we are behind Cuba and even Congo. Our ranking in H.D .I has gone down from 128 to 137. An oxford UNDP – study indicates that there are more poorest of the poor in eight states in India than 23 African Nations put together.

Technology has changed the world. It has eliminated distance and brought the world closer. It is no more a conflict of philosophical perceptions such as 'Business and Anti-Business' or 'Smithians' and 'Anti-Smithians'. Both are alive and well. But what has changed is the ability to match personal ethics with corporate ethics. The economic-melt downs the world has seen from time

to time is a mere euphemism for collapse of character and faith. It has occurred earlier in industrialized countries. In that sense historic time is not linear but cyclic.

We have seen this enacted earlier in America in the twenties and early thirties of the last Century as well. Though it was 'largely a country of villages and towns of wide-lawns and airy houses, of hard-work, puritan values and self-sufficiency much of the wealth displayed was based on speculation'. Yet another symbol was the 'country-club' and of 'bath-tub' Gin, New-Jazz, the flapper and the beginning of the revolution in sex. Upton Sinclair's description of the hard-life and cruelty of the factories was largely ignored. Then America had it. As an eminent lawyer describes:

In November 1929 the bubble burst. The collapse of stock market prices measured the collapse of the entire economic structure. In the summer of 1929 the Dow Jones average for Industrial stocks had been 381.17. In the summer of 1932 it was 41.22. Ninety percent of the value had disappeared. The plight of the former was worse. Corns Sold for seven cents a bushel, sugar for three cents per pound. Twenty-five percent of the land in Mississippi was sold at auction on the foreclosure of mortgages.

The plight of industry was no better. In the three-year period of December 31, 1933, the Gross National product fell from 194.42 to 56. Bankruptcy liquidation and reorganization were a chief business of the legal profession. The average wage of factory workers was forty cents per hour. Factory payrolls were cut in half. One of every four men available for work was un - employed. There were no labor unions, no unemployment compensation, and no Social Security.

How you were affected dependent on who you were. If you were the son of a relatively well –to- do family, the father of one of your friends may have jumped from twentieth - story window. Another friend would not return to your boarding school or college in the fall. If you were of the middle class, you might sink down to the bottom. In one group of laborers were found clergymen, engineers, a school principal, and a bank president. For factory workers the depression meant unemployment, bread lines and soup kitchens. Municipal Bankruptcies were common. The young hit the road. One young hobo was Eric Severed, a banker's son, whose face and voice would become familiar to millions on CBS News programs. The estimates of the number of youths who lived as trumps run up to two million.

You managers of business and industry have in your hands the ability to avoid such grim situations for the future of mankind. For you, gentleman- the outgoing graduates – the whole world is before you. With the technological breaks- through the sky is the limit for growth.

ECONOMIC DEVELOPMENT : TWO VIEWS AND APPROACHES

Is a country considered poor in economic terms necessarily a undeveloped one? Responses to this poser may vary. Hodson in his "Diseconomics" said' India might be poor, but to say it is undeveloped is a travesty of that word. India, he said, was a developed country when parts of the northern hemisphere consisted of bogs and were inhabited by uncivilized men! There are non-economic dimensions of development. Enhancement of quality of life is one. Amartya Sen would say that expansion of freedoms is both the primary end and the principal means of development. The lessons of development are that economic growth does not trickle down. Macro-economic stability is essential and human needs must be met by specific state-intervention. No one policy will alone trigger development but needs a comprehensive approach with the support of institutional arrangements. 'Social-preparedness' is a pre-cursor of the results of economic reforms. Public goods such as education, health, human security are not rewards of development; but are essential to the very process of development. Amartya Sen illustrates the point by a comparison between China and India.

"The contrast between India and China has some illustrative importance in this context. While Indian efforts have slowly met with some success, the kind of massive results that China has seen has failed to occur in India. An important factor in this contrast lies in the fact that from the standpoint of social

preparedness, China is a great deal ahead of India in being able to make use of the market economy. While pre-reform China was not skeptical of markets it was not skeptical about basic education and widely shared health care. When China turned to marketisation in 1979 it already had a highly literate people especially the young, with good schooling facilities across the country. In this respect China was not very far from the basic educational situation in South Korea or Taiwan, where too an educated population had played a major role in seizing the economic opportunities offered by a supportive market system. In contrast India had a half-illiterate adult population when it turned to marketisation in 1991 and the situation is not much improved today" (development as Freedom).

The international economic order based on market economy has its own inequities. It is fierce in its competitive ruthlessness, Joseph Stiglitz spoke about them in his 'Roaring Nineties' and 'Globalization and its Discontents'. A stress on mere growth without justice and equity can make it ' Ruthless, Rootless, Voiceless, Jobless and Futureless.

Amartya Sen speaks of two different attitudes to the process of development . One view sees development as a "fierce " process, with much " blood, sweat and tears" – a world in which wisdom demands toughness. In particular it demands calculated neglect of various concerns that are seen as ' soft headed'.

"This hard- knocks attitude contrasts with an alternative out-look that sees development as essentially a "friendly" process. Depending on the particular version of this attitude, the congeniality of the process is seen as exemplified by such things as mutually beneficial exchanges (of which Adam Smith spoke eloquently) or by the working of social safety nets, o of political liberties or of social development or some combination or other of these supportive activities."

This social security is an important counter-part of the agenda of development. Market - economy supports growth; but at the same time produces unacceptable levels of inequality. If the negative forces generated by inequality are not to damage economic activity. It is necessary to look at social security issues as a essential and inevitable concomitant of the economic process.

VISION OF THE STUNNING 21ST CENTURY

Jeffry Sach's observed: "World is no longer divided by ideology. It is divided by technology. Only 15% of world is technologically innovative; 50% of the world is capable of adopting these innovations, 35% of the world is technologically disconnected".

Scientists are already envisaging an era where all important decision making will be done by computerS which develop super- human intelligence. That is the coming age of technological singularity. That is because the moment when technological change becomes so rapid and profound, if represent a rupture in the fabric of human history.

Raymond Kruzweil in his 'Fantastic Voyage' predicts :

"As we peer even further in to the 21st century, nanotechnology will enable us to rebuild and extend our bodies and create virtually any product form mere information, resulting in remarkable gain in prosperity. We will develop means to vastly expand our physical and mental capabilities by directly interfacing our biological systems with human created technology"

"Because of this exponential growth, the 21st century will equal 20000 years of progress at today's rate of progress 1000 times greater than what we witnessed in the 20th Century, which itself was not slouch for change"

The present system of measurement of economic performance itself has become controversial. The gap between official figures and public perception is ever increasing. In France and UK only one-third of citizens trust official figures and these countries are not exceptions. The traditional concept of GDP does not capture the more important dimensions of social progress. Time has come to adapt the present system of measurement of economic activity so as to better reflect social progress.

EPILOGUE

At times of great changes human intellect unless controlled by values, can tend to be a self - stultifying instrument. Increase in knowledge without a corresponding growth in wisdom, can be a source

of disaster. Disaster can ride on a sun beam of knowledge. Businessmen and corporate often speak of pragmatism as a practical philosophy. Simply put, it seeks to do away with bondages of dogmas, unbending beliefs and traditions. ' We have to be practical '. This is the single mean that runs across the world of business. 'customer satisfaction ' and 'share holder value' are the twin shibboleths of the business world.

Bishop Wilson asked us that we should go by our best light ; but cautioned that darkness be not our light and evil our good. But, in understanding what is virtue and what is goodness inevitably we fall back on our own unfailing resource : 'Dharma' : the much misunderstood word. What does it convey. An eminent member of your own tribe Guru Charan Das in his book " Difficulty of being good " tells us : "

"Dharma , the word at the heart of the epic, (The Maha Bharatha) is in fact untranslatable. Duty, goodness, justice, law and customs all have something to do with it, but they all fall short. Dharma refers to 'balance' - both moral balance and cosmic balance. It is the order and balance within each human being which is also reflected in the order of the cosmos".

Lord Buddha late in his life standing on a hill top looked at the beautiful world below and in an expression of the freshness of emotion said; "Chitram Jamboo-dweepam; manoharam jeevitam manushvanam". On this beautiful day of frost and sun we shall therefore not go to bed before evening.

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Multi-dimensional Perspective of e-HRM: A Diagnostic Study of Select Auto-component Firms

- Geetha R.*

Abstract

Electronic Human Resource Management has brought about a paradigm shift in the way operational, relational and transformational functions of HRM are performed. Most of the companies across the globe have digitized their HR practices of recruitment, selection, training, performance management, compensation management, leave and attendance management, time management and other operative and strategic functions either through adoption of integrated software applications like SAP or Oracle People soft, or through adoption of standalone applications like Applicant Tracking System, Recrumax, Learning Management System, Payroll, Performance Management Suite and so on. Through this study an effort was made to analyze the effectiveness of e-HRM in auto-component industry from multi- dimensional perspective. e-recruitment, e-selection, e-learning, e-performance management and e-compensation management are the five core dimensions of e-HRM considered for the study. A research premise was developed and tested based on the opinion survey of around 110 HR practitioners at Senior and middle levels of management from 44 select auto-component firms. The findings explicate that technology integration with HR practices in auto-component industry is yielding significant benefits to the firms in the form of reduced cost per hire, increased applicant volume, and enhanced quality, simplified processes, reduced cycle-time of HR and many others which are discussed in detail in this paper.

Key Words: e-HRM, Technology integration, multi-dimensions of e-HRM, Efficiency gains.

INTRODUCTION: Multidimensional Perspective Of E-HRM

The possibilities of integrating digital technological applications with HRM are endless. Electronic technology can be integrated with almost all the processes of HR. The effectiveness of electronic technological applications in HR processes and the value they generate to organizational performance enhancement can be better assessed by analyzing in isolation, the contribution of each of its dimensions to organizational performance. The various dimensions or aspects of e-HRM include: e-recruitment, e-selection, e-learning, e-performance management, e-compensation management, e-leave management, e-time management, e-surveillance, e-attendance

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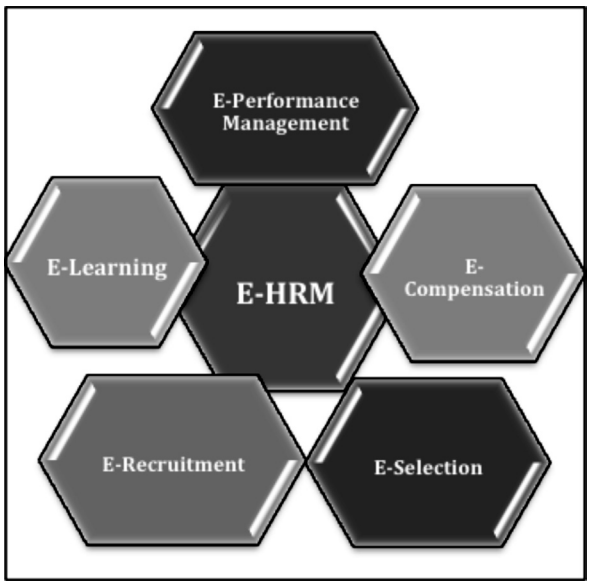
management, etc. Electronic or web-based technology can be leveraged to deliver HR solutions that bring about convergence in HR processes of recruitment, selection, training, evaluation, compensation and all other activities of HR which facilitate the implementation of business strategies. In subsequent paragraphs five dimensions of E-HRM are discussed separately.



Source: Author

A) e-Recruitment:

Organizations across the globe have started using e-recruitment sources so as to attract and retain highly talented employees.

E-recruitment may be defined as the extensive use of electronic technology or web-based technological tools to assist the recruitment process of an organization.

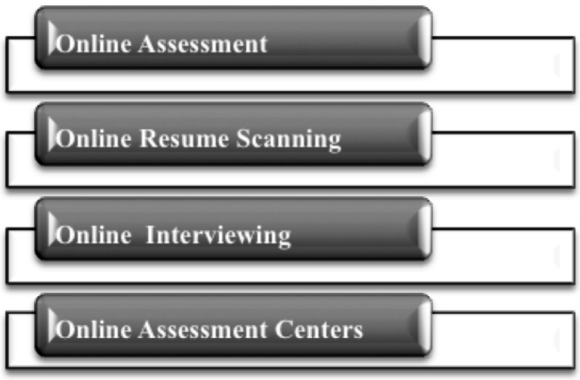
Sources of E-Recruitment

Source: Author

B) e-Selection

E-Selection is a paperless process through which the applicants or job seekers can be selected to jobs through quick dissemination of electronic documents and information nationwide and worldwide using internet.

e-Selection Techniques



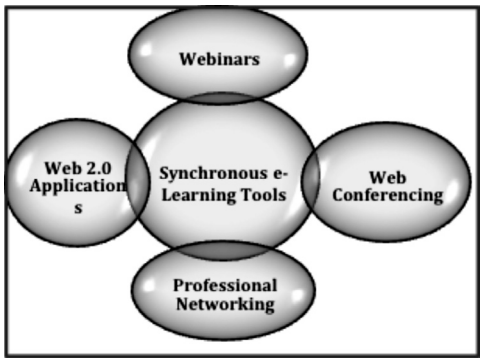
Source: Author

The criteria used in the research for assessing the effectiveness of e-selection are –applicant screening cost, selection cost, and cycle time reduction, number of recruits satisfying job requirements, Standardization and process consistency.

C) e-Learning

E-Learning is the use of technology to enable people to learn anytime and anywhere. E-Learning can include training the delivery of just-in-time information and guidance from experts. E-learning will facilitate to overcome the barriers of time, distance and resources.

e-Learning Techniques



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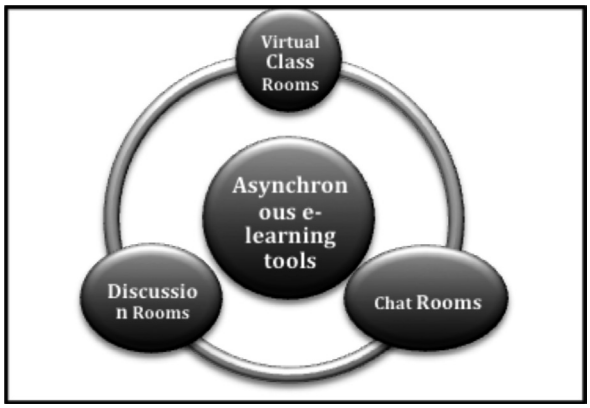
Synchronous e-learning techniques include: webinars, web conferencing both audio and video, professional networking, instant messaging and other web 2.0 applications.

Asynchronous e-learning includes self-paced learning modules, virtual class rooms and chat rooms and discussion groups. Apart from synchronous and asynchronous e-learning techniques, there are also built-in learning and knowledge management systems within organizations to facilitate e-learning for employees and executives.



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Effectiveness of e-learning for the study purpose is assessed using variables like Travel expenses, time saved ,job relevance of learning content, task time and time spent on learning and employee productivity.

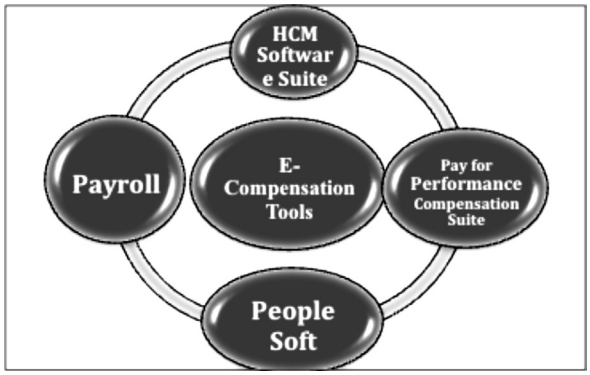
D) e-Compensation Techniques

E-Compensation is the integration of electronic software tools for modeling the Salary structure, Cash & Non-Cash plans that strategically drive performance. Managers are also able to provide total compensation reporting to their employees which will act as a valuable retention tool.

E-Compensation improves the efficiency and accuracy with which managers address compensation issues. Managers gain easy online access to total workforce compensation information, as well as third-party benchmarking and salary surveys that they can then use to request or perform salary changes.

1. E-Compensation Alerts notify HR managers when a Compensation Cycle is available for their group. When complete, changes are submitted and routed for approval.
2. Automated Salary proration and eligibility rules further eliminate manual intervention.
3. Facilitates viewing total compensation-related information for direct reports from a central location, including salary, cash components, and non-cash items.
4. Request or grant base salary increases for employees, which are automatically routed for approval, either during targeted review periods or on an ad-hoc basis.
5. Easily sets up workflow to automate approval routing.

   E-compensation effectiveness was estimated by seeking opinion on parameters like error count, time taken, statutory compliances, simplification of processes, effectiveness of job evaluation, and changes in time and ambiguity avoidance.



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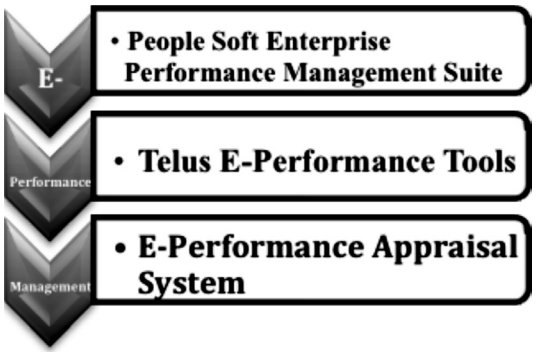
E) e-Performance Management

Performance is the accomplishment of a given task measured against preset standards of accuracy, completeness, cost, and speed. Performance enhancement due to HRMS in the firms was evaluated based on the estimation of speed, accuracy and cost of performing the HR functions. E-performance management may be defined as a system in which electronic technology is integrated with the performance management process of the organization in order to improve organizational, team and individual performance.

In the context of the research, the constructs used to assess e-performance management dimension are, accuracy, change in time, elimination of rater's bias and rating errors and ease of training needs assessment and determination of rewards with performance results. An effort was made to find the implications of e-performance management on all the mentioned factors.

e-Performance Management Tools



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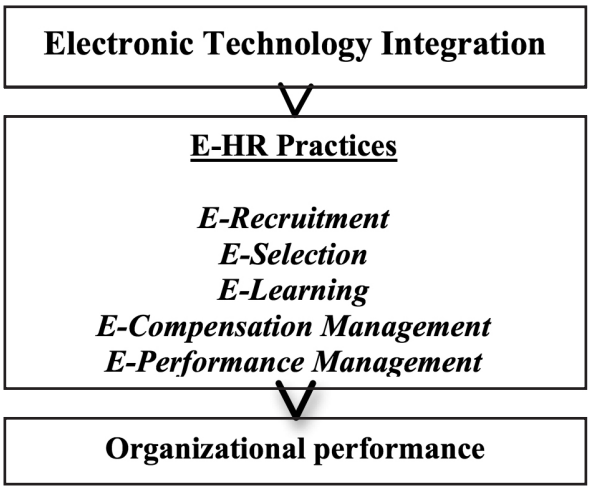
OBJECTIVES OF THE RESEARCH

Though there are several empirical studies related to the role of HRIS in organizations, concrete efforts to measure the implications of electronic technology integration with HR practices on Organizational effectiveness in automotive component industry have not been made so far. Current research work is undertaken in order to realize the following objectives:

1. To examine the implications of e-HRM on HR operational costs.
2. To evaluate e-HRM as a strategic tool for quality enhancement.
3. To appraise the effectiveness of digitized personnel management practices on process simplification.
4. To assess efficiency gains due to HR automation.

RESEARCH PREMISE

Many auto component firms have accepted and integrated electronic technology in their functional, operative and tactical processes. They have incurred massive expenses on technology incorporation with all HR processes. Through this research an effort was made to examine the implications of e-HRM on organizational performance.



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RESEARCH HYPOTHESES

Ha1: Cetirus Paribus, e-HR Practices lead to Simplification of HR activities.

Ha2: Digitized HR practices have resulted in personnel cost efficiency.

Ha3: Automation of HR practices has enhanced the quality of all HR processes.

Ha4: Effective time management is a significant outcome of e-HRM.

DATA ANALYSIS AND INTERPRETATION

This section presents the results of the study after examining and analyzing the relationship between dependent and independent variables considered for the study. Appropriate mathematical and statistical tools were employed to test the hypotheses that were formulated to assess the effectiveness of e-HRM on organizational performance in auto-component industry. The analysis was carried out using SPSS (20th Version) software application.

Twenty one statements used in the questionnaire were assessed on a five point Likert rating scale ranging from strongly disagree (1) to strongly agree (5). To simplify analysis, 21 variables of assessment were reduced to four factors based on their communality. This was done with the help of factor analysis and the principal

component analysis. The results of the analysis and observations pertaining to EHRM outcomes have been subsequently discussed.

Table 1: Reliability Statistics of Variables used to Assess Effectiveness of e-HRM

e-HRM Effectiveness Variables: Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.933	.929	21

The reliability analysis was conducted as shown in **table 1** by computing the Cronbach's alpha (α) for each moderating variable used to assess the effectiveness of e-HRM. The reliability of a measure indicates the stability and consistency of the instrument used in measuring a concept and it helps to assess the goodness of a measure (Sekaran, 2000). The Cronbach alpha test was conducted to ensure internal consistence and reliability between the moderating variables used to assess the concept.

The Cronbach's alpha for twenty one items or independent variables used to measure the concept of e-HRM was **0.933** with 'α' for each score ranging between **0.925 to 0.935** indicating that the measures have acceptable internal consistency since they are much above Nunnally's (1978) threshold limit of 0.70. The results of the reliability test conducted to validate the questionnaire are shown in **table 1**. The 'α 'based on standardized items need not be considered since all the items used were statements with multi point responses which mostly comprised of the same responses on a five point rating scale with responses given in a descending order (Min.-1 Strongly Disagree and Max. 5- Strongly Agree).

Results of Factor Analysis

Simple iterated factor analysis was carried out by iterating principal axis factors to four factors based on their communality. As a method of extraction, a promax oblique rotation technique was used since it was found that correlation exists between the variables considered for assessment. To determine the number of factors to be extracted, both theory and information was used by running the analysis to extract different numbers of factors and seeking which number of factors yields most interpretable results.

The steps involved in data reduction through factor analysis are indicated below:

Step-I: Pre-checking Sampling adequacy through KMO and Barlette's test of Sphericity.

Table 2: KMO and Barlette's Measure of Sampling adequacy

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.789
Bartlett's Test of Sphericity	Approx. Chi-Square	2075.765
	Df	210
	Sig.	.000

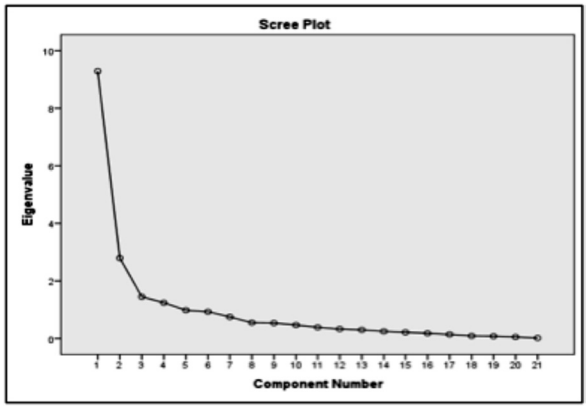
Source: Author

Kaiser-Meyer-Olkin test was conducted to ensure the adequacy of sampling size for factor analysis. As per the decision criteria if it is above 0.6 then the sampling size is adequate. From **table 2**, it can be observed that KMO measure of 0.789 is much above the threshold limit of 0.6 and Barlett's test of Sphericity with sig. value of .000 shows that the sampling adequacy is significant at 99 percent confidence level.

Step-II: Extraction Method, Principal factor axis.

Based on communalities, the proportion of each variable's variances due to underlying latent factors was identified based on the principal factor axis. Based on the factor loadings four factors having Eigen values more than one were identified as depicted in the scree plot in **figure 1**.

Figure 1: Scree Plot depicting component numbers with their Eigen Values



Source: Author

Scree plot in Figure 1 graphically displays the Eigen values for each factor andsuggests that 4 factors are prominent since they have Eigen values more than one.

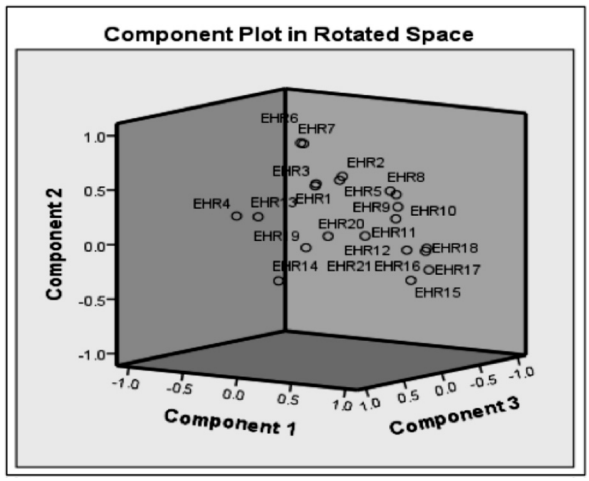
Table 3: e-HRM Components Correlation Matrix

Component Correlation Matrix				
Component	1	2	3	4
1	1.000	.542	.206	.175
2	.542	1.000	.334	.261
3	.206	.334	1.000	.158
	.175	.261	.158	1.000
Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization.				

Source: Author

The rotated factor matrix above indicates that a four factor solution is evident in the data above. Items comprising decision related factors, cost related factors, and quality related factors and accessibility factors appear to be grouping relatively based on their communalities. The Eigen values for factors 1, 2, 3 and 4 shown above have Eigen values greater than one and hence they have been extracted as components as shown in table 4 above.

Figure 2: e-HRM Component Plot in Rotated Space



Source: Author

The rotated component matrix in **figure (2)** shows how the factors are loaded around the components extracted through principal component analysis based on their communalities. Most of the factors are highly loaded on to the first component which is decision –oriented.

Table 4: Correlation between e-HRM Factors Extracted Through Factor Analysis and e-HR Practices

Correlations		
		E-HR Practices
Simplicity and Decision-Oriented Factors	Pearson Correlation	.325**
	Sig. (1-tailed)	.000
	N	110
Cost and Standardization -Oriented Factors	Pearson Correlation	.396**
	Sig. (1-tailed)	.000
	N	110
Accessibility and Savings related Factors	Pearson Correlation	.316**
	Sig. (1-tailed)	.000
	N	110
Quality and other Value Adding Factors	Pearson Correlation	.268**
	Sig. (1-tailed)	.002
	N	110
**.Correlation is significant at the 0.01 level (1-tailed).		

Source: Author

From **Table 4** we can observe that e-HR practices are highly correlated with the components extracted through principal component analysis. The correlation is significant at 99 percent confidence level.

Pearson's correlation coefficient of 0.325 at 0.01 significance level substantiates that e-HR practices will facilitate to make quick and effective decisions. Similarly the Pearson's coefficient of 0.396 (at alpha =0.01) indicates that e-HR practices help organization to reduce cost and standardize HR. Besides this E-HRM facilitates easy accessibility to information, enables saving time and cost, enhances quality and adds a lot of value to organizational performance enhancement.

Table: 5 Extraction of Factors based on communalities

Communalities		
	Initial	Extraction
EHR1: Data Input has Become Simpler	1.000	.621
EHR2: Ensures Flexibility to Employees	1.000	.592
EHR3: Facilitates Quick Learning	1.000	.742
EHR4: Saves Money	1.000	.813
EHR5: Develops Unique and Specialized Personnel	1.000	.673
EHR6: Has Positive Impact on employee Motivation	1.000	.721
EHR7: Facilitates Employee Engagement	1.000	.781
EHR8: Improves Employee Orientation	1.000	.786
EHR9: Improves Training and Development Process	1.000	.806
EHR10: Leads to Effective Career Planning	1.000	.754
EHR11: Personnel Management Becomes Simpler	1.000	.719
EHR12:Improves Occupational Health and Safety Process	1.000	.688
EHR13: Enables Easy Access to Knowledge and Information	1.000	.593
EHR14: Saves Cycle Time of all HR Activities	1.000	.684
EHR15: Ensures Quick Decision Making	1.000	.705
EHR16: Facilitates Identification of Training and Development Needs of Workforce	1.000	.774
EHR17: Facilitates Effective Decision Making	1.000	.766
EHR18: Useful for Effective Promotion Decisions	1.000	.772
EHR19: Reduces Paper Work	1.000	.662
EHR20: Enhances Quality of Workforce	1.000	.565
EHR21: Ensures Effective Auditability of all HR Activities	1.000	.552
Extraction Method: Principal Component Analysis.		

Source: Author

The four factors shown in **table 5** have been extracted based on their communalities.

Extraction - The values in table 5 indicate the proportion of each variable's variance that can be explained by the retained

Factors. Variables with high values are well represented in the common factor space, while variables with low values are not well represented.

Hypothesis 1

Ha1: Cetirus Paribus, E-HR practices lead to simplification of HR activities.

Table 6 (a) Model Summary of Dependent Variable: Simplicity and Decision-Oriented Factors

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.325[a]	.106	.098	.816
a. Predictors: (Constant), E-HR Practices				

Source: Author

Table 6 (b): Coefficients of Dependent Variable: Simplicity and Decision-Oriented Factors

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.652	.356		7.452	.000
	E-HR Practices	.253	.071	.325	3.576	.001
a. Dependent Variable: Simplicity and Decision-Oriented Factors						

Source: Author

The results of the regression analysis in Table **6 (a & b)** supports the hypothesis 1stated above and hence it is accepted. The standard beta coefficient is 0.325. The significance level is 0.01 for the independent variable E-HR practices indicating that adoption of e-HR practices has enhanced the decision making capabilities in HRM and has simplified HR processes in auto-component firms. The positive relation between the dependent and independent variable is significant at 99 percent confidence level as indicated by (P<0.01).

Hypothesis: 2

H_a2: Digitized HR practices have resulted in personnel cost efficiency and standardization.

Table 7 (a): Dependent Variable: Cost and Standardization - Oriented Factors

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.396[a]	.157	.149	.634
a. Predictors: (Constant), E-HR Practices				

Source: Author

Table 7 (b): Coefficients of E-HR Cost and Standardization -Oriented Factors

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.796	.277		10.108	.000
	E-HR Practices	.247	.055	.396	4.484	.000
a. Dependent Variable: Cost reduction and Standardization -Oriented Factors						

Source: Author

The results of the regression analysis in Table **7 (a & b)** supports the hypothesis 2 stated above and hence it is accepted. The standard beta coefficient is .396. The significance level is 0.000 for the independent variable E-HR practices indicating that adoption of e-HR practices has significantly facilitated standardization of HR practices and has also contributed immensely to the reduction of various HR costs. The positive relation between the dependent and independent variable is significant at 99 percent confidence level as indicated by (P<0.01)

Hypothesis 3

Ha3: Automation of HR practices has enhanced the quality of all HR processes.

Table 8 (a): Dependent Variable: Quality and other Value Adding Factors

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.268[a]	.072	.063	.506
a. Predictors: (Constant), E-HR Practices				

Source: Author

Table8 (b): Coefficients of Quality and other Value Adding Factors

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.601	.221		16.317	.000
	E-HR Practices	.127	.044	.268	2.897	.005
a. Dependent Variable: Quality and other Value Adding Factors						

Source: Author

The results of the regression analysis in **Table 8 (a & b)** supports the hypothesis 3 stated above and hence it is accepted.

The standard beta coefficient is .268. The significance level is 0.05 for the independent variable e-HR practices indicating that adoption of e-HR practices has significantly enhanced the quality of workforce as well as that of HR activities like compensation management, performance management, learning, recruitment and selection. The positive relation between the dependent and independent variable is significant at 99 percent confidence level as indicated by (P<0.01).

Hypothesis 4

Ha4: Effective time management is a significant outcome of EHRM.

Table 9 (a): Dependent Variable: Accuracy and time savings related Factors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.323[a]	.105	.096	.612

Source: Author

Table 9 (b): Coefficients of Accuracy and Time saving related Factors

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.440	.235		14.641	.000
	E-HR Practices	.148	.042	.323	3.552	.001
a. Dependent Variable: Accuracy and Time -Savings related Factors						

Source: Author

The results of the regression analysis in Table **9 (a & b)** supports the hypothesis 4 stated above and hence it is accepted. The standard beta coefficient is .323. The significance level is 0.01 for the independent variable e-HR practices indicating that adoption of e-HR practices has significantly increased speed and accuracy besides saving the cycle time of all HR activities. The positive relation between the dependent and independent variable is significant at 99 percent confidence level as indicated by ($P<0.01$).

FINDINGS AND OBSERVATIONS

1. More than 92 percent of the firms considered for research had more than 4 e-HR practices.
2. E-HR practices have made data entry simpler and ensure flexibility in choice of benefits, leave and attendance management and time management.
3. E-HR practices have facilitated quick learning and development of unique and specialized personnel.
4. The time saved due to E-HR practices is found to be statistically significant.
5. E-HRM is found to have facilitated in employee engagement and better Quality of Work Life (QWL).
6. E-HRM has a positive impact on employee motivation and learning.
7. The use of e-HR practices have enabled easy access to knowledge and information and has enabled effective career planning.
8. The cycle – time of HR practices is found to have been reduced consequent upon the use of e-HR applications.
9. Decision making has become quicker and simpler in the organizations surveyed due to the use of Human Resource Information System and Decision Support Systems.
10. HR practitioners of the firms surveyed have observed that e-HR applications have enhanced the quality of their workforce.
11. It was also observed through study that the auditability of all HR activities has become easy as a result of e-HR applications.
12. E-HR applications are found to be susceptible to data security threats like data compromise, data loss and data thefts.
13. Some of the small and medium firms were frequently bothered by technical snarls and hence they were maintaining both manual HR records and electronic version of it.
14. Smaller firms could not afford to purchase integrated HR –packages due to high cost. They were mostly using simple standalone applications.
15. Some of the HR practitioners did not have clarity on the auditability of e-HR practices.

Suggestions and Recommendations

Some suggestions are enlisted below in order to overcome the inadequacies and lapses identified during research.

- Recruitment through Social Networking Sites (SNS) and other online resources should be increased to leverage from online e-recruitment resources.
- Web 2.0 technologies are not used as a source of recruitment in auto-component industry. The firms may avail of it to access larger pool of talented job-seekers.
- Many of the firms are resorting to RPO (Recruitment Process Outsourcing) since they are able to cut cost of recruitment as consultancy firms are making use of ATS, Recrumax and such other recruitment software applications. Auto-component firms can reduce their recruitment costs to a greater extent in the long run if they invest on purchase of such applications rather than outsourcing recruitment.
- By investing on e-recruitment,tools firms can reduce the cycle-time further.
- The recruitment expenses of larger firms are found to be less due to economies of scale and scope. Hence large firms in auto-component industry which are not making use of e-recruitment may adopt it and avail of it.
- The selection process of auto-component firms is partially automated there are many advanced selection tools like online interview tools, Recrumax,

e-selection suite and several others which will reduce the cost and cycle time of selection if utilized effectively. Firms should incorporate such applications.

- E-learning tools used are mostly basic in nature and hence auto-component firms may use advanced learning tools like authoring tools and LMS tools to attain higher benefits of e-learning.
- Most of the auto-component firms are using basic and stand-alone front-end applications in HR, they should try to use integrated packages like Oracle People soft, SAP_PM Suite and other integrated applications to reap maximum benefits of e-HRM
- Security threats are serious issues to be addressed in e-HRM. Auto-component firms should ensure that they adopt adequate security measures to avoid data thefts and data losses of any kind.
- They may also appoint a Data Base Administrator to take care of e-HR data management and HRIS security issues.
- The HR workforce may be given adequate training about the importance of streamlining e-HR practices as they would greatly contribute to organizational performance enhancement.
- The HR practitioners should be sensitized about the security threats and issues involved in e-HR data transfers and about the measures to be adopted to prevent and overcome them.
- Around 8 percent of the firms visited were not employing any e-HR practices. They are still conventional in their approach. Such firms may adopt e-HR to manage their workforce more efficiently.
- A significant correlation is observed between e-HR process consistency and auditability; hence the firms can improve their HR auditability through e-HR practices.
- Smaller firms may adopt e-HR practices to quicken their pace of HR activities.
- Auto-component firms may use online-interviewing to reduce the cycle time and cost of selection.
- Training should be imparted to employees who are resistant and not comfortable with e-HR practices.
- The duration of e-learning should be increased to generate full benefit of it.

CONCLUSION

e-HRM practices can lead to innumerable efficiency gains if they are utilized effectively. Though it is in the nascent phase in the auto-component industry, still the firms are able to attain efficiency gains in terms of reduced cost, saved time, and simplified processes, maintenance of consistence, standardization, increased auditability of recruitment practices and a few others like increased average applicant volume per vacancy. Most of the firms considered for survey were found to be more focused on reducing production cost through automation of production process rather than automation of HR practices. That is the reason why auto-component firms have not been able to fully realize the benefits of e-recruitment sources. The efficiency gains that they have attained now can only be rated as partial compared to other sectors of the economy like Information Technology, BPOs and KPOs. Hence it is highly recommended that the auto-component firms should make best use of online recruitment resources to attract a talented pool of employees in order to attain greater efficiency gains.

E-HRM has made remarkable strides in auto-component industry. Though the firms are employing very basic tools and application of e-HRM, they are able to enhance their performance by means of reduced task-time and cost, quickened pace of learning, employee motivation and employee engagement, quick decision making, enhanced quality of workforce and several other positive outcomes.

This empirical study provides terse evidence to justify the rationale behind massive investments on e-learning. If the firms under study have derived noteworthy benefits through simple and basic e-HR applications in addition to their conventional HR practices, then they'll surely be able to derive mindboggling benefits by investing on advanced e-HR applications to build the task-oriented skills and competencies of their employees as that would help them in further augmenting their business performance.

SCOPE FOR FUTURE RESEARCH

e-HRM is a contemporary concept and has adequate

scope for further research. There are several sub-systems under e-HRM like, HRIS, e-surveillance, e-time management, ESS, MSS and several others which have not been covered under the scope of this research. Future researchers may take up any one of the sub-systems of e-HRM and appraise its effectiveness or they may work on customizing and developing a new sub-system to integrate with the existing system of e-HRM. Also they can appraise the effectiveness of e-HRM in some other sector of the economy or some other industry.

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International Trade & Business Model with Special Reference to Operating System Software Products

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Abstract

Business model essentially deals with value creation and distribution of product or service. Value creation and distribution of operating system products seems to be a complex set of activities. This could be due to the process of software development process which takes place across borders. This paper makes an attempt to analyses the issues connected with value creation and distribution of operating system software from international trade perspectives. The policies and role of World Trade Organization (WTO) has been discussed in the paper. The research concludes that Information Technology Agreement(ITA) plays a significant role in value creation process for operating system products. Value creation process is expressed through software features. Standardisation of operating system product features are linked with international trade policies due to the global product usage. This also is directly connected with the acceptance of product. Therefore, it is necessary for international trade organisations to have more clarity of the policies related to exchange of system software products.

Keywords: International trade, operating system, software patenting, software licensing & ITA.

International Trade and Business Model:

Business model essentially deals with value creation and distribution of product or service. Operating system products are truly global products. The product is conceived and designed by technical engineers across various countries. The product is exchanged across borders. The product exchange can be complete software or semi-finished software. Therefore, the value creation and distribution activities of system software products are across borders.

The policies of international trade will have an impact on value creation and distribution of system software. Therefore, it is essential to examine the relationship between international trade and business model. There are many countries involved in the exchange of system software. System software is a technology product. The international trade of technology is mostly governed by World Trade Organization(WTO).

World Trade Organization (WTO) is a body established to manage standards and policies for international trade.

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In order to cater to the trade policies for technology, Information technology agreement (ITA) was formed. US, Europe and Japan countries were technology oriented countries post 1990's. They had many agreements related to manufacturing of semiconductor and other computer related technologies. These countries were able to foresee that technology will be one of the drivers of global economy. Hence, they contemplated having technology agreement for easier exchange of technology.

Information technology agreement (ITA) was a significant trade agreement signed by 14 WTO member states. This was the first sectoral agreement to be successfully negotiated between developed and developing countries. It was also the first agreement to fully liberalize trade in a specific sector. After the Uruguay Round, ITA provided participants to completely remove duties on information technology (IT) products covered by the Agreement. There are currently 74 participants – representing 7 per cent of world trade in IT products. (Information Technology Agreement, 1996).

The product categories identified by the ITA are:

- Computers,
- Semiconductors,
- Semiconductor manufacturing equipment,
- Telecommunication apparatus,
- Instruments and apparatus,
- Data-storage media and software, and
- Parts and accessories.

The categories are evolving over a period of time. It is a challenge for ITA to identify the appropriate classification due to the complexity and fast pace of changing technology. Computers and Data-storage media and software are relevant in the present context of study. ITA's Computers category focuses more on hardware integration activities and data storage-media and software focuses on software in physical support. ITA policies are evolving over a period of time. The policy formulation are challenging for technology products due to complexity of product. WTOs objective is to make technology accessible across all the countries more easily from economic and utility perspectives. One of the challenges with respect to technology products is presence of global production network (GPN). The technology is conceived and developed across different countries. The intermediate technology goods cross many borders for value addition processes and final product is made available in a country other than the countries where value addition processes took place. In order to measure the impact of GPN on trade, ITA identified vertical specialization (VS) to measure the value added activities across borders. VS calculated as the percentage value of imports directly and indirectly embedded in the exports of a country. In addition to GPN, ITA faces a challenge in classification of technology. The classification is difficult due to technology complexity and interrelation between technologies.

The policies of ITA are directly related with system software. ITA might identify standard features of software and all the organizations competing have to consider standard features and develop product. Standardization of product features would affect the product offer in turn will have an impact on business model.

The categories lack clarity with respect to software. The classification of software is more towards the physical exchange of software. However, the software can be made available without physical exchange over internet. This could be one of the major limitations to interpret ITA for a software exchange. The Classification of computers focuses on exchange of hardware technology across borders.

A few studies were conducted to measure the impact of ITA on international trade. Jospeh and Parayil (2006) argued that there is no change in the demand for ITA products post agreement. However, ITA will help and cannot drive technology product demand across borders. There are other factors such as poor infrastructure, institutions, human capital and policies that might influence the demand of ITA products. Bora and Liu (2006) used gravity regression model to measure the impact of ITA. The results of the study showed that the participation in ITA has increased bilateral trade.

The other aspect of ITA which needs to be considered is the dominance of a few countries in the international trade. US, EU and Japan were the pioneering countries of ITA. The basic purpose of trade agreements was to

facilitate easy exchange of technology across borders creating value for all trading countries. One of the unique features of technology is "standardization" of technology features. The standardization features establishes the basic architecture of technology. Technology architecture is a framework that describes the interaction and interconnectivity of components in technology. Generally, the country that establishes the technology standardization will have first mover advantage. The standard features set are generally based on the technology standard set in domestic market. The countries involved in ITA would like to establish technology standard. Once the standard is accepted and established, the country which has set standard will have competitive advantage. There are several factors that influence the acceptance of standard. A few of the factors could be customer lock-in, critical mass, demand of technology in domestic market. Many countries compete to establish technology standards. China is one of countries competing to establish technology standards. It is one of the key players in ITA. Suttmeier and Xiangkui (2004) call the attempt of China to establish standards as "neo-techno-nationalism". It is a technological development in support of national economic and security interests which is pursued through leveraging the opportunities presented by globalization for national advantage. China is giving special attention to domestic software market. The software standard can be set if there is a strong domestic software market. The standards set at the domestic market will be followed by technology organization to manufacture hardware and software. Hardware and software operate as per the standard set by China. These hardware and software are used by US and European. Hence, US and Europe have to accept and incorporate theses standards in their technology products. For instance, WLAN authentication and privacy infrastructure (WAPI) standard set by China for wireless devices. The importers of this technology have to adopt WAPI since the wireless device manufacturers in China would manufacture devices according to WAPI standards. A few thinkers opine that this is a gross violation of WTO agreement, however, none of the importers of technology which is based standard set by China have reported yet formally.

China is also engaged in developing alternative to Windows operating system. China-Japan-Korea open source software promotion partnership is established to find alternative to Windows. The partnership works on open source platforms such as Linux operating system to establish technology standards. Due to large domestic demand, China is capable of firmly establishing standards for Linux operating system. It is a challenge for the established standards of Windows. There exists open source movement across the globe. China does not want to miss this opportunity to establish its standard and control on software. Kylin is a Linux based operating system developed by China. Recently, Ubuntu had a deal with China to develop Ubuntu- Kylin for China. This is an attempt to replace Windows and establish open source based standards across technology industry.

Due to ITA and WTO, technology is freely exchanged across countries with appropriate tariff measures. Technology exchange has many dimensions that influence the acceptance of technology across the globe. From business model perspective, the technology policies of ITA will influence value creation and distribution process. There are not many restrictions in terms of distribution as such. The distribution is mainly governed through global licenses. These licenses are universally accepted. The other aspect of business model is value creation process. International trade policies are significantly related with value creation process. Technology is exchanged across borders for value adding processes. ITA essentially defines the framework of exchange of technology by GPN. However, GPN has to follow technology standards to add value to technology. The technology standard is strongly influenced by a country which is aggressively promoting its standards. The competing organizations have to follow global technology standards to produce their technology product. Hence, the business model has to consider the global technology standard for the value creation process of system software product in the upstream of value chain.

Legal Environment and Software Products

There are two aspects of legal framework for software. One is software license and the other is software patent. These two aspects have been discussed below.

Legal framework of Licenses

Legal framework will not have any impact on licensing policies of organization among software products. Microsoft, Apple and Linux are the major players in operating system software market. Licensing policies of Microsoft, Apple and Linux are global licenses. However, there is a geography specific usage license which will be specified in the license agreement. The geography specific usage restricts usage of license to the agreed upon location of use. The user can also purchase global licenses which can be easily used and transferred across geographical boundaries.

Software enables users to use computers efficiently and effectively. The usage is dependent on many factors. The existing literature indicates that one of the main factors that drive usage is interface across platform. This is related to the compatibility feature of software. The compatibility factor might lead to customer lock-in. The software might force users to use a specific hardware or software and restrict them to use hardware and software based user's choice. This is one of the technical constraints in software. The situation of compatibility might lead to monopoly. A few of the studies indicate that Microsoft was able to establish monopoly due to technical compatibility constraints erected by its operating system products.

Microsoft in its annual report of 2012 stated that many antitrust and unfair competition class action lawsuits were filed against Microsoft across various state, federal, and Canadian courts by direct and indirect purchasers of PC operating system and other specific software products between 1999 and 2005. All claims in the US have been settled dismissed. It has been estimated that total cost to resolve charges range between $1.9 billion and $2.0 billion. At June 30, 2012, it recorded a liability related to these claims of approximately $500 million. The software product strategy using compatibility feature might be perceived as anticompetitive strategy in legal framework. Microsoft has been facing legal issues within and outside United States. As it is reported in its 2012 Annual report, the European commission was concerned about the inclusion of web browsing software. Based on this the Microsoft displayed an option of browser choice screen to users across all the personal computers in Europe which has Microsoft operating system. Microsoft failed to provide this option for Windows 7 preloaded PCs due to technical error. However, Microsoft did provide the Microsoft fixed this error as soon as it noticed. After fixing the error users got on option on screen to choose the browser application. However, on July 17, 2012, European Commission announced that it had opened proceedings to investigate whether Microsoft had failed to comply with this commitment. The Commission mentioned that if any company is found to have breached a legally binding commitment, the company may be fined up to 10% of its worldwide annual revenue.

The journey of Microsoft has not been trouble free. The legal issues related to Apple Mac OS or Linux has been very negligible. One of the reasons could be the open access to source code. Apple Mac OS has been developing compatible interface to avoid compatibility constraints. However, Apple does have legal cases pending against their other products like iPhone, iPad etc.

The other aspect of legal framework is country specific. In the context of software, legal framework considers two components. One, software product and second its distribution in the country. Software product is evaluated based on features and functionality of product. A few countries' legal framework may not accept the bundling of software applications with operating system. It might restrict user's choice to use software application. Case against Microsoft at European Union cited above is an illustration legal interpretation/framework of product features and functionality. There are not notable cases against Microsoft in India. In fact, one of the major challenges for Microsoft in India is piracy. There have been many cases filed by Microsoft against Indian vendors for software piracy. Business Software Alliance (BSA) reports India has 63% piracy rate in PC software.

The second component of software license legal framework is distribution of software. Software is a global product. It is exchanged across borders in different formats. The law of the land determines legal requirements of software distribution. In Indian context, software attracts import duty if it is purchased outside Indian border. However, the software is purchased in

various forms. Generally, the software is distributed through CD/DVD, OEM or download. CD/DVD and OEM will attract custom tax and free download may not come under the purview of the categories identified. Ministry of Finance under Circular No. 15 /2011-Customs dated 18 March 2011 clarifies the custom duty requirements and tax exemption for the sale of imported software in any form in India. The paper licenses, CD/DVD and OEM licenses fall under the categories where import duty has to be paid and service tax exemption/discount may be provided for resale of imported software.

Legal framework of Software patents

Patenting of software is most debated issue and has not yielded common grounds of understanding and implementation of software patents. Software patents have been examined from TRIPS and domestic patenting laws adopted by countries.

TRIPS and Software

Trade Related Aspects of Intellectual Property Rights (TRIPS) is an international agreement administered by the World Trade Organization (WTO) which was formed in the year 1995. At present there are over 155 countries under TRIPS. TRIPS agreement provides intellectual property law in international trading system. TRIPS requires WTO members to give copyright , covering content producers which includes performers, producers of sound recordings and broadcasting organizations; industrial designs; integrated circuit layout-designs; patents; new plant varieties; trademarks; trade dress; and undisclosed or confidential information. TRIPS also mention enforcement procedures, solutions, and dispute resolution procedures. Protection and enforcement of intellectual property rights will meet the objectives to promote technological innovation and transfer and dissemination of technology, for the mutual advantage of producers and users of technological knowledge and in a way which will be conducive to social and economic welfare. (Wikipedia, 2014)20.

Patenting software is a complex process. According to Article 10 of TRIPS agreement, software is classified under the category of Arts not under technology category. Lack of clarity on software in TRIPS agreement has created vacuum for interpretation of Law. The domestic law interprets software component of TRIPS according to its convenience. The agreement fails to categorize software appropriately. Therefore, it is difficult to identify the copyrighted or patented components of software. The software producers are unable to patent their source code due to lack of clarity in TRIPS agreement. Reichman (1995) states that software code cannot be patented. However, the software usage behavior of customer can be patented. Software usage behavior is related with the interface and interconnection with multiple platforms. The user pays for the interface not just the software code alone.

Software patenting has been interpreted in several ways by countries. There has been disagreement on software patenting across many nations. A few countries are advocating open standards of software, where patenting will not have any relevance. A few countries do have patenting framework for software but lacks the clarity of what has to be included in patenting. There are two major agencies granting software patenting. One is confined to European region known as European Patent Office (EPO) which grants software patents and the other is for US region known as United States Patent and Trademark Office (USPTO).

Gert Kolle (1977) was one of the early advocates of open standards. Kolle argued that software patenting cannot exist. The software does data processing through instructions. The instructions are in the form of source code. The source code cannot be complied by one individual or organization. It involves a group of programmers. The source code is compiled from various authors/programmer. The author cannot be singled out and grant paten for a specific source code. The source code will also be integrated with hardware. Therefore, the patenting process gets more complicated.

According to en.swpat.org, In USA, the patent office is the authority which grants software patents and they have been upheld many times in lower courts., However, the Supreme Court never gave a verdict on whether a software is patentable or no. The European Patent Office is an authority that grants software patents in Europe. Most of the Courts in Germany have rejected them, but a few courts in the UK have upheld them. There is always uncertainty of the decisions. The patent holders are afraid of losing their patents and

therefore they avoid going to court. However this may lead to more problems. There is always possibility of Software patent holders misusing the patent. They can threaten software developers, and they can demand sums of money. If the software developer doesn't have enough financial strength to defend themselves in court, resulting in the patent holder winning and will get money or market control though their patent is probably invalid. The other side of the issue is that the software developers are afraid of adding some compatible features due to the threat by patent holders. They are afraid of the cost involved in resolving legal issues. Therefore, they might exclude some of the applications or compatibility features.

There have been numerous studies and discussion on software patenting. Neither academia nor industry has resolved to a basic framework of software patenting. This will directly impact consumer. The usage of software is dependent on software features. However, the software features such as interface and inter-operability are linked with licensing and patenting. If the software developing organization is unable to have clarity on patenting, then the organization may not develop software as a bundle of many applications and features due to the fear of legal issues arising out of patenting. Some of the applications and features bundled in software may be patented and may not be disclosed. Mark Shuttleworth states that Microsoft is involved in an activity of racketeering. He says that Microsoft is asking to pay for patents but do not specify which features are patented.

Generally Microsoft is blamed for Patent trolls. Patent trolls are mechanism where organizations acquire patents to extract money from product developers. In the context of software, Microsoft is engaging patent trolls. It is apparent from a few of the cases filed in the court. For instance, Microsoft sued Melco group which deals with network attached storage devices. Microsoft said that Melco uses Linux operating system and a few of the functionality and features used in the system are patented by Microsoft. However, Microsoft has not declared the details of patents infringed by Melco. Patenting of software might result in customer lock-in. The features and functionality will be controlled through the patents. The software will be made available with product developers who abide by the patents and pay the required usage fees to add patented feature in their product.

It is evident from the facts that software patenting is a complex activity and will have direct impact on consumers. The software patenting revolves around the functionality and features of software.

The functionality and features can be managed through licensing. Therefore, licensing could be a substitute for copyright or patenting. Most of the licensing policies are universal. Therefore, the licensing terms might also cover the internationally traded software. WTO can incorporate software under appropriate category and provide the licensing framework for internationally traded software or technology. The clarity must be established in order to establish common ground to interpret copyright and patenting of software products.

Conclusion

This research paper makes an attempt to identify and analyze the issues related to operating system products from international trade perspectives. It has been identified that ITA plays a significant role in value creation process for operating system products. Value creation process is expressed through software features. Standardisation of operating system product features are linked with international trade policies due to the global product usage. This also is directly connected with the acceptance of product. Therefore, it is necessary for international trade organisation to have more clarity of the policies related to exchange of system software products. In the absence of clarity a few dominant players of the industry will capture the market and sustain its monopoly for a long period of time. Software patenting constitutes significant component in the distribution of operating system product. TRIPS need to pay attention towards software products and bring in more clarity related to software patenting.

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Fire Safety Management in Construction

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Abstract

Fires throughout the world during construction of buildings and its refurbishment are becoming more common. As a result of this people are killed and injured and loss of property has also occurred. In this paper an attempt has been made to study the various safety measures that can be adopted during construction against fire hazards. This paper discusses broadly about the definition of fire, fire protection plan, escaping of the workers, fire fighting, equipments and other precautionary measures to be provided during construction.

INTRODUCTION

Every year there are many fires throughout the world on construction sites and in buildings undergoing refurbishment. As a result of these, people are killed and injured, property is irretrievably lost, including structures of historic interest, and commercial and industrial organizations suffer severe disruption to the smooth running of their businesses.

The construction industry's performance might have been improved over the past few years but the rates of death, serious injury and ill health for construction site workers have still not been taken into consideration. When construction activities are not adequately controlled, children and other members of the public can also be killed or injured, and property adjacent to construction sites can as well be put at risk – for example, FROM A SITE FIRE LARGE ENOUGH TO SPREAD OFF-SITE.

All parties concerned in a project, of whatever size, should work together to ensure that adequate but practical measures are introduced during the design and planning stages to achieve the highest standard of general fire precautions are introduced to ensure the maximum level of protection to the contractors and the structure during the construction or refurbishment operations.

The potential dangers of FIRE are particularly concentrated and severely destructing on many construction sites, where activities includes fire work which in turn lead to a circumstance of FIRE ACCIDENT.

FIRE

Primary aspect of managing a fire safety is to look into the possibilities and causes of a fire accident. The three major components of a FIRE are

• A source of ignition • Fuel • Oxygen.

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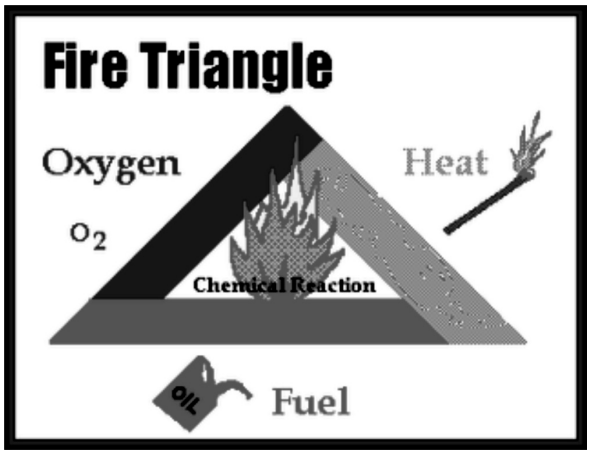
Oxygen is abundantly available in the atmosphere and it is important to take care of the other two components. The Engineer, Mason or a worker, whoever it may be, should make sure that there are no fuel substances around and a source of ignition of fire.



Taking into account the possibility of occurrence of a fire accident in spite of taking care about the components of FIRE, one has to be ready with a plan minimize the possibility. A FIRE PROTECTION PLAN is what it is named as.

Fire Protection Plan

The Fire Protection Plan shall include the following:

1. Procedures for reporting emergencies to the Fire department.
2. Procedures for emergency notification, evacuation and relocation of all persons in the building under construction and on the site.
3. Procedures for hot work operations, management of hazardous materials and removal of combustible debris and maintenance of emergency access roads.
4. Floor plans identifying the locations of exits, exit stairs, exit routes and portable fire extinguishers.
5. Site plans identifying the designated exterior assembly areas for each evacuation route.
6. Site plans identifying required fire apparatus access roadways and on-site fire hydrants.
7. The name and contact phone number of the person(s) responsible for compliance with the Fire Protection.

Water supplies

In the case of large projects, or those where structures are being constructed predominantly of combustible materials (such as timber) the fire brigade should be informed and provisions for water supplies agreed before work commences on site.

Adequate water supplies for fire fighting must be available.

- Rising and temporary mains must be provided where planned;
- Water supplies should be tested periodically;
- It may be necessary to move the fire brigade inlet point to rising mains as work progresses.

The role of the person responsible for fire safety

The person responsible for the fire safety management system and inspections on a construction site must:

- Ensure that all procedures, precautionary measures and safety standards as laid down in the site fire safety plan are clearly understood and complied with by everyone on the site;
- Ensure that a system for the issuing of hot work permits is established and monitored;
- Conduct weekly inspections of escape routes, fire safety signage and temporary emergency lighting (where applicable);
- Carry out weekly tests of the site fire detection and alarm devices installed on site;
- Carry out weekly checks of fire fighting equipment, fire brigade access and fire fighting facilities;
- Carry out weekly checks of the routing of temporary electrical cables, the housekeeping on site and the storage of combustible waste materials;
- Conduct periodic fire drills to ensure that everyone on site is aware of the procedures and reacts appropriately. This includes rehearsing the procedure for alerting the fire brigade;
- Liaise with the local fire brigade and invite them to undertake site inspections and familiarization tours where appropriate;
- Liaise with site security personnel where they are employed;

- Ensure that a proper maintenance regime for fire protection equipment is instituted, including the keeping of a written record of all checks, inspections and tests;
- Maintain a written record of training of site operatives and of all fire patrols and fire drill procedures;
- Where appropriate, appoint a sufficient number of fire marshals who should be properly trained to assist in the evacuation of the site and take first aid fire fighting measures where it is safe to do so.
- During an emergency, execute those duties required for the safe evacuation of everyone on site, ensuring that all staff and visitors report to the assembly points;
- Take action to promote a fire safe working environment at all times.

Small- and low-risk sites only require very simple plans, but higher risk sites will need more careful and detailed consideration, including:

1. An emergency plan, which should be available before work starts;
2. A responsible person to look after the fire precautionary plan and ensuring that everything is at place.
3. A perfect execution of the plan which ensures that proper positions are taken by the assigned people.

Further, general FIRE precautions should be taken at the event of fire accident and those can be listed as below.

A. ESCAPING OF THE WORKERS

1. Ladders may be suitable for simple projects for small numbers of able-bodied, trained staff.
2. On complex or multi-storey projects temporary proprietary stairwells should be used if reasonably practicable. It may be possible to sequence the building to commission early the permanent stairs to be used as an escape route.
3. Exit onto scaffold, if deemed part of escape plan, should be easily accessible, i.e. not through a window opening unless it is designed for the purpose, with easy access, or full height with the panel removed or balcony opening.
4. Escape routes and exits should be kept clear and clearly signed (never locked when people are on site).
5. Emergency lighting should be installed, if necessary, to enable escape. This is very important in enclosed stairways if normal lighting fails during a fire.
6. An assembly point should be identified where everyone can gather and be accounted for.

B. A FIRE ALARM SYSTEM

1. Check whether it is appropriate for the size of the building, number of storeys and complexity.
2. It should be heard by everyone working on site over normal background noise.
3. It is located so it can be activated immediately.
4. Manual bells are only used on very small sites if they can be operated away from danger.

C. FIRE FIGHTING EQUIPMENT

1. Should be located at identifiable fire points at each storey exit.
2. Serviced and maintained by a competent person.
3. Those carrying out hot work should have appropriate fire extinguishers with them and know how to use them.
4. In high-rise buildings where there is a need for fire protection, consideration should be given to installing equipment such as dry rises as the building progresses.

Smoking

A 'no smoking' policy must be established on the site with the exception of designated areas where smoking will be allowed.

Where a smoking shelter is provided it must be:

- Subject to a specific fire risk assessment;
- Constructed of non-combustible material;
- Where practicable, sited at least 10m away from any building or structure (20 metres on a site where a predominantly combustible structure is being erected);
- Provided with suitable metal ashtrays and a separate metal waste bin with a fitted metal lid;
- Provided with a suitable fire extinguisher.

The immediate area around the shelter and the shelter itself should be kept clear of combustible materials including windblown debris and vegetation.

Over time, an increased understanding of the many factors that contribute to the risk of fire has led to positive developments in the fire protection of commercial structures. Improvements in public fire protection systems and services, as well as increased use of private active or passive systems through fire-protection and loss-control engineering, has meant an overall decrease in the cost of fire. Effective undertaking of the above mentioned precautions along with an overall knowledge of safe construction practices will decrease the number of fire accidents in construction sites.

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