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# A STUDY ON THE SYNTHESES, SPECTRAL, AND STRUCTURAL CHARACTERIZATION OF NI (II) AND CU(II) COMPLEXES

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## ABSTRACT

1,3,4-Oxadiazoles and their complexes have attracted much attention because of their biological applications. Several 1,3,4-oxadiazole derivatives exhibit analgesic,muscle relaxant, tranquilizing,antiproteolytic, anticonvulsive, anti-inflammatory and antifungal activities. The cyclization of *N*-aroyldithiocarbazates and their esters to 1,3,4-oxadiazoles in the presence of a base is reported in the literature. Several other methods are also available for the synthesis of oxadiazoles from acyclic precursors which include oxidative cyclization of acylhydrazones, acylthiourea and acylthiosemicarbazides.

1,3,4-Oxadiazole-2-thiones represent an important type of compounds in the field of coordination chemistry because of their potential multifunctional donar sites *viz* either exocyclic sulfur or endocyclic nitrogen. There has been a considerable interest in the coordination polymers of 1,3,4-oxadiazole-2-thiones due to their interesting role in supramolecular chemistry and crystal engineering. These types of metal-organic framework with intriguing network structures find potential applications in gas storage and photoluminescence.

Recently, pyridyloxadiazoles have been systematically explored for their potentials as promising bridging ligands in coordination polymer chemistry. Because of the presence of electronegative elements *viz* O, N and S in 5-aryl-1,3,4-oxadiazole-2-thiones and amine of methylene hydrogens in ethylenediamine, the mixed ligands complexes of this system are expected to form extensive intermolecular and intramolecular hydrogen bonding leading to supramolecular architecture.

## KEYWORDS:

Ligands, Supramolecular, Bonding

## INTRODUCTION

Aromatic-aromatic or π-π interactions are important non-covalent intermolecular forces similar to hydrogen bonding. They can contribute self-assembly or molecular recognition processes when extended structures are formed from building blocks with aromatic moieties. The π-π interactions range from large biological systems to relatively small molecules and the π-π stacking is of fundamental importance for the further development of inorganic supramolecular chemistry and the tuning and prediction of crystal structures. Due to the presence of aromatic ring in the ligand under investigation, such π-π stacking is envisaged in the present system.

The design and assembly of supramolecular architectures with variable cavities or channels are currently of great interest owing to their novel topologies. A few papers are available on the metal complexes of 5-phenyl-1,3,4-oxadiazole-2-thione], 5-(4-pyridyl)-1,3,4-oxadiazole-2-thione, 5-(3-pyridyl)-1,3,4-oxadiazole-2-thione and 5-(2-pyridyl)-1,3,4-oxadiazole-2-thione.

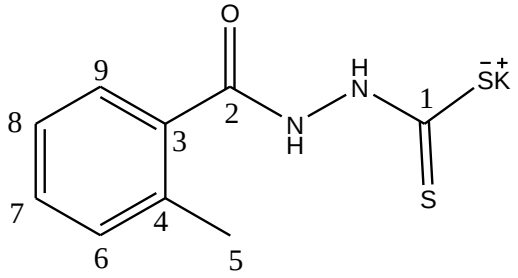


**Fig. 1Potassium*N'*-(2-methyl-benzoyl)-hydrazine-carbodithioate**

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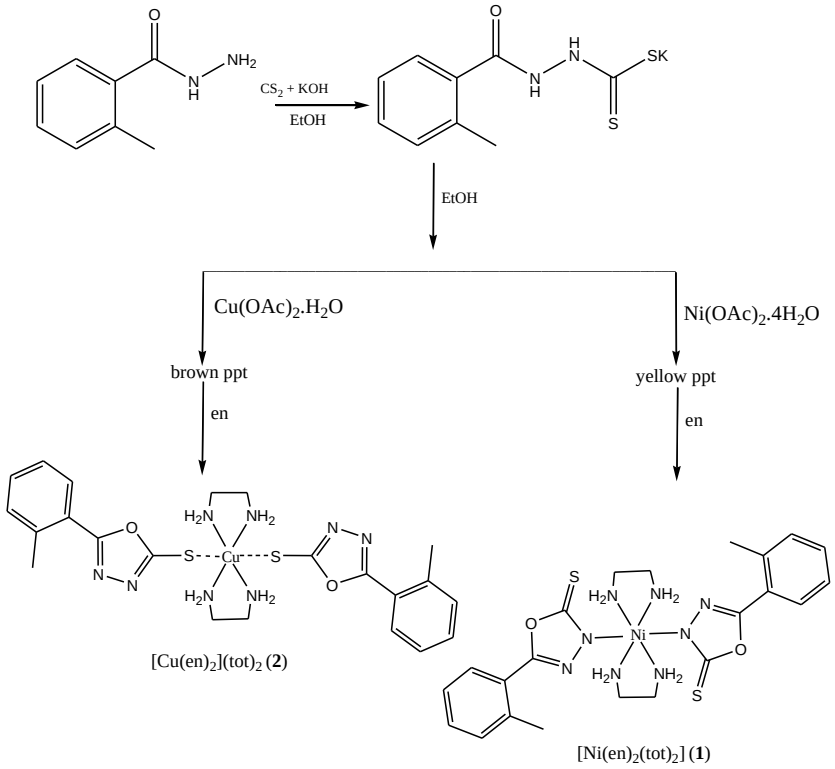
***Synthesis of [Ni(en)$_2$(tot)$_2$]***

A solution of [$K^+(H_2L)^-$] (0.264g, 1 mmol) in EtOH (15 mL) was added to a methanolic solution (10 mL) of $Ni(OAc)_2 \cdot 4H_2O$ (0.124g, 0.5 mmol). After stirring the mixture magnetically for 2 h at room temperature the precipitated product was filtered off, washed twice with MeOH and dried. The above precipitate was added to the ethanolic solution of ethylenediamine and stirred for 1h.The solution was filtered off and kept for crystallization. After 10 days, pink crystals suitable for X-ray crystallographic study were obtained.Yield: 62%, M.p. 241ºC.

***Synthesis of [Cu(en)$_2$](tot)$_2$***

A solution of [$K^+(H_2L)^-$] (0.264 g, 1 mmol) in EtOH (10 mL) was added to a methanolic solution (10 mL) of $Cu(OAc)_2 \cdot H_2O$ (0.100g, 0.5 mmol). After stirring the mixture magnetically for 2 h at room temperature the precipitated product was filtered off, washed twice with MeOH and dried. The above precipitate was added to the ethanolic solution of ethylenediamine and stirred for 1h. The resulting clear solution of **2** was filtered off and kept for crystallization. After 15 days, green crystals suitable for X-ray crystallographic study were obtained. Yield: 75%, M.p. 175 ºC. A simple Scheme 1 for the syntheses of Ni(II) and Cu(II) complexes with [$K^+(H_2L)^-$] is given below:




**Scheme 1 Preparation of the ligand and the complexes**

**Crystal structure determination and structure refinement**

Crystals suitable for X-ray analyses of the complexes [Ni(en)$_2$(tot)$_2$] (**1**) and [Cu(en)$_2$](tot)$_2$ (**2**) were grown at room temperature. Preliminary examination and intensity data were collected on an Oxford Gemini diffractometer equipped with a CrysAlis CCD software using a graphite mono-chromated Mo Kα (λ= 0.71073 Å) radiation sourceat 150(2) and 120(2) K for **1** and **2**, respectively. The MERCURYpackage was used for molecular graphics.

The structure was solved by direct methods (SHELXL-08) and refined against all data by full matrix least-square on $F^2$ using anisotropic displacement parameters for all non-hydrogen atoms. All hydrogen atoms were included in the refinement at geometrically ideal position and refined with a riding model. Crystal structure diagrams were generated by use of the ORTEP-3 for windows program.

Ethanolic solutions of $Ni(OAc)_2 \cdot 4H_2O$ and $Cu(OAc)_2 \cdot H_2O$ react with $[K^+(H_2L)^-]$ to give yellow and brown precipitates respectively which dissolved in ethanolic solutions of en to form $[Ni(en)_2(tot)_2]$ and $[Cu(en)_2](tot)_2$ in good yield. The complexes are air stable, non-hygroscopic shiny crystalline solids, which are insoluble in common organic solvents but soluble in DMF and DMSO. Analytical data and physical properties of the ligand and complexes are given in Table 1.

**Table 1Analytical data and physical properties of the ligand and complexes**

| Compound | F.W | Color/ Yield (%) | M.p. (ºC) | Found (Calcd) % | | |
|---|---|---|---|---|---|---|
| | | | | C | H | N |
| $[K^+(H_2L)^-]$ | 264.40 | White/68 | 242 | 40.70 (40.89) | 3.41 (3.43) | 10.54 (10.60) |
| $[Ni(en)_2(tot)_2]$ | 561.37 | Pink/62 | 241 | 46.95 (47.02) | 5.29 (5.38) | 20.05 (19.95) |
| $[Cu(en)_2](tot)_2$ | 566.20 | Green/75 | 175 | 46.48 (46.62) | 5.25 (5.34) | 19.85 (19.78) |

***IR spectra:***

The IR spectrum of $[K^+(H_2L)^-]$ is expected to give rise to characteristic bands due to ν(NH), ν(C=O), thioamide I, thioamide II, ν(C=S) and ν(N-N), which occur at 3256, 1638, 1472, 943 and 1053 $cm^{-1}$respectively. A comparative study of the IR spectra of compounds **1** and **2** with that of $[K^+(H_2L)^-]$ indicates that the characteristic bands due to the -C(O)NHNHC(S)- moiety, mainly ν(N-H) (hydrazinic) and ν(C=O), are found absent.

Further the disappearance of above bands related to ν(N-H) and ν(C=O) and appearance of new bands at 1597-1591 $cm^{-1}$ (endocyclic C=N), 1408-1379 $cm^{-1}$ for$\nu_{as}$(C-O-C) and 1333-1276 $cm^{-1}$ for $\nu_s$(C-O-C) $cm^{-1}$, suggest cyclization of the acyclic dithiocarbazate moiety. The IR data are thus consisted with the presence of a 1,3,4-oxadiazole moiety.

A negative shift of 77 $cm^{-1}$ in ν(C=S) in complex (**2**) indicates conversion of C=S bond to C-S. In the complex (**1**), ν(C=S) shows a very little negative shift showing that the exocyclic sulfur is not participating in bonding but can be attributed to the involvement of sulfur in hydrogen bonding with $NH_2$ hydrogen of ethylenediamine.

The absorptions appearing in the region 3330-3135 $cm^{-1}$due to NH stretching vibrations of en are found to be shifted to lower frequency than those encountered in free en due to the presence of N-H···S and N-H···N hydrogen bonding in **1** and **2**. The appearance of a new band at 538 and 596 $cm^{-1}$ in complexes **1** and **2**, respectively, suggests the formation of a metal-nitrogen bond in both complexes.

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**Table 2 IR spectral bands ($cm^{-1}$) and their assignments for $[K^+(H_2L)^-]$ and complexes 1 and 2**

| Compound | ν(N-H) | ν(C=N) | ν(N-N) | ν(C=S) | ν (M-N) |
|---|---|---|---|---|---|
| $[K^+(H_2L)^-]$ | 3256 | 1565 | 1119 | 1015 | - |
| $[Ni(en)_2(tot)_2]$ | 3330 | 1591 | 1126 | 990 | 517 |
| $[Cu(en)_2](tot)_2$ | 3259 | 1597 | 1114 | 938 | 538 |

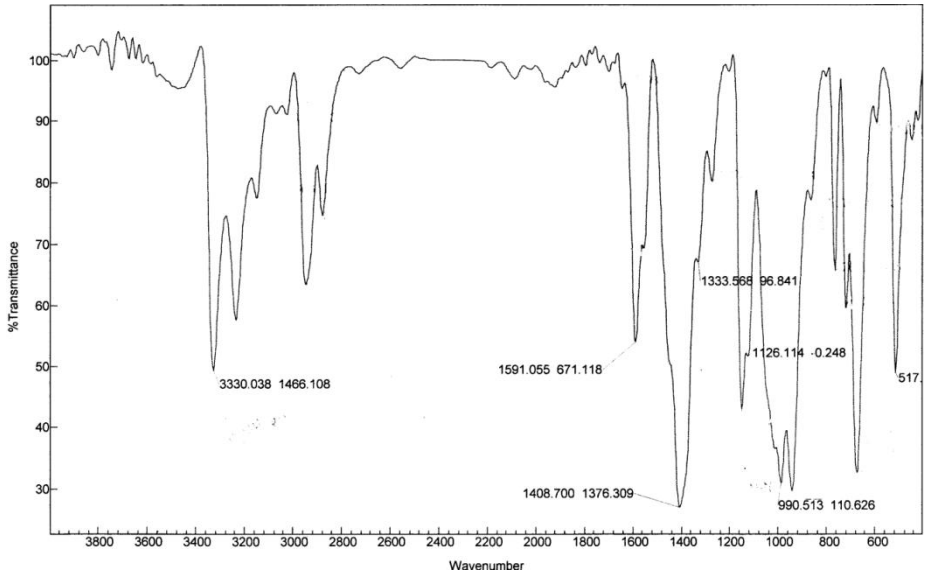


**Fig. 2IR spectrum of $[Ni(en)_2(tot)_2]$**

***Electronic spectra and magnetic moments:***

$[Ni(en)_2(tot)_2]$ shows a magnetic moment of 2.83 B.M., which indicates the presence of two unpaired electrons. The presence of two broad d-d bands at 769 and 514 nm assigned to the $^3A_{2g}(F) \rightarrow {}^3T_{2g}(F)$, $^3T_{1g}(F)$ transitions respectively suggests an octahedral geometry for the complex.

Two other high energy bands observed at 326 and 262 nm may be due to charge transfer/intraligand transitions. The magnetic moment of 1.78 B.M. for $[Cu(en)_2](tot)_2$ shows the presence of one unpaired electron. A broad band around 540 nm assigned to the envelope of the $^2B_{1g} \rightarrow {}^2A_{1g}$, $^2B_{2g}$, $^2E_g$ transitions suggests a square planar geometry for the complex **2**. Other two high energy bands at 253 and 222 nm may be due to charge transfer/ intraligand transition.

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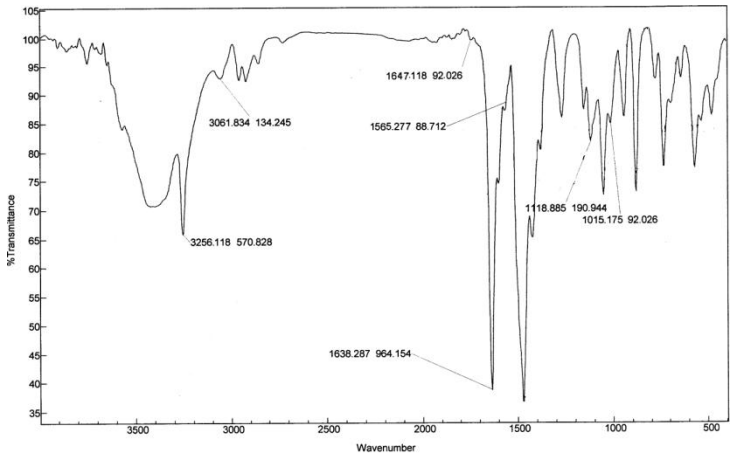


**Fig. 3IR spectrum of $[Cu(en)_2](tot)_2$**

**Table 3Magnetic moments, electronic spectral bands and their assignments for complexes 1 and 2**

| Compound | $\mu_{eff}$ (B.M) | Band maxima(nm) | Assignment | Geometry |
|---|---|---|---|---|
| $[Ni(en)_2(tot)_2]$ | 2.83 | 769, 514, 402, 326, 262 | $^3A_{2g}(F) \rightarrow {}^3T_{2g}(F), {}^3T_{1g}(F)$ | Oh |
| $[Cu(en)_2](tot)_2$ | 1.78 | 540, 253, 222 | $^2B_{1g} \rightarrow {}^2A_{1g}, {}^2B_{2g}, {}^2E_g$ | Oh |

***$^1$H and $^{13}$C NMR spectra:***

The $^1$H NMRspectrum of $[K^+(H_2L)^-]$ in DMSO-$d_6$ shows signals at δ 9.98 and δ 2.4 for two NH and three $CH_3$ protons respectively. The toluene ring protons appear at 7.20, 7.30, 7.43, 7.60 (4H toluene ring).$^{13}$C NMR (DMSO-$d_6$; δ ppm) signals at 204 (C=S), 170.83 (C=O), 134.93 (C3), 136.18 (C4), 19.54 (C5), 129.62 (C6), 130.47 (C7), 125.37 (C8) and 127.62 (C9) ppm suggest the presence of dithiocarbazate moiety in the $[K^+(H_2L)^-]$.

**Crystal structure descriptions of complexes 1 and 2**

Molecular structures of **1** and **2** were determined crystallo graphically. The details of data collection, structure solution and refinement are listed in Table 4. The Ortep diagram of complex **1** with atomic numbering scheme is shown in Fig.5. The important geometrical parameters are presented in Table 5.

The crystal structure of **1** shows a distorted octahedral geometry due to the coordination of two $(tot)^-$ ligand units and two bidentate ethylenediamine which act as co-ligand. The monomeric unit of $[Ni(en)_2(tot)_2]$ is centrosymmetric around nickel atom situated on the inversion center.

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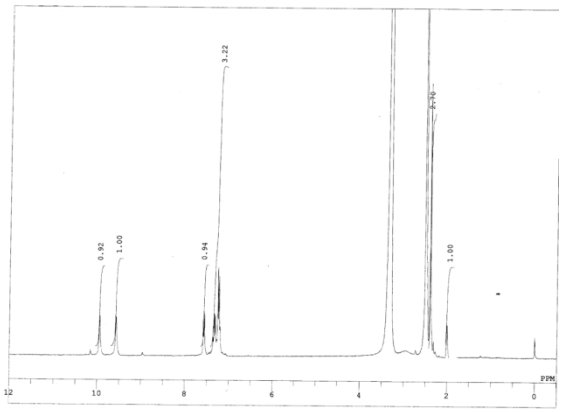

**Fig. 4.$^{1}$H NMR spectrum of [$K^{+}(H_2L)^{-}$]**

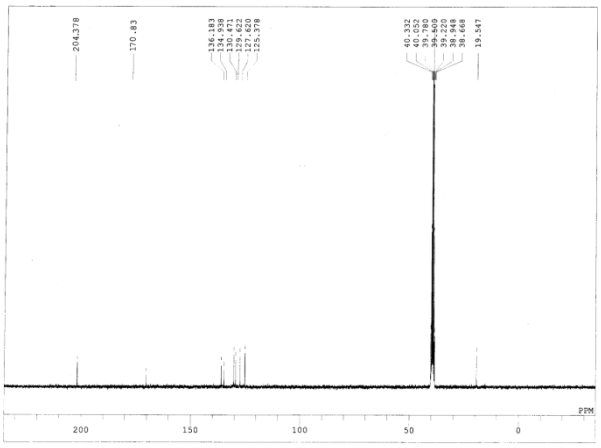

**Fig.4$^{13}$C NMR spectrum of [$K^{+}(H_2L)^{-}$]**

In complex **1** the coordination environment is fulfilled by two axial $(tot)^{-}$ anions at *trans* positions bonded through nitrogen of oxadiazole ring and the four equatorial sites are occupied by two bidentate *N*, *N'*-ethylenediaminecoligands. The bonding of the en ligands through Ni-N(3) and Ni-N(4) have distances of 2.093(3) and 2.079(3) Å respectively. The formation of two five membered chelate rings $C_2N_2Ni$ with bite angle of 83.41(11) º, represent a slight deviation from the octahedral geometry.

The geometry and bonding parameters within the en molecule agree with those of related compounds, e.g. Ni [trans $(L)_2$ $(en)_2$] {L= N- (5-chlorouracilato)}, isothiocyanato andsalicylato. Almost planar ($tot^{-}$) ligands in complex **1** bonded to Ni(II) and designated as Ni-N(1)#1 = Ni-N(1) 2.091(3) Å are significantly lengthened in comparison to the Ni-N bond lengths of 1.907(3) and 1.895(4) Å reported for [Ni{$\eta^5$-(2-dimethylaminoethyl) cyclopentadienyl} (pti)]0.5($C_7H_8$) [37], [Ni{$\eta^5$-1-methylindene)(pti)($PPh_3$)] [38], {pti = phthalimidate} respectively, but comparable to those of ca. 2.1090(14) and 2.1150 Å encountered in the related compounds $[Ni(en)_2(3\text{-pyt})_2]$ {(3-pyt) = 5-(3-pyridyl)-1,3,4-oxadiazole-2-thione}.

The arrangement of monomeric $[Ni(en)_2(tot)_2]$ units in three dimensional architecture along *a* axis provide supramolecular network. In addition, the monomeric $[Ni(en)_2(tot)_2]$units are held together through N-H···S intermolecular hydrogen bonding, leading to the formation of wave-like metal-organic chains along the *c* axis.

The molecular structure of **2** shows thatin the centrosymmetric unit of $[Cu(en)_2](tot)_2$, metal ion has a square planar geometry where each Cu(II) is bonded with four symmetry related N-atoms of two

en molecules and is ionically linked *via*thiolato sulfur atoms of two $(tot)^{-}$ anions. Thus the complex consists of two ethylenediamine molecules which chelate Cu(II) and two ionically bonded 1,3,4-oxadiazole-2-thiolato anions. The Cu-N distances of 2.014(4) and 2.031(4) Å are normal for the Cu-N amine coordination.

The bite angle for the $CuC_2N_4$ five membered ring is 84.49(15) º indicating distortion from a regular square planar geometry.Similar geometrical parameters for the coordination sphere have been reported for other diaquabis(ethylenediamine)Cu(II) salts. Each $[Cu(en)_2]^{2+}$ forms a pair of intermolecular Cu···S interaction with a distance of 2.961Å which is well within the distance of 3.2 Å for the sum of van der Waals' radii of Cu and S [41] and greater than Cu-S covalent bond.

## CONCLUSION

The different bonding behavior of nickel(II) and copper(II) may be related to the Jahn-Teller distortion in $[Cu(en)_2]$ $(tot)_2$ which leads to a square planar geometry.The Cu(II) in $D_{2h}$ symmetry is bonded to four nitrogen atoms of two en molecules. The hydrogen atoms of en are involved in the formation of hydrogen bonding with oxadiazole nitrogen atoms. The elements of the structure are joined to each other in the crystal packing by means of an extended system of H-bonding and weak π-π interactions (between toluene rings ($Cg_{tol}$) of adjacent layers with a distance of 3.678 Å)

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# STRATEGIC HUMAN RESOURCES MANAGEMENT (SHRM) AND SMES PERFORMANCE IN SOME SELECTED STATES IN THE NORTH CENTRAL NIGERIA

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## ABSTRACT

This study examined the axiomatic determinant of SHRM and SMEs performance in some selected states in the North central Nigeria in both private and public service sector of the economy. The study adopted a stratified sampling technique to arrive at 369 sample elements for the study. Some of the owner/managers of SMEs were interviewed to further elicit information on the key variables. Copies of the questionnaire were administered and the data obtained were analyzed using Multivariate Logistic Regression analysis. The questionnaire for this study was subjected to test- re-test reliability assessment and opinions and observations of experts and professionals were incorporated into the constructs in order to ensure clarity in the content validity. The findings revealed that owners/managers that streamline the product process, improved in level of technology and innovative ideas will increase in the overall core performances in small and medium enterprises at 5% level of significant ($p<005$). It therefore recommended that SMEs owners/managers in the selected region should takes a moveto integrate the business related strategies and figure out thecore effective SHRM-variables in their business activities in order to ensure compliance with best practices.

**Key Words:** ***Determinant; SHRM; SMEs, Nigeria: North Central; Public Service***

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# INTRODUCTION

## 1.1 Background of the Study

The increased significance of people to organizational success has been observed to have corresponded with the rise of Strategic Human Resource Management (SHRM) as a field of study on a global scale as observed by (Adegoroye&Oladejo (2012). One of the fundamental issues that call for the attention of the policy makers in any business organization is how to improve and diversify economy by integrating business Strategy indices of HRM into small and medium enterprises (SMEs) which will lead to sustainability and economic development. The importance of SMEs in developing economy like Nigeria cannot be over emphasized because Nigeria's economy is dominated by small and medium scale enterprises especially in agricultural, construction, manufacturing, commerce and industry, and service sector. Many SMEs are included in skills of Strategic human resources management (SHRM) and they pay more attention to development of their human potentials than ever before. Because of sudden changes and concrete conditions, human resources management is perceived as strategic factor influencing not only the success of SME but also of nations.

Huselid, Jackson, and Schalur (1997) view strategic human resources management as a critical element in fostering operational efficiency and firm performance. They further explained that characteristics of SMEs SHRM practices determines its people management capabilities and on the effect side, is directly related to its value as a strategic partner. They contended that the factors affecting the quality of SMEs SHRM resource management capability include the industry and competitive conclusion of its partners and direct competition from other SMEs and business eager to provide value to a SMEs partners.

The SHRM practices of small and medium (SMEs) have received little specific attention from scholars and researchers. As in many other areas of scholarly inquiry into business activity, empirical research in SHRM has tends to focus on larger concerns (Gup and Whitehead 2000, Lenz, 1990). In recent years while much attention has been given to small scale business by Nigerian policy makers, politicians, practitioners' and academics, little research has been done on the strategic role of HRM practices within the small and medium enterprises (SMEs) sector of the Nigerian economy. This is surprising in view of the importance of small and medium scale business organizations as critical engines of employment and economic growth (Brouthers, Anderson and Nicolas, 1998). While research on the SHRM practices of SMEs has made broad and quick long steps (Henemanith, 2000, Leug 2003, Haiton 2003), few number of research focuses on the context of how the SHRM practicescontribute to successful partnership with Small and Medium Enterprises.The primary objective of this study therefore, is to reveal the competitive, business level of strategies that are being utilized by these firms and the impacts of such strategies on the performance of the sampled enterprises. This serves as a pointer to finding nexus between SHRM and SMEs performance in the selected Kwara, Kogi and Niger states of the North central region.

## 1.2 Statements ofthe Problem

The performance of SMEs has been the focus of intensive research effort in recent times. How well an SME implements its policies and operations and accomplishes its strategic intent in terms of its mission and vision is a paramount concern. Owners of small and medium enterprises are becoming increasingly aware that a critical source of competitive advantage often comes from branding of indigenous products, level of technology improvement and having an attractive innovative idea to managing the organization of human resources. Many small and medium enterprises spend most of their

time realizing and reacting to unexpected changes and problems instead of anticipating and preparing for them hereby having crisis management. From the foregoing, and looking at today's trend, it is evident that the pace of change in our business environment presents fresh challenges everyday towards improving the technology and innovation in the sector. Most studies on strategic human resources management focused more on large corporations with very limited attention to Small and Medium Enterprises. There is no adequate research work on the determinant of business related strategies of human resource management in SMEs in Nigeria. In view of this,a panacea is hereby found to investigatethe adoption of SHRM by SMEs' owners/managers in the branding of its indigenous commodities, improving technology and attracting innovative ideas, if it must adequately meet its business challenges. It is the intention of this study to drawn attention of Small and medium enterprises towards the need to come up with appropriate innovative ideas and improved technology to create unique product brands, customer-friendly products/ services that will bring about competitive advantages in terms of brand preference and customer confidence. Hence, the application of business related determinant of SHRM in SMEs should meet the target objectives of the organization so as to fashioned outits adoption such that it will not only help in retaining the market share controlled, but also, the overall enterprise performance in form of increased earnings at minimum costs.

### 1.3 Objectives of the Study

The general objective of the study is to investigate the position of strategic human resource management (SHRM) in improving corporate performances of SMEs in North central Nigeria. The specific objective is to:

- To determine the level of adoption of business related strategies of SHRM in improving the SMEs performance in Ilorin, Lokoja and Minnaof the North central region.

### 1.4 Research Question

- How do the determinants of business related of SHRM influence SMEs performance in North central region?

### 1.5 Research Hypothesis

**$H0_1$:** The level of adoption of business related determinant of SHRM variables does not influence the SMEs performance in North central region

## LITERATURE REVIEW

### 2.1 Conceptual Clarification

Walker (1992) defines strategic HRM as "the means of aligning the management of human resources strategy so that the latter supports the accomplishment of the former and, indeed, help to define it. Strategic HRM is also about horizontal integration, which aims to ensure that the different elements of the HR strategy fit together and are mutually supportive. Brewster and Larson (1992) define SHRM "as the extent to which HRM is considered during the formulation and implementation of corporate/ business strategies". Strategic HRM has also been defined as "the pattern of planned human resource deployments and activities intended to enable an organization to achieve its goals". (Wright and MCMahan, 1999). Implicit in this definition, is that the ultimate goal of strategic HRM is to contribute to organizational performance (ie the achievement of the organisational's goals, however that performance is defined. HR deployment as captured in the above definition reflect the central assumptions behind the(positive) conceptualization of what HRM is and does; namely, that it responds accurately and effectively to the

organizations environment and complements other organizational systems and contingencies. Budwah(2000) defines strategic HRM as a concept that views human resource as assets for investment, and the management of human resources as strategic rather than reactive, prescriptive and administrative. Strategic HRM involves designing and implementing a set of proactive HR policies/practices that ensures that an organization's human capital contributes to the achievements of its corporate objectives (David, Chin and Victor, 2002). Strategic HRM is essentially an integrated process that aims to achieve "strategic fit".

Buyens and De Vos (1999) argue that in order for HR to be a strategic partner, HR manager should be involved in strategic decision making alongside other senior managers, providing greater opportunity to align HR goals, strategies, philosophies and practices with corporate objectives and the implementation of business strategy. This involvement would include the membership of HR managers in the most senior management teams in the organization. This would provide an opportunity for HRM to represent its concern and influence business strategy from the outset of decision making. The chances of integrating and value creation may be further increased if the senior HR manager and the CEO have an opportunity to establish a relationship. In this role, HR managers need to have knowledge of core markets, competitors, costs, profit indicators and stakeholders to be considered equal business partners (Chaddie, 2001). The involvement of senior HR manager in a firm's senior management team provides an important channel for interactive information flow and communication. To achieve strategic integration and alignment of HRM with business strategies, a documented HRM strategy would also be useful (Budhwar, 2000; Teo, 2002) as it can make more concrete the role and authority of HR managers in corporate decision making and increase capacity to cope with externalities such as tight labour market (Cunnigham and Deborah, 1995). A documented HRM strategy helps the organization to develop an HRM vision and objectives and to monitor performance. Some empirical evidence from previous research indicates that the full impact of HR practices on organizational performance occurs when HR practices are strategically congruent and consistent with each other (Khatri, 1999).

## 2.2 Theoretical Review

This study is anchored on the following theories:

### 2.2.1 Universalistic theory

Universalistic perspective calls for "best practices" which implies that some human resource practices are always better than others. Accordingly, firms that adopt these practices will see better performance. Within this school of thought, seven practices have been consistently identified as strategic human resource practices (Osterman 1987; Sonhenfeld and Reiperi, 1988); internal career opportunities; training systems, appraisals; profit – sharing plans; employment security; voice mechanisms, including formal grievances systems plus participation in decision making; and the degree to which jobs are rightly or narrowly defined. Despite its criticisms, many researchers have supported the universality predictions (Aboned, 1990; Gerhart&Milkorich, 1990, Leonard (1990); Terpstra&Rozill, 1993).

### 2.2.2Contingency theory

Contingency theory perspectives, extent that an organization needs to adopt specific human resource policies and practices for different strategies. Thus to be effective, an organization's human resource policies must be consistent with other aspects of the organization. By having appropriately human resource policies and practices in place, organizations can elicit employee behaviors that are consistent with an organization's

strategy. For example, organization can use human resource practices to ensure that employees are motivated to behave on ways consistent with the business strategy (Fama& Jenson 1989). In relation to this it is proven that Japanese – style of management places great emphasis on the practices because the Japanese strongly believe that employee – based human resource practices can mold the productive workplace that firm's need (Rose, 2002).

## 3.0 METHODOLGY

The sample studied was drawn from a population of all registered SMEs in the private and public service sector spanning various trade sectors such as: Car Rental, Travel and Tourism, Hotels, Real Estate, Advertising, Restaurant, Coffee Shops, and Financial and Engineering Offices in the study areas. The total population size of all SMEs in Kwara state was 9576 of which 369 were selected for participation in this study using Taro Yamane (1964); representing the sample size at 95% confidence level. The sample firms were selected based on the criteria of license SMEs in the record of Ministry of Commerce and Industry in the regional offices of eachstate and the fact that the selected SMEs meet the criteria of staff strength between 50 and 150 and have been in business for a minimum of 5 years.

Afterappropriate sampled firms identified, their management was approached to participate in this study. It is worth note to indicate that both quantitative and subjective methods were adopted in the analysis and model development. A comprehensive questionnaire, exploring all areas related to small and medium sized business environment were developed for collecting the informationrequired for this study.

### Research Instrument & Designs

The primary intention was to administer a well-structured questionnaire to increase the validity and reliability of the data collected. However, due to time constraints and firms' owners/managers preferences, delivery and collection of the questionnaires was the only other alternative. For a sample size of 369, 20 (5.4%) were self-administered questionnaires and 349 (94.6%) were of type delivery and collection. The overall response rate was 76.4% with 89 (23.6%) questionnaires not returned. The questionnaire was designed as to encompass two sections: Business related determinants of SHRM and SMEs performance. The questionnaire used a close-ended question structured into five Likert scale of strongly disagree (1) to strongly Agreed (5). Before developing the final questionnaire, a pilot test was conducted, and feedback was collected that helped and improved the design and content validity of the questionnaire. For instance, there were concerns, from the firms selected for the pilot test, about the length of the questionnaire suggesting a shorter version to increase the response rate. This study acted on this issue by changing the structure of some questions into category questions which are less time consuming.

### Models Development and Measure of Variables

The models incorporated the set of factors (independent variables) using logistic regression analysis to predict owners/managers in the adoption of SHRM in SMEs performance from two different angles of "having performance problem=0" and "not having performance problem=1" in the three selected local government areas selected for the study. This technique was frequently used in previous studies such as Cooper et al., (1990); Cooper, Gasocon, and Woo, (1991); Reynolds, (1987); Reynolds and Miller, (1989); Lussier, (1995); Lussier and Pfeifer, (2000, 2001); and Yuzbasioglu, (1997). In the questionnaire the dependent and independent variables were measured in different scales but subsequently adjusted to make them fit to the requirements of the logistic regression

due to the dichotomous nature of the original dependent variables which had only two values in either "improving or declining performance". They were initially measured on a five-point Likert scale ranging from strongly disagree (1-decreasing) to strongly agree (5-increasing). Those who indicated that their business performance increased or greatly increased in sales or profits were considered as improving, others who indicated otherwise were considered as declining. Subsequently, all dependent variables included in the analysis were dichotomous having only two values (declining or improving performance). With regards to the independent variables, brandings of indigenous products, technological improving and Innovative idea" were equally transformed to dichotomousvariables.

Therefore, determinants of the SHRM model will be analyzed by using logistic regression. The SHRM model is as follows:

The determinants of the SHRM model will be analyzed by using logistic regression. The SHRM model is as follows:

SHRM = f(Managers/CEO characteristics (Knowledge process=1, 0 otherwise), business Strategies (improved technology=1, 0 otherwise; innovation=1, 0 otherwise) companies characteristics (branding=1, 0 otherwise……..(1)

$$\mathbf{P\ i = E(\ Yi = 1/X_{ij}) = 1/\ 1 + e^{-\alpha+\Sigma\ \beta iXi}}$$

**Where**

**i= 1,2,3,…+n**

E( $Y_i$ )is equal to 1 if the Manager's knowledge process is adopting the business related strategies of SHRM-characteristics, 0 otherwise. (favorable or unfavorable performance of $Y_i$ implies the probability risk involved in the strategy adopted);

$$\mathbf{Z_i = \alpha + \Sigma\ \beta_i X_i e_i} \qquad \mathbf{(1.1)}$$

| | | |
|---|---|---|
| $\mathbf{Z_i}$ | - | Probabilityof SHRM, |
| **α and** $\boldsymbol{\beta_i}$ | - | Intercept Term and Parameter |
| $\mathbf{X_i}$ | - | Vectors of Manager/CEO characteristics, Business Strategies Characteristics and Companies Characteristics; |
| $\mathbf{e_i}$ | - | Error Term. |

Equation (1.1) represents the cumulative logistic distribution function. If $P_i$ is the probability of having favorable performance, then the probability of not having favorable performance =(1 - $P_i$ ) is given by:

$$\mathbf{(1-P_i) = e^{-zi} / 1+e^{-zi}} \qquad \mathbf{(1.2)}$$

Therefore, the odds in favour of having unfavorable performance or Pi / 1+ $P_i$ can be written as:

$$\mathbf{P_i / 1- P_i = 1/ e^{-zi}} \qquad \mathbf{(1.3)}$$

Taking the natural log, equation becomes:

$$\mathbf{Z = ln\ (P_i / 1 - P_i\ ) = \alpha + \Sigma\ \beta_i X_i + e_i} \qquad \mathbf{(1.4)}$$

## 4. RESULTS AND DISCUSSION

Prior to running the logistic regression analysis to model the adoption of the independent variables of SHRM over each of the SMEs performance, correlation analyses of the identified strategies over the performance responses was quantitatively measure and the result obtained below:

**Research Question:** How does the effect of business related strategies of SHRM adoption influence performance of SMEs in selected North Central States?

**Table 1: Mean value factors of Model constructs**

| Adequacy | Mean | Standard deviation |
|---|---|---|
| 1. Managing key business processes enable the organization to function in a specified product/service/market context | 4.7 | 0.880 |
| 2. Managing processes for adaptation to and acceptance of technological improvement and other organizational change | 4.3 | 0.967 |
| 3. Knowledge of electronic systems for the delivery and management of business information | 4.9 | 0.689 |
| 4. The organization continuously developing new products or services | 3.8 | 0.812 |
| 5. The company continuously improving the quality of its products or services | 4.2 | 1.204 |
| 6. The strategic managers demonstrate financial impact in all SHRM activities employed in business | 4.8 | 1.108 |
| 7. Small and medium enterprises in sampled area experience good sales turnout due to effectiveness in management practices adopted | 4.6 | 1.105 |
| 8. The company demonstrate leadership competence and skill in developing product processes that link HRM with business strategies to accomplished superior performance | 4.9 | 0.863 |
| 9. Employees orient new skills and knowledge to deliver superior quality services to customers | 4.1 | 0.972 |

**Source: Authors' computation, 2018**

There were nine levels of effects with regard to managerial performance of SMEs in the selected areas. The nine (9) levels from strongly relevant which was given 5 points, relevant which was given 4 points and neither relevant nor relevant which was given 3 points. Moreover, there was Irrelevant which was given 2 points and strongly irrelevant given 1 point. A mean and standard deviation were worked out for the analysis. Strongly relevant was indicated by managing key business processes enable the organization to function in a specified product/service/market context with a mean of 4.7 and standard deviation of 0.880, managing processes for adaptation to and acceptance of technological structural and other organizational change with a mean of 4.3 and standard deviation of 0.967. In addition, Knowledge of electronic systems for the delivery and management of business information with a mean of 4.9 and standard deviation of 0.689, the organization continuously developing new products and services with a mean of 3.8 and standard deviation of 0.812, The company continuously improving the quality of its products or services with mean value of 4.2 and standard deviation of 1.204 and alsothe strategic managers demonstrate financial impact in all SHRM activities employed in business to accomplished superior performance with mean of 4.8 and standard deviation of 1.108, whether Small and medium enterprises in sampled area experience good sales turnout due to effectiveness in management practices adopted gives a relative mean of 4.6 a standard deviation of 1.105, the company demonstrate leadership competence and skill in developing product processes that link HRM with business strategies to accomplished superior performance produce mean of 4.9 with standard deviation of 0.863 and orientation of new skills and knowledge to deliver

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superior quality services to customers gives mean of 4.1 with standard deviation of 0.972. This is an indication that most of the business related factors of SHRM adopted by the owner/managers in the sampled area improve the performance of SMEs above average mean response rate.

**Hypothesis:** The level of adoption of business related determinants of SHRM variables does not influence the SMEs performance in North central region

**Table 2: Business Strategies of SHRM Variables in the Equation**

| | | B | S.E. | Wald | df | Sig. | Exp(B) | 95% C.I.for EXP(B) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Lower | Upper |
| Step 1[a] | Branding | .767 | .449 | .097 | 1 | .001 | 2.037 | .387 | 3.140 |
| | Technology | 2.216 | .679 | 6.568 | 1 | .003 | 3.811 | 1.278 | 6.771 |
| | Innovations | 2.991 | .863 | 5.717 | 1 | .011 | .132 | .108 | .688 |
| | Constant | 15.134 | 9.332 | 6.653 | 1 | .005 | $1.27x10^{11}$ | | |

a. Variable(s) entered on step 1: Branding, Technology, Innovation.

From the results above, the odds of SMEs owners who are adopting Branding (Product processes) to influence managerial performance are 2.037 times higher than those of SMEs owners who are not adopting branding, with a 95% CI of 0.387 to 3.140. Also the odds of SMEs owners who are adopting technological improvement being influence managerial performance are 3.811 times higher than those of SMEs owners who is not adopting technological improvement with a 95% CI of 1.278 to 6.771 while the odds of SMEs owners who are adopting innovative ideas being influence managerial performance are 13.2% better than those of SMEs owners who is not adopting innovative ideas.

**Table 3: Model Fitting Information in the effect of Business related strategies of SHRM variables on SMEs performance**

| | Model Fitting Criteria | | | Likelihood Ratio Tests | | |
|---|---|---|---|---|---|---|
| Model | AIC | BIC | -2 Log Likelihood | Chi-Square | df | Sig. |
| Intercept Only | 517.643 | 525.031 | 513.643 | | | |
| Final (SHRM) | 269.824 | 365.861 | 217.824 | 295.819 | 6 | .000 |

By critically examine table 3 which reinforce the findings from table 2 above, removing SHRM from the final model would have a significant effect on the predictive ability of the model, in other words, it would be very bad to remove SHRM intervening variables from the model because it prove support for the alternative hypothesis by improving SMEs performance in the sampled area at 5% level of significance. i.e $p=0.000<0.05$.

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**Table 4: Overall Parameter Estimates in**

| Adoption of SHRM[a] | | B | Std. Error | Wald | df | Sig. | Exp(B) | 95% Confidence Interval for Exp(B) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Lower Bound | Upper Bound |
| Small business performance | Intercept | -6.161 | 1.209 | 25.955 | 1 | .000 | | | |
| | [Branding=0,1] | .185 | 1.138 | 3.684 | 1 | .040 | 8.889 | .955 | 82.742 |
| | [Technology] | 3.115 | 1.033 | 9.104 | 1 | .053 | 22.541 | 2.979 | 10.550 |
| | [Innovation] | .138 | 1.255 | 2.901 | 1 | .089 | 8.481 | .724 | 9.286 |
| | [Innovation]*Technology | 0[b] | . | . | 0 | . | . | . | . |
| | [Branding=0]*Tech=1 | 4.686 | 1.087 | 18.566 | 1 | .030 | 1.378 | 2.862 | 13.246 |
| | [Branding=1]*Tech=0 | .232 | 1.280 | .033 | 1 | .856 | 1.261 | .103 | 15.497 |
| | [Branding=0]*Tech=0 | 0[b] | . | . | 0 | . | . | . | . |
| | [Branding=0]*Innovat.=1 | .842 | .994 | .717 | 1 | .397 | 2.320 | .331 | 16.268 |
| | [Branding=1]*Innovat.=0 | .176 | .993 | .031 | 1 | .860 | 1.192 | .170 | 8.351 |
| | [Branding=0]*Innovat.=0 | 0[b] | . | . | 0 | . | . | . | . |
| Medium sized performance | Intercept | -2.351 | .331 | 50.496 | 1 | .000 | | | |
| | [Branding=0,1] | 1.436 | .537 | 7.141 | 1 | .008 | 4.202 | 1.466 | 12.044 |
| | [Technology] | .531 | .523 | 1.032 | 1 | .001 | 1.588 | 1.211 | 2.638 |
| | [innovation] | 2.373 | .433 | 30.044 | 1 | .000 | 10.727 | 4.592 | 25.057 |
| | [Innovation]*Technology | 0[b] | . | . | 0 | . | . | . | . |
| | [Branding=0]*Tech=1 | .809 | .548 | 2.177 | 1 | .000 | 1.446 | .152 | 1.804 |
| | [Branding=1]*Tech=0 | 1.368 | .448 | 9.334 | 1 | .002 | 3.927 | 1.633 | 9.443 |
| | [Branding=0]*Tech=0 | 0[b] | . | . | 0 | . | . | . | . |
| | [Branding=0]*Innovat.=1 | -1.989 | 1.232 | 2.606 | 1 | .006 | 1.517 | .012 | 3.531 |
| | [Branding=1]*Innovat.=0 | 1.813 | .428 | 17.907 | 1 | .000 | 6.127 | 2.646 | 14.186 |
| | [Branding=0]*Innovat.=0 | 0[b] | . | . | 0 | . | . | . | . |

a. The reference category is: increasing/decreasing performance of SMEs in the sampled areas.
b. This parameter is set to zero because it is redundant.

## 4.1 Discussion of Findings

### 4.1.1 Result obtained from Small Businesses performance and the adoption of SHRM Variables were highlighted below

- **Branding**: Whether the adoption of SHRM show signs of branding or product process significantly predicted whether small scale business performance increases or decline, b = 0.185, Wald $\chi^2(1) = 3.684$, $p < .05$. This mean knowledge strategy of branding process is significant at 95% confidence level
- **Technology**: Whether the adoption of SHRM show signs of technological improvement significantly predict whether small scale businesses increases or decline in performance, b = 3.115, Wald $\chi^2(1) = 9.104$, $p > .05$. This mean strategy in technological improvement is insignificant at 95% confidence level
- **Innovation**: whether the adoption of SHRM show signs of innovative ideas did not significantly predicts whether small scale businesses increases or decline in

performances , b = 0.138, Wald $\chi^2(1)$ = 2.901, p>.05. This mean innovation strategy is insignificant at 95% confidence level

- **Branding×Technology**: The success of adopting technological improvement of SHRM by owners' manager depended on whether the products is not branding because in interaction these variables predicted whether small scale businesses increases or decline, b = 4.686, Wald $\chi^2(1)$ = 18.566, p< .05. This mean strategy in branding and technological improvement is significant at 95% confidence level
- **Branding×Technology**: The failure of adopting technological improvement of SHRM by owners' manager depended on whether the products is branding because in interaction these variables predicted whether small scale businesses increases or decline, b = 0.232, Wald $\chi^2(1)$ = 0.033, p> .05. This mean failure to adopt strategy in branding and technological improvement is insignificant at 95% confidence level
- **Branding×Innovation**: The success of adopting innovative ideas of SHRM by owners' manager depended on whether the products is not branding because in interaction these variables predicted whether small scale businesses increases or decline, b = 0.842, Wald $\chi^2(1)$ = 0.717, p> .05. This mean the success to adopt strategy in branding and innovation is insignificant at 95% confidence level
- **Branding×Innovation**: The failure of adopting innovative ideas of SHRM by owners' manager depended on whether the products is branding because in interaction these variables predicted whether small scale businesses increases or decline, b = 0.176, Wald $\chi^2(1)$ = 0.031, p>.05. This mean the failure to adopt strategy in branding and innovation is insignificant at 95% confidence level

#### 4.1.2 Results obtained from Medium Sized Businesses performance and the adoption of SHRM variables were highlighted below:

- **Branding**: Whether the adoption of SHRM show signs of branding or product innovation significantly predicted whether medium sized business performance increases or decline, b = 1.436, Wald $\chi^2(1)$ = 7.141, p< .05. This mean knowledge strategy of branding process is significant at 95% confidence level
- **Technology**: Whether the adoption of SHRM show signs of technological improvement significantly predict whether medium sized businesses increases or decline in performance, b = 0.531, Wald $\chi^2(1)$ = 1.032, p<.05. This mean strategy in technological improvement is significant at 95% confidence level
- **Innovation**: whether the adoption of SHRM show signs of innovative ideas significantly predicts whether medium sized businesses increases or decline in performances , b = 0.809, Wald $\chi^2(1)$ = 2.177, p<.05. This mean innovation strategy is significant at 95% confidence level
- **Branding×Technology**: The success of adopting technological improvement of SHRM by owners' manager depended on whether the products is not branding because in interaction these variables predicted whether medium sized businesses increases or decline, b = 4.686, Wald $\chi^2(1)$ = 18.566, p< .05. This mean the success to adopt strategy in branding and technology is significant at 95% confidence level
- **Branding×Technology**: The failure of adopting technological improvement of SHRM by owners' manager depended on whether the products is branding because in interaction these variables predicted whether medium sized businesses increases or decline, b = 1.368, Wald $\chi^2(1)$ = 9.334, p<.05. This mean the failure to adopt strategy in branding and technology is significant at 95% confidence level
- **Branding×Innovation**: The success of adopting innovative ideas of SHRM by owners' manager depended on whether the products is not branding because in

interaction these variables predicted whether medium sized businesses increases or decline, b = -1.989, Wald $\chi^2(1) = 2.606$, $p < .05$. This mean the success to adopt strategy in branding and innovation is significant at 95% confidence level

- **Branding×Innovation**: The failure of adopting innovative ideas of SHRM by owners' manager depended on whether the products is branding because in interaction these variables predicted whether medium sized businesses increases or decline, b = 1.813, Wald $\chi^2(1) = 17.907$, $p<.05$. This mean the failure to adopt strategy in branding and innovation is significant at 95% confidence level

**4.2 Discussion of findings**

The results of logistic regression analysis presented in Table 4 illustrate that medium sized firms in the business sector were more successful than smaller firms. This is in line with Evans (1987); and Riding Scott and Orser, (2000). Although the study indicate that most of the business related strategies of SHRM is not applicable to small business owners in the sampled area, majority of small business owner/managers did not consider effectiveness and adoption of the strategies in improving the business success, though a highly significant and positive association was found between the firms that have shown an increase in the employment size(Medium business) and performance. The Bivariate logistic regression analysis indicated that all small-sized businesses declining in performance did not show any evidence of full adoption ofbusiness related strategies of SHRM as they either remained in the same level of technology, poor knowledge of product processes and innovation at 95% confidence level. Medium sized enterprises were shown to have more resources which in turn help the firms to seek out more opportunities and enable them to absorb any unexpected changes in the market through intensive use of business strategies related factors of SHRM for superior performance in the industry. Owner/managers should not perceive easier controlled of small business as a progress for performance because it is observed in this study that medium-sized businesses perform better than their small counterparts due to effectiveness and efficient use of product process, technology and innovative ideas in the same business performance criterion adopted in the sector. Therefore, finding showedthat medium-sized enterprises have the ability to make better use of resources enabling them to adopt the latest technological developments and better innovative ideas at 5% level of significant.

The results of Bivariate logistic analysis show the interaction effect of improved technology on lowering product process by medium sized business help in achieving 3.9 times better performance than their small-sized counterparts who failed to adopt the business strategies of SHRM and this is by far having more significant effect in performance in the medium sized business than it affect the smaller businesses in the selected North central States.The study further found that interaction effect of knowledge of product process (branding) and innovation is highly significant and becomes a feature of highly adopted strategies inmedium-sized businesses that may not necessarily adopted in the small scale businesses because small businesses do not have resources to fully utilized the strategies and therefore becomes insignificant at 5% level. This is not in agreement with the argument made by Barkham et al. (1996) that small enterprises achieve higher growth than big enterprises because they are more flexible and easy to controlled in the use of business resources than medium counterpart. The findings by Barkham et al (1996) were not hold true as even the selectedmedium sized enterprises in this study were considered small (i.e. 25 employees in some cases) in the selected area. It is easy for firms with 25 employees and one chief decision-maker to manage effectively the business internally and react to changes in the market and exploit new opportunities in innovation, technology and

knowledge in product processes (Branding). Medium sized enterprises expanding within the context of small-scale sector helps by given the owner/managers the ability to acquire more resources controlled than small business as revealed in this study.Theyaccomplished this by probing the market and reduce business ignorance of the moderating effect of market situation through SHRM which might be too complex and turbulence to adopt for the small firms.

## 5.1CONCLUSION

Based on the investigation of the business related determinant of SHRM that affect small and medium business performance, this paper has provided some insights into how knowledge of product process, level of technology and innovation interact and affect the performance of small and medium enterprises in some selected North central zone. Additionally, the paper showed that the significance of the product processes, level of technological improvement and innovative ideas varies across the business organization and units and the criteria adopted by the managers of the selected areas for effective performance. The overall conclusion of the paper was that, in the general performance model, all three independent SHRM-variables were statistically significant indicating that successful enterprises were those whose owner/managersadopted business related determinants of SHRM in such a way that they respond to moderate effect of business related strategies which does not only boost their performance but also enable them to fully integrate these indices in their day to days running of the businesses in order to meet a competitive edge in the industry. In conclusion, the paper suggests that SMEs success is affected by a web of factors of SHRM, these factors are interrelated and to understand their influence on small and medium business performance, it is necessary to understand the way the SHRM interact with business related strategies and their effect on the small and medium business performance directly or indirectly.

## 5.2RECOMMENDATIONS

The following recommendations were drawn from the findings

- SMEs owner/managers in Nigeria should takes a move to integrate the appropriate business related strategies and figure out the core effectiveness in SHRM-variables in their business activities in order to ensure compliance with best practices in the sector.
- Management of SMEs should embrace the best strategies that work for the organization before implementation so as to reduce the course of action that is unproductive and offer no hope of improvement in the performance of SMEs in the North Central region.

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# "Exploring the linkages between Employee Well Being , Job involvement and Job Satisfaction".

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## Abstract
The paper aims to study the impact of Employee Wellbeing and Job Involvement on Job Satisfaction. Data was collected from a private organization manufacturing cotton and synthetic threads with a sample of 158 employees. This paper has revealed some of the interesting facts.This data was further analyzed using correlations and regressions to derive meaningful conclusions. The findings suggest that there are strong, positive, and significant relationships between Employee Wellbeing and Job Satisfaction as well as Employee wellbeing and Job involvement .
Key Terms: Employee Wellbeing, Job Involvement, Job Satisfaction.

## Introduction:
According to Peter F. Drucker (1977) employee's satisfaction and happiness (Employee wellbeing) are the keys to its operational success. Since human resource is an important factor to operation success, therefore a company or an organization must create a pleasant working environment to attract most intelligent talents to work for it.Romano (2011) had also emphasized in her research article that the best solution to solve various managerial issues in an enterprise is employee happiness. Report had shown that the higher the level of employee happiness index of an enterprise, the better the productivity and Job Satisfaction it has.

Locke (1976) defined work satisfaction as the pleasant and aggressive mood a worker experienced in his work, and Robbins(1996) emphasized job satisfaction as an individual's general attitude towardhis work, and a higher job satisfaction is always associated with more proactive attitude and efficiency, Job satisfaction can be defined as anindividual's evaluation of different facetsof their job. This research paper explores the relationship between Employee Wellbeing (Happiness), Job Involvement and Job Satisfaction. Job satisfaction plays a big part in the employee's overall happiness, so naturally the employees will provide better overall organization performance when they are working with higher satisfaction.

## 2.0 Review of Literature:

### 2.1 Job Satisfaction
Locke (1976) defines job satisfaction as anindividual's evaluation of different facetsof their job.Job satisfaction has a central variable involving studying work-related attitudes by management scholars.To better understand how PJP influences job satisfaction, we need to study the Self-Determination Theory (Ryan &Deci, 2000).Self-Determination Theory posits that people have an innate tendency toward growth and intrinsic motivation, and that intrinsic motivation and well-being require satisfying the three psychological needs for relatedness, competence, and autonomy (Gagne &Deci, 2005). In many social settings, including the workplace, external regulations or stimuli—including pay, supervision, goals, and directives—are used to induce desired behavior. To the extent that these three needs are satisfied, people internalize and integrate external regulations. That is, they take in external values and contingencies and transform them into personal values and self-

motivation. Through this process of internalization and integration, extrinsically prescribed behavior becomes internally or autonomously regulated so that motivation to act becomes self-determined.Illardi et al. (1993) found that employees who felt strongly that their work allowed them to experience autonomy, competence, and relatedness reported higher levels of job satisfaction.

## 2.2 Employee wellbeing (Happiness)

Positive psychology introduces the concept of well-being as individual valued experiencein which people become more efficacious in their work and other activities (Bandura, 1986; Seligman and Csikszentmihalyi, 2000). Employee well-being is defined broadly as the overallevaluation of one's life, as the overall quality of an employee's experience and functioningat work, including life satisfaction and positive affect which influence individualperformance (Grantet al., 2007; Li et al., 2014; Lu, 2001; Taris and Schreurs, 2009). Being happy is of great importance to most people,and happiness has been found to be a highly valuedgoal in most societies (Diener 2000). In the past two decades, a number of new constructshave emerged which reflect some form of happinessor positive affective experience in the workplace.What these constructs have in common is that allrefer to pleasant judgments (positive attitudes) orpleasant experiences (positive feelings, moods, emotions, flow states) at work.Job Demands-Resources theory as a reference point, it can be assumed that job resources (physical, psychological, social, or organizational characteristics of a job) stimulate positive attitudes such as engagement or organizational commitment (Schaufeli and Bakker, 2004). Warr(2007) laid out a series of motivational factors which relate to and interact with the work environment and which influence happiness at work. Such factorsinclude the opportunity for personal control of one's own work, opportunity for personal skill use, variety, environmental clarity, contact with others, supportive supervision, career outlook, andequity.In a nutshell, employee well-being is defined broadly as the overallevaluation of one's life, as the overall quality of an employee's experience and functioningat work, including life satisfaction and positive affect which influence individualperformance (Grantet al., 2007; Li et al., 2014; Lu, 2001; Taris and Schreurs, 2009).

From the above discussion it was hypothesized that

H1: Employee Wellbeing has a significant and positive relationship between Job Satisfaction.

H2: Employee Wellbeing has a significant and positive relationship between Job Involvement

## 2.3 Job Involvement

Job involvement is defined & explained as an employee's response to the psychological perception of his work assignment, job accomplishment and values. Kahn (1990) highlighted this concept and defined job involvement as "organization member restrains himself to cope with job function and to match organizational character", so a person is constantly switching between his / her roles as an individual vs. a part of the organization. With a higher job involvement, one will put more efforts and energies in the work as self-employment, and will also have better self-expression in organizational character performance. Kahn had further classified job involvement into three domains. The first is the physical involvement, the second is cognitive involvement, and the last is emotional involvement. A highly involved individual will possess energetic feature and work quickly in a higher efficient way toward job assignment, he is eager to take challenge with much more self-confidence, and is more willing to work with people harmonically. In this study

we had adopted the survey scale sheet based on Kahn's theories on organization commitment and job involvement.
From the above discussion it was hypothesized that
H3: Job involvement has a significant and positive relationship between Job Satisfaction.

## 3.0 Research Methodology

## 3.1 Instrument Design

Based on thereview of the literature of the identified variables a structured non disguised questionnaire consisting of 26questions was designed based on a 5-point Likert scale (1 =strongly disagreeto5=strongly agree).The first 5 questions were related to demographic details of respondents pertaining to gender, age, marital status, education and experience added to the questionnaire, and the next 21 questions addressed Job involvement, Employee wellbeing (Happiness) and Job Satisfaction variables. Judgment sampling, a non- probability sampling technique was used to select the respondents. A self-administered questionnaire was used to collect data. Respondents were requested to participate in the survey. Data collection was done over a period of one month in February 2018.A private sector organization was selected for data collection.
The measures Job satisfaction Questionnaire of were adapted from questionnaires used in the studies from literature contained six items with reliability (α= 0.839) was taken from Schmidt (2004). The variables used in the Employee wellbeing measure were taken from Oxford Happiness Questionnaire (α = 0.908) by P. Hills and M. Argyle (2002) study which contained 10 items. The items on these construct indicated overall measure of happiness, with high scores indicatinggreater happiness. The scale developed by Kahn, W. A (1990), which contained 5 statements was used for data collection. The total sample size was 158 which consisted of managers and Senior Managers from various departments who were selected through Judgment sampling

In total, 200questionnaires were distributed. Off which 42 questionnaires were discarded due to incomplete nature, resulting in 158totally filled questionnaires that were used for the statistical analysis of thestudy. Collected data was subjected to correlation and simple linear regression analysis byusing Statistical Package for the Social Sciences (SPSS) version 20. Cronbach's alpha testwas conducted to check the reliability of the questionnaire.

The total alpha coefficient of the questionnaire was 0.925 ($p < .001$) and alpha coefficients for all items were $\leq 0.70$($p < .001$), which are in the acceptable range ($\leq 0.70$) suggested by Nunnally (1978). Theinternal consistency of the items was also calculated. A careful examination of item–totalcorrelations showed that all correlations ranged from 0.67–0.74, which are above the 0.32level suggested by Saxe and Weitz (1982).

## 4.0 Results

Demographic analysis showed that both male were almost double than females(69% male and 31%female). Maximum number of the respondents (57%) were between the ages of 31 years to 40 yrs, and 31% of them belonged to the age group of 21 to 30 yrs. Of the respondents, 19.6 % had undergraduate degrees, 73.4% of the respondentswere postgraduate and 6.3% of the respondents were professionally qualified. The composite

score for all the three variables of Employee wellbeing, Job Involvement and Job Satisfaction was calculated by averaging representing items on the questionnaire. First, correlationanalyses were used to examine the relationship between all the three research variables.The results suggested that all the variables are positively correlated, and correlationswere significant and equal to +.67 p< .001, two-tailed.

Toward testing the hypothesis andfinding whether Employee Wellbeing (independent factor) is the predictor of Job Satisfaction (dependent variable), a simple linear regression analysis was conducted.Regression analysis wasfirst confirmed by testing the assumptions of normality, linearity, homoscedasticity, and independence of residuals, revealing that the residuals arenormally distributed (Tabachnick&Fidell, 1996). According to an F-value of 73.614, with significance of <.01 of the regression test, it can be said that the model has a goodfit for the data. Both results showed that there is a positive and significant relationshipbetween Employee Wellbeing (Happiness) and Job Satisfaction,hence the proposed hypothesis is accepted.

Toward testing the hypothesis andfinding whether Employee Wellbeing (independent factor) is the predictor of Job Involvement (dependent variable), a simple linear regression analysis was conducted.Regression analysis wasfirst confirmed by testing the assumptions of normality, linearity, homoscedasticity, and independence of residuals, revealing that the residuals arenormally distributed (Tabachnick&Fidell, 1996). According to an F-value of 42.690, with significance of <.01 of the regression test, it can be said that the model has a goodfit for the data. Both results showed that there is a positive and significant relationshipbetween Employee Wellbeing (Happiness) and Job Involvement,hence the proposed hypothesis is accepted.

Toward testing the hypothesis andfinding whether Job Involvement (independent factor) is the predictor of Job Satisfaction (dependent variable), a simple linear regression analysis was conducted.Regression analysis wasfirst confirmed by testing the assumptions of normality, linearity, homoscedasticity, and independence of residuals, revealing that the residuals arenormally distributed (Tabachnick&Fidell, 1996). According to an F-value of 141.176, with significance of <.01 of the regression test, it can be said that the model has a goodfit for the data. Both results showed that there is a positive and significant relationshipbetween Job Involvement and Job Satisfaction, hence the proposed hypothesis is accepted.

## 5.0 Discussions

The current study tried to investigate the effect of Employee wellbeing on Job Satisfaction, Employee Wellbeing on Job Involvement and Job Involvement on Job Satisfaction, in the context of a private organization. The correlation andregression analysis demonstrated that Employee wellbeing and Job Involvement has a positive and significant impact on Job Satisfaction. The R2 and the Adjusted R2 in the case of (JI → JS) are .475 and .472 respectively. This implies that 47.5 % of variance of Job Satisfaction can be predicted by the combination ofEmployee Wellbeing and Job Involvement. Also in case of the hypothesis about a positive significant relationship between (EWB→ JI) Job Satisfaction, the R2 and the Adjusted R2 are .321 and .316 respectively. This implies that 32.1% of variance of Job Involvementcan be predicted by EWB (Employee wellbeing). Also in the case of hypothesis about a positive significant relationship between (EWB-→ JS), the R2

and Adjusted R2 are .321 and .316 respectively. This implies that 32.1% of the variance of JS can be predicted by EWB.

This signifies that, the organization has to build a workplace where a large number of employees could find their work meaningful and purposeful as well as feel passionate, grateful and suitable with the work they are in charge of. Work processes must be developed in such a way that it brings out satisfaction, feeling of elation and Joy. The employee feels that he has a full control of his life and that life is rewarding. These are the feelings of Employee Wellbeing which enhances Job Involvement and Job Satisfaction. Job Involvement brings a lot of absorption and engrossedness in work processes. And all this leads to overall satisfaction of the employee in terms of compensation, Safety and security and the support of peers, superiors and subordinates.

## 6.0 Limitations

Although Employee Wellbeing and Job Involvement are crucial factors for Job satisfaction there are other organizational factors that should also be considered like Organizational trust, Organizational Commitment, Work place Spirituality etc. This research is conducted in the context of a private organization, and if it is carried out in other Organizations the result might be different. Due to the limitation in access to all employees, only managers and senior managers were selected asthe sample of the study. Future studies with all staffmay show different results.

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# IMPACT OF CHANGE IN CREDIT RATINGS ANNOUNCEMENT ON RETURNS FROM STOCKS WITH OPTIONS AND STOCKS WITHOUT OPTIONS: AN EMPIRICAL STUDY IN INDIAN EQUITY MARKET

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## ABSTRACT
The primary motive of this paper is to empirically test the early reflection of any kind of information in options market relative to spot market. If proposition of options market being preferred venue of trading for informed investors holds correct, then price adjustment process in options market should be different from that of spot market. This in other way, suggest that an informational event should not influence returns from stocks with optionsin a great way as compared to returns from stocks without options. Using Standard Event methodology suggested by Brown and Warner (1985) and Kothari and Warner (1997), we find convincing evidence that announcement of change in credit ratings do not significantly influence the returns from stock with options. However, returns from stocks without options have been significantly influenced by the change in credit ratings announcement. The findings support the observation that any stock related private information travels through the options market first, before it gets displayed in underlying spot market.

**Key Words**
Credit rating, event methodology, stocks with options, stocks without options.

## INTRODUCTION
Derivatives have likely been around for whatever length of time that individuals have been trading with one another. However, introduction of derivative trading in India started with promulgation of the Securities Law Ordinance, 1995. Derivatives trading, primarily exchange traded, started in India in June 2000 with the introduction of index futures trading on National Stock Exchange of India (NSE). This was followed up in July 2001 by the introduction of index options and options on individual securities. Options market have been growing by leaps and bounds since Black and Scholes (1973) found a straightforward formula to price them.

An **options contract** is an agreement between the two parties i.e. a purchaser and a seller to facilitate a potential transaction in exchange for a non-refundable upfront deposit. It gives the buyer of the option the right to buy or sell a particular asset at an agreed upon price called as the strike priceduring a certain period of time or on a specific date (exercise date). Option contracts, because of the way they are structured and traded, have many inherent advantages over trading stocks. Trading incentives like lesser capital requirements, least trading restrictions and impounded higher leverage make the options market a preferred way of trading for informed traders.Increasing trading activity and existence of organized stock options market are a testimony to the economic benefits that these option contracts provide.

Due to varied features of different markets, informed traders may choose to trade in a particular market and information is likely to be formed into asset prices in these markets first. If other markets fail to incorporate new information quickly, one may observe lead-lag relation between asset prices among different markets. For example, if the findings show that some information is first reflected in options market leading to price discovery process, it will be of interest to investors watching for signals about future price movements in underlying market. Further, an understanding of where informed traders choose to trade and the factors influencing this choice, are relevant to market makers and regulators because it will help them in managing risks from adverse selection.In presence of market completeness, investors may be impartial between derivative trading and underlying asset trading. In reality, however investors face constraints such as short sale restrictions and margin requirements. Working under these constraints, an investor possessing some confidential information might strictly prefer to trade in options market over spot market. Aside from this, some informational data, for example, that identified with future volatility of stock prices can be more easily exploited in the option market. These distinctions provide higher leverage per dollar invested for traders with wealth constraints and having access to private information.

This proposes that trading activity in options markets may be an important predictor of future security price movements. The asymmetry of information and the preference of trading venues would thus cause options transactions to convey information to market participants of impending changes in stock and option prices. This instinct can be traced back to the hypothesis of Black (1975). He gives compelling reasons that the impounded leverage and lack of short-sale restrictions make options attractive for traders with information about future stock prices movement. He argues that for each dollar invested in the options market, an investor can get more leverage. Also, it is easier to go short in options than taking short position in the underlying cash market. Therefore, all these benefits make options market a preferred venue of trading for informed investors.Ross (1976) and Hakansson (1982) suggest that for the insider, the introduction of the option increases the set of possible trades. In an uncertain world, options written on existing assets improve the efficiency of incomplete asset markets by expanding the opportunity set facing investors. State-contingent claims (SCC) can be traded separately, when the option is traded. Other things being equal, this provides extra flexibility enabling the liquidity traders to better hedge their risk exposure (Biais and Hillion 1994). A remarkable range of researchers (for example Manaster and Rendleman 1982, Bhattacharya 1987, Vijh 1988, 1990, Anthony 1988, Conrad 1989, Stoll and Whaley 1990, Stephan and Whaley 1990 DeTemple and Jorion 1990, Damodoran and Lim 1991, Chan *et al* 1993, Srinivas 1993, Sheikh and Ronn1994, Mayhew *et al* 1995, Fleming *et al* (1996)) have investigated the connections between options and equity markets. However, the role of equity options in information transmission is still inconclusiveeven after being center of attention by many researchers.

To support the argument of informed trading in options market, a number of empirical studies attempt to study the interconnection of option market features and equity returns around notable events.Roll *et al* (2010) and Johnson and So (2012) suggest that options traders are informed. This is so in light of the fact that they demonstrate that option to stock trading volume ratio has ability to predict stock returns. Chakravarty*et al* (2004) also find around 17% contribution of the options market to price discovery. Ofek*et al* (2004),

Bali and Hovakimian (2009), Cremers and Weinbaum (2010), and Xing *et al* (2010) show that future stock returns can be predicted through option put-call parity or implied volatilities. Damodar and Lim (1991) demonstrate that option introduction results in significantly lower variance of underlying stocks. It makes the price adjustment process to new information speedier by reducing trading noise. Amin and Lee (1997) find that higher preannouncement long (short) positions undertaken in the options market provide signal for positive (negative) earnings reports. Cao *et al* (2005) also demonstrate higher volume of call options trading immediately before increased takeover premiums for M&A targets. Terrorist attacks of September 11, 2001 have also been related with this option markets' lead-volume effect. Poteshman (2006) observe high level of put buying in the days preceding the attacks. Put-call ratios over 6 in the case of American Airlines and in the case of United Airlines more than 25 have been recorded on September 6, 2001. These ratios give indication about early informed trading in options markets. If informed traders do trade in the options market, one can expect to see price discoveryin the options market. That is, at least some new information about the stock price to be reflected in option prices first. Jennings and Starks (1986) report that upon arrival of new information the stock price-adjustment process differs with firms listed on the Chicago Board Option Exchange (CBOE), and they evidence that quicker stock price adjustment to new information for those firms with call options. Jennings and Starks (1986) and Skinner (1990) both find evidence that prices of optionable stocks respond more rapidly to earnings announcements, while Grossman (1988) advances a fresh argument that traded options disclose information about investors' future trading intentions and future price volatility.Thus, taking all the evidence together that the options market not a substitute for short selling and non-redundant, it can be concluded that option traders are comparatively more informed than both traditional equity and short traders.

**Past Researches**

It has been observed that the introduction of derivatives products on the exchange floor has severely impacted the underlying spot market. It has attracted the academicians, policy makers, scholars, researchers and regulators to analyze such impact and provide findings that may benefit them. The theoretical hypothesis claiming that informed traders prefer to trade in options market first, has been examined by various researches. The origin of researches studying the informativeness of options market has started with the theoretical preposition of Black (1975). The author has given compelling reasons such as minor trading restrictions, lesser transaction cost, lesser upfront cash requirement and embedded downside risk protection for growing popularity of options trading. All these reasons together serve to attract informed traders towards options market. Therefore, the future price movements of underlying assets can be signaled through prices and trading activity of options market. Since the relevant literature to the date has differed in terms of the geographical location examined, period under study, the data used and the methodology employed, therefore the results are conflicting to each other. One batch of researchers supporting the hypothesis of any new information is first reflecting in options market, has found a significant lead for the option market. Another batch of researchers has presented conflicting view with regard to this hypothesis. They have argued that since the trading activities in option market are not significant and as a result information first reflects in spot market.

Patell and Wolfson (1981) empirically examined the hypothesis of call option prices displaying investors beliefs regarding upcoming earnings announcement. Ex ante experiments of the study show that average standard deviation to expiration implied by preannouncement option prices reflect a time-series profile which help to predict the future stock price movements. Whaley and Cheung (1982) also examined the behavior of option prices around quarterly earnings announcements. The study observed that information content of earnings announcements is fully incorporated in option prices by the end of the announcement week. Using a first- order autoregressive seasonal process describing fully the quarterly earnings behavior, the study demonstrated evidences in favor of option market lead over underlying spot market. Jennings and Starks (1986) employed a new approach to study the effects of option trading on the behavior of underlying stock prices. The study examined the stock price adjustment to the release of quarterly earnings using samples of firms with and without listed options. They found that the stock prices of non option firms take longer to adjust to earnings announcements than the prices of control portfolios of option firms. This supported the argument that the existence of the option market is useful in disseminating earnings news.Anthony (1988) hypothesized and tested the sequential flow of information between common stock and option trading volume. The study observed an informational asymmetry between option and stock markets. Around earnings information releases option trading volume increase preceded stock trading volume. The results of the study evidenced one day lead of call option trading in the underlying stocks. Integrating previous arguments, Cassano (2001) adds that the option trading makes the gap between incomplete and complete markets to immaterial. Bhattacharya (1987) suggests that informed traders prefer option market because when long in the option, it gives upper bound on the loss. Cao (2005) reports that the options market displaces the stock market as the primary place of informed trading and price discovery. An implication of their results is that the options market can be particularly informative ahead of material events, while the stock market may be more suitable for disseminating normal information flow. Dean *et al* (2008) also provides evidence that over a period of time prior to earnings announcements, implied skewness and kurtosis changes are strongly related to future stock and option returns through the earnings announcement date. This indicates that informed traders affect option prices before the public announcement and in a manner that predicts future stock and option returns. Skinner (1990) documented that the information content of firms' accounting earnings releases for those stocks on which exchange-traded options are listed, is lower on average. The study found that the stock price reaction to earning releases declines significantly from 0.69 before options listing to 0.41 after listing. It also documented that the size of the abnormal returns around earnings-release dates declines, on average, from 2.85% before options listing to 2.52% after listing. The results were consistent with predictions of options being a more cost-effective tool for trading on information, more private information is produced and the information in earnings releases is preempted to a greater extent about these firms. In addition, the study evidenced a huge increase in the number of followers of a firm after options-exchange listing. Ho (1993) examined different firm-specific attributes that can display different informational environment of firms with and without traded options. The event study analysis showed that abnormal stock return variability is greater for stocks without options than stocks with options. The association study analysis showed that security price predicted future earnings change for stocks with options than stocks without options. The study also claimed that firms without option trading have the highest probability to exhibit post fiscal year end drift.Levy and Yoder (1993) examined the options implied standard deviations around merger and acquisitions announcements. The

study showed that equity abnormal returns and residual variance were significantly increased one or two days prior to the announcement.Philbrick and Stephan (1993) tested the impact of options listing on stock price response around earnings announcements. The study presented evidences in support of substitution effect of option market to spot market and alternative method of taking short positions. The study documented that firms without listed options displayed higher trading volume response to positive news than to negative news. Peterson (1995) examined the effect of organized options trading on stock price movements immediately after the stock price decline of 10 percent or more. The study observed the cumulative abnormal returns for stocks with options were 1.57 percent less than relative to stocks without options. Therefore, this study supported the arguments that presence of option trading leads to enhancement in stock market efficiency and liquidity.Wilson (1996) examined the option open interest and volume around ex-dividend dates for 50 of the most actively traded stocks on CBOE during the period ranging from 1986 to 1988. The study observed the significant abnormal option volume in the week prior to the announcement of dividend. This abnormal option volume seem to account for 3% to 4% of all CBOE call option volume.All these studies concludes that stock options prices lead to price discovery as it reflects additional information that is not captured by observed stock prices.

Contradictory view on this notion have been presented by Stephan Whaley (1990), Chan *et al* (1993) and Stucki and Wasserfallen (1994) who states that price movements in the stock market lead the option market by as much as fifteen minutes. The relatively larger option tick caused option prices to appear to lag stock prices. The studies suggested that stock market lead may be even longer after analyzing the trading volume.The studies reported that trading on private information do not cause the options market to lead the stock market.The evidence reported these studies calls into question previous work in the area.

## DATA AND METHODOLOGY

This part of study involves an examination into whether information flows into options market before it gets reflected in stock prices especially when the timing of the new information is not known. Unscheduled events are a kind of surprise news for the market e.g. merger or acquisition, interim dividend or bonus/right shares. In this study an unscheduled events namely credit rating changes is chosen. For analysis purpose, 30 stocks for both the types, viz., stocks on which option contracts are available and those on which option contracts are not available, listed on National Stock Exchange of India (NSE) are selected randomly. The method chosen to analyze the impact of credit rating change, is Standard Event Methodology suggested by Brown and Warner (1985) and Kothari and Warner (1997). Event day corresponds to the date of announcement of the event. This methodology measures the stock price reaction to the announcement of the event. An estimation window of 252 trading days prior to the event window of (e-20) trading days to (e+10) trading days is used to calculate abnormal return and cumulative abnormal returns. The stock prices of selected stocks are collected from www.nseindia.com for the period ranging from (e-252) to (e+10). Share prices are adjusted for corporate action of bonus, share splits and rights for the stated event window. For the purpose of analysis, total returns index for Nifty 500, which includes the effect of dividends as a proxy for market returns ($R_m$) and Mumbai Inter-Bank Offer rate MIBOR rates as a proxy for risk free rate of return ($R_f$) are used.Practically the study includes the days before event (e-20) and days after event (e+10) to allow for the possibility that arrival of the information is leaked prior to event day and also allows for the possibilities of rigidities and lagged response behavior by investors. Returns calculated from estimation window (e-252) to (e-20) trading days are

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used for calculation of slope of line i.e. Beta which is covariance of the return of an asset with the return of the benchmark divided by the variance of the return of the benchmark over a certain period.

$$Beta = \frac{Covariance\ (r_{i,}r_{m)}}{Variance\ (r_m)}$$

After calculation of Beta, estimated returns for event window of (e-20) to (e+10) are calculated. The impact of an event is checked by measuring the abnormal rate of return during the stated event window. The abnormal returns are obtained by deducting the expected rate of return from actual rate of return in the same period. The normal return is defined as the expected return in the absence of the event. For firm i and time t, abnormal rate of return is defined as (Mac Kinlay, 1997).

$AR_{it} = R_{it} - \mathrm{E}\ (R_{it} | X_t)$

Where $AR_{it}$ = Abnormal returns for the firm i in the time period t

$R_{it}$ = Actual returns for the firm i in the time period t

E $(R_{it} | X_t)$ = Expected returns for the firm i in the time period t

For calculation of expected returns Single Index Model has been used as follows:

Expected return E $(R_{it} | X_t) = R_{ft} + \beta_{it}\ (R_{mt} - R_{ft})$

Where $R_{ft}$ = Risk free rate of return during the holding period t

$\beta_{it}$ = Beta of i firm during the holding period t

$R_{mt}$ = Market rate of return during the holding period t.

Abnormal returns (AR) are reported as the difference between the Single Index Model estimated daily stock returns and the actual returns on each day throughout the (e-20) to (e+10) days of the event window. Cumulative abnormal returns (CAR) for the firm i is defined and computed as

$CAR_{it}$ (e − 20 to e + 10 days)= $\sum_{e-20}^{e+10} AR_{it}$

Average daily abnormal returns (AAR) and cumulative average abnormal returns (CAAR) are calculated for all the companies for each day of the event window (i.e., 31 days starting from e-20, e to e+10 days). The average abnormal returns are calculated by aggregating the abnormal returns for each stock on a particular day and further divided by number of stocks. Further aggregation of abnormal returns is done through time (days in event window) for each firm and across firms.

The distribution of average abnormal return (AAR) and cumulative average abnormal returns (CAAR) of a given observation in the event window is checked for normality as:

$AR_{it} \sim \mathrm{N}\ (0,\sigma^2\ (AR_{it}\ ))$

Normality of AAR and CAAR is checked by applying Anderson Darling test at 5% level of significance. Appropriate parametric test (student t-test) or non-parametric test (Wilcoxon signed rank test) are accordingly applied on both average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) to see whether credit ratings change have significant impact on return (abnormal or cumulative abnormal return) of stocks with options during the stated event window.

The basic purpose of this part of the study is to investigate whether information reaches in options market faster than underlying spot market even if the information release is unscheduled. If this holds true, there should not be any significant impact of credit rating

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change on rate of returns (abnormal and cumulative abnormal) of stocks with options. In other words, abnormal returns and cumulative abnormal returns of stocks with options should be almost equal to zero and less than those of stocks without options.

**Testing Hypothesis**

$H_{o7}$: There is no significant impact of credit ratings change on returns (average abnormal and cumulative average abnormal) from stocks with options.

$H_{o8}$: There is no significant impact of credit ratings change on returns (average abnormal and cumulative average abnormal) from stocks without options.

**Findings**

Credit rating is an assessment of creditworthiness of a company in general terms to pay back its financial obligations. Credit rating changes can have a significant impact on financial markets. A prime example is the adverse market reaction to the credit rating downgrade of the U.S. Federal Government by Standard & Poor's on August 5, 2011 when global equity markets plunged for weeks following the downgrade. In this study standard event methodology is used to examine the average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) related to 30 stocks with options and 30 stocks without options having credit rating changes.

Table 4.7 present the findings of impact of credit rating changes on average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) of stocks with options. From the results given above, no significant value of average abnormal returns and cumulative average abnormal returns is observed in the event window of e-20 to e+10 including the event day. On the event day that is, change in the credit Ratings, average abnormal returns and cumulative average abnormal returns are observed to be 0.1342 and 3.9602 respectively, both of which are found statistically insignificant at 5% level. So from the results it can be concluded that change in credit ratings does not significantly influence stocks with options' average abnormal returns (AAR) and cumulative average abnormal returns (CAAR). Hence $H_{07}$ is not rejected according to available results.

**Table 4.7: Impact of credit rating changes on average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) of stocks with options**

| Day | Stocks with options AAR^ (%) | t statistics | p-value | Stocks with options CAAR^^ (%) | t statistics | p-value |
|---|---|---|---|---|---|---|
| e-20 | -1.074 | -0.293 | 0.274 | -1.074 | -0.293 | 0.442 |
| e-19 | -0.815 | -0.284 | 0.533 | -1.889 | -0.688 | 0.595 |
| e-18 | 1.241 | 0.388 | 0.685 | -0.648 | -0.076 | 0.690 |
| e-17 | -1.222 | -0.089 | 0.322 | -1.870 | -0.465 | 0.375 |
| e-16 | -0.314 | -0.068 | 0.698 | -2.183 | -1.379 | 0.299 |
| e-15 | -0.636 | -0.283 | 0.202 | -2.819 | -1.384 | 0.583 |
| e-14 | 0.307 | 0.068 | 0.644 | -2.512 | -1.383 | 0.611 |
| e-13 | 0.131 | 0.022 | 0.603 | -2.382 | -1.380 | 0.231 |
| e-12 | 0.401 | 0.278 | 0.753 | -1.980 | -0.754 | 0.992 |
| e-11 | 1.009 | 0.129 | 0.621 | -0.972 | -0.078 | 0.897 |
| e-10 | 0.622 | 0.341 | 0.637 | -0.350 | -0.067 | 0.926 |
| e-9 | 0.043 | 0.002 | 0.323 | -0.307 | -0.187 | 0.992 |

| | | | | | | |
|---|---|---|---|---|---|---|
| e-8 | 0.073 | 0.005 | 0.587 | -0.234 | -0.129 | 0.937 |
| e-7 | 0.436 | 0.088 | 0.894 | 0.201 | 0.176 | 0.289 |
| e-6 | 0.627 | 0.596 | 0.523 | 0.828 | 0.469 | 0.284 |
| e-5 | 1.072 | 0.595 | 0.624 | 1.900 | 0.426 | 0.176 |
| e-4 | 0.607 | 0.089 | 0.588 | 2.508 | 1.382 | 0.137 |
| e-3 | 1.006 | 0.299 | 0.327 | 3.514 | 1.422 | 0.328 |
| e-2 | 0.151 | 0.007 | 0.644 | 3.665 | 1.578 | 0.154 |
| e-1 | 0.161 | 0.009 | 0.552 | 3.826 | 1.583 | 0.236 |
| 0 (event day) | 0.134 | 0.028 | 0.533 | 3.960 | 1.564 | 0.213 |
| e+1 | -0.988 | -0.193 | 0.486 | 2.973 | 1.389 | 0.111 |
| e+2 | -0.500 | -0.045 | 0.362 | 2.472 | 1.224 | 0.112 |
| e+3 | -0.060 | -0.003 | 0.499 | 2.412 | 1.106 | 0.927 |
| e+4 | -0.824 | -0.408 | 0.657 | 1.588 | 0.235 | 0.486 |
| e+5 | -0.827 | -0.004 | 0.694 | 0.761 | 0.319 | 0.265 |
| e+6 | -0.701 | -0.003 | 0.644 | 0.060 | 0.005 | 0.212 |
| e +7 | 0.201 | 0.018 | 0.363 | 0.261 | 0.001 | 0.487 |
| e+8 | -0.686 | -0.087 | 0.254 | -0.425 | 0.023 | 0.596 |
| e+9 | -0.020 | -0.001 | 0.584 | -0.446 | 0.028 | 0.424 |
| e+10 | 1.008 | 0.098 | 0.697 | 0.562 | 0.020 | 0.513 |
| e (-20,+10) | | | | 0.562 | | |

^AAR = Average abnormal return ^^CAAR = Cumulative average abnormal returns

Table 4.8 gives the results for test of significance of average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) of stocks without options having credit ratings changes. Through the event window of e-20 to e+10, statistically significant average abnormal returns are observed on 1 day after the event that is e+1. Cumulative average abnormal returns are found to be statistically significant on e-9 and from e-15 to e-12, e-6 to e+2, e+4 to e+8. Therefore, there seems to be significant impact of change in credit ratings on average abnormal returns and cumulative average abnormal returns of stocks without options. Hence $H_{08}$ is not accepted with available evidences.

**Table 4.8: Impact of credit rating changes 2016-17 on average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) of stocks without options**

| Day | Stocks without options AAR^ (%) | t statistics | p-value | Stocks without options CAAR^^ (%) | t statistics | p-value |
|---|---|---|---|---|---|---|
| e-20 | -0.532 | -0.047 | 0.876 | -0.532 | -0.047 | 0.264 |
| e-19 | -0.060 | -0.003 | 0.783 | -0.593 | -0.052 | 0.633 |
| e-18 | -1.275 | -0.684 | 0.764 | -1.868 | -0.694 | 0.821 |
| e-17 | -0.032 | -0.001 | 0.697 | -1.900 | -0.958 | 0.972 |
| e-16 | 0.333 | 0.066 | 0.603 | -1.567 | -0.628 | 0.391 |
| e-15 | -1.458 | -0.054 | 0.248 | -3.025 | 1.984 | 0.013* |
| e-14 | 0.166 | 0.019 | 0.566 | -2.859 | 1.829 | 0.002* |

| | | | | | | |
|---|---|---|---|---|---|---|
| e-13 | -0.569 | -0.027 | 0.275 | -3.428 | 1.993 | 0.034* |
| e-12 | 0.944 | 0.046 | 0.338 | -2.484 | 1.810 | 0.021* |
| e-11 | 0.600 | 0.003 | 0.242 | -1.884 | 0.784 | 0.375 |
| e-10 | -0.190 | -0.008 | 0.477 | -2.074 | 1.696 | 0.259 |
| e-9 | -0.443 | -0.002 | 0.274 | -2.517 | 1.822 | 0.012* |
| e-8 | 0.945 | 0.046 | 0.137 | -1.572 | 0.832 | 0.375 |
| e-7 | -0.638 | -0.030 | 0.944 | -2.210 | 1.698 | 0.285 |
| e-6 | -0.298 | -0.019 | 0.598 | -2.508 | 1.821 | 0.014* |
| e-5 | -1.065 | -0.979 | 0.399 | -3.573 | 2.102 | 0.006* |
| e-4 | -0.649 | -0.038 | 0.573 | -4.222 | 2.824 | 0.048* |
| e-3 | -1.250 | -0.199 | 0.508 | -5.472 | 2.958 | 0.029* |
| e-2 | 0.435 | 0.029 | 0.732 | -5.037 | 2.851 | 0.042* |
| e-1 | -0.580 | -0.032 | 0.624 | -5.617 | 3.145 | 0.008* |
| 0 (event day) | -1.138 | -0.224 | 0.593 | -6.754 | 3.432 | 0.001* |
| e+1 | 2.192 | 1.725* | 0.037* | -4.562 | 2.649 | 0.022* |
| e+2 | 0.750 | 0.032 | 0.285 | -3.812 | 2.038 | 0.016* |
| e+3 | -1.834 | -0.813 | 0.256 | -5.646 | 3.224 | 0.273 |
| e+4 | 0.861 | 0.041 | 0.233 | -4.785 | 2.904 | 0.001* |
| e+5 | 1.326 | 0.964 | 0.897 | -3.460 | 4.286 | 0.033* |
| e+6 | -0.485 | -0.043 | 0.244 | -3.945 | 3.021 | 0.024* |
| e +7 | 0.687 | 0.346 | 0.372 | -3.258 | 2.949 | 0.002* |
| e+8 | 1.209 | 0.789 | 0.470 | -2.049 | 1.704 | 0.044* |
| e+9 | 1.596 | 0.825 | 0.221 | -0.453 | 0.032 | 0.276 |
| e+10 | 1.476 | 0.798 | 0.384 | 1.023 | 0.594 | 0.436 |
| e (-20,+10) | | | | | | |

^AAR = Average abnormal return ^^CAAR = Cumulative average abnormal returns

* significant at 5%

## CONCLUSION

From the results presented above, it can be concluded that options market are taken as a preferred source of trading for informed investors. Any kind of announcement relating to credit ratings change is first reflected in options market than underlying market. Therefore, during the event window of e-20 to e+10, no significant impact of credit ratings change has been observed on average abnormal returns and cumulative average abnormal returns of stocks with options. On the other hand, average abnormal returns and cumulative average abnormal returns of stocks without options displayed significant influence of these announcements. Traders with the information prefer to take position in options market than underlying market, Therefore credit ratings change announcements did not affect the returns from stock with options in a significant way.

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# Customer and Customer Service in Digital Era

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**Abstract**
Electronics customer relationship is a business and marketing strategy that analyzes about consumer's needs and behaviour in order to create an effective relationship between an organization and its consumers. E-Customer service is a combination of hardware and software, process, applications and commitment of management activities to develop high quality of customer service, and customer's maintenance. However, the slight is known about how various activities may exert differentiated impact on organization the concerned. This paper's focus is to discuss the positive and negative impacts of electronics customer relationship management (E-CRM), as a marketing strategy for an organization. The paper further explains the behaviour of consumers toward organizations and the emergence of electronic commerce that brought a positive change towards business in a global market. It also discusses customer's expectation and behaviour.

**Introduction**
According to McKinsey survey 70% of buying experiences are based on how the customers feel they are being treated. More and more companies put the customer service at the forefront today. Understanding the importance of good customer service is essential for any business when looking for new customers, retaining loyal customers and developing relationships with prospective customers.
We are living in the digital era and every day more and more technologies appear on the market. Consumers get used to those technologies and when it comes to customer experience expect modern approach from businesses. In our new info graphic I highlighted the most important aspects of excellent customer service in digital age and provided helpful tips and tricks for any business.
No matter whether your business is large or small your customers deserve top quality customer service. You are welcome to share in the comments to the post your ideas, experience and best practice.
With considerable digital developments over the past fifteen years, it is now possible to work entirely online without ever meeting clients face to face. Today contract negotiations, document transfers, communicating plans and even invoicing and payments can all be done using digital capabilities. Customer service is every interaction with your customer, with technology increasing opportunities for customers to get in touch. Companies are now making progress by using technology and customer behaviour studies to build more seamless, tailored, and simpler customer service solutions.
The face of customer service has changed: digital prevails over real interaction, customers have more autonomy and control, and help is proactive over reactive. This is how the customer service of the past stacks up against the future:

| Levers | The past | The future |
|---|---|---|
| Technology | **Negatively impacts** experience | **Positively impacts** experience |
| Support Hours | **9*5**, 5 days a week | **24*7** |
| Customer Interaction | **Company** is in control of when and where (or if at all) the interaction happens | **Customer** is in control of where the interaction happens (Social media, mobile, desktop, apps) |
| Volumes | High **email volumes** | High **real-time volumes** (phone/chat) |
| Experience | **Customer repeats information** on every interaction/channel | **Company knows & stores information** from every interaction/ channel |
| Online Help | **Customer searches** for content online | **Content proactively reaches** customer via signals/ triggers |
| Product fixes | **Customer** initiated | **Product** initiated |
| Agent infrastructure | Agent works in **multiple systems** | Multiple agents work through **one system** |
| Budget priority | **No budget** allocation for agent and operational resources | **Dedicated branch** with budget allocation (often from marketing) |

No matter the size of your business, good customer service needs to be at the heart of your business model if you wish to grow. Although it can take extra resources, time and money, good customer service **leads to customer satisfaction** which keeps customers loyal, generates positive word-of-mouth, and encourages repeat business.

Client satisfaction also directly influences the working environment of business organisations. If the company develops a bad reputation, your top performers may be discouraged to stay, leading to increased attrition, mistakes and customer complaints.

The digital age, also known as the information age, has revolutionized the way we experience most aspects of our lives. Modern technology puts all of the information the world has to offer at our fingertips (and in our pockets).

Today, there are nearly 4.4 billion active internet users globally, a number that will only grow. That means more than half the world's population is online and, in turn, is interacting with businesses every day.

The ways brands handle customer service has changed substantially since we've entered the digital age. According to Forrester Research, customer relationships have effectively become each company's primary competitive differentiator. This means a company's customer service strategy is crucial to its success.

**6 rising expectations of customer service in the digital age**

1. **Mobile first:** Customers are now spending a significant amount of time online via smart mobile devices – and they expect businesses to interact with them over these touch points. The need to be reachable anytime, from anywhere will continue to grow.

2. **Omni-channel is here:** As the numbers of customer touch-points continue to grow, so does the importance of managing each interaction consistently, as part of end-to-end customer journeys. Bringing together existing information about the customer and their

relationship history with a brand can help to determine the context at every customer touch-point.

3. **Social grows up:** The reach and influence that social media has on consumers' day-to-day lives and the reputation of brands is astonishing. For service organizations, it's impossible to ignore. It's essential that the social channel is integrated with the existing service offering and approached as a different skill or contact type, rather than as a channel.

4. **User experience brings art and science to service:** Over the past decade, we have often seen digital technologies bolted on to existing operations, achieving only a fraction of their potential due to a lack of usability and design. As digital touch-points increase their influence on how customer service is delivered, they demand greater attention.

5. **User adoption – the missing link:** Adoption is a challenge faced by many organizations, under constant pressure to maximize operational benefits and cost savings. It's important to remember that building digital services doesn't mean customers will automatically use them. The key is to build services that add value and then market them appropriately.

6. **Analytics – removing the guess work:** In this always-on, tech-savvy world, customers come armed with an internet full of information. Their attitudes and behaviors change continuously. As a result, most companies are facing significant customer service challenges because they do not know and are not able to predict what will happen next or respond to real-time complaints or feedback. Only organizations that do customer analytics well are able to exploit all channels and data sources, so as to make better-informed decisions about the service they provide.

**How do you make your customer service better?**

Here are a few things to consider

1. **Consider 24/7 support** -- outsourcing tech support is not something to consider unless you have a call volume to match it. If you do, here are a few resources to consider.

2. **Build an FAQ page** -- there will be a fair amount of customers who prefer to find the information themselves, in this case, build your FAQ page and make it easy to navigate.

3. **Invest in analytics** -- you will have a lot of data that will come your way without having to ask your customers about it. This is good news, as you can get a head start on certain issues and be able to solve problems more efficiently.

4. **Train your customer support staff** -- whether you have people in-house or have already outsourced your customer service, the support staff needs to be trained. Support is your major line of defence against customer issues.

There are five customer support statistics to make customer service technology the priority of your business:

**1. It's what your customers remember**

Bad customer service is a key driver of churn. Keeping your customer happy means they are more likely to continue to back the brand and not shift to competitors. As customer retention is far cheaper than customer acquisition, this is a big plus point.

***40%** of customers begin purchasing from a competitor because of their reputation for great customer service. (Zendesk) **82% felt** that their service provider could have done something to prevent them from switching (Accenture).*

**2. Word-of-mouth advertising is the best kind of advertising that money can't buy**

When your customers have a good experience, they talk about you to others. Unhappy and angry customers can generate damaging word of mouth, affecting profitability and reputation.

***95%** of customers share bad experiences with others **87%** of customers share good experiences with others (Zendesk).*

**3. It's a source of sustainable competitive advantage**

Since customer service is often the only contact a customer has with a company, it can be the deciding factor for a customer to make a purchase. For example, it is difficult to tell the difference between two small-town medicine stores, especially if their prices are similar. Putting extra efforts into customer service may be the differentiating factor for customers to go back to one drug store over the other.

***77%** expect to maintain or grow the size of their customer service team during the next 12-24 months. (Deloitte) **63%** of companies expect to spend more on customer experience (Temkin).*

**4. To customers, good service is more important than price**

With excellent customer service seeming more and more rare these days, customers are willing to pay a premium for it. Deliver on that desire, and your customers will be happy to pay higher prices.

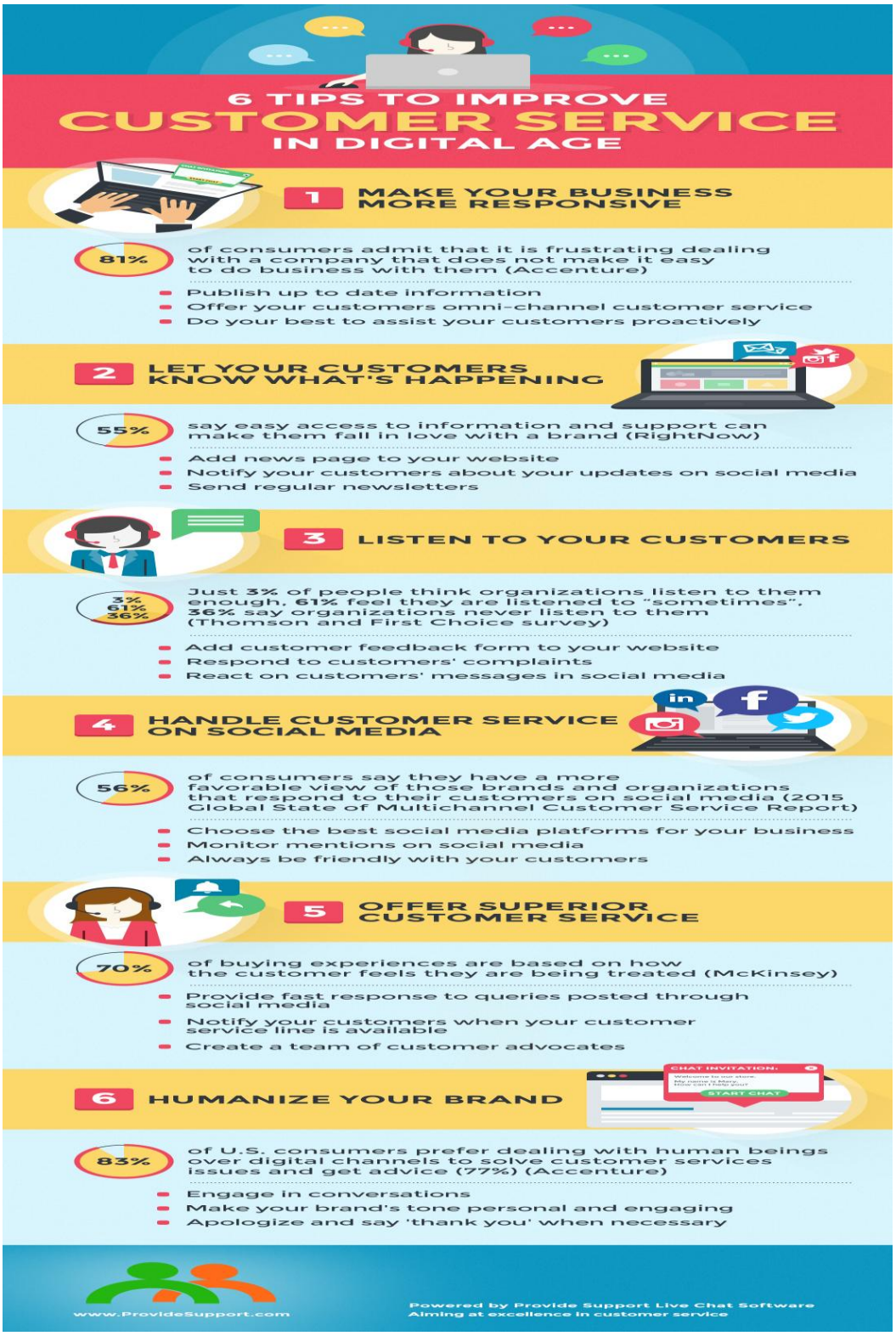
***70%** of buying experiences are based on how the customer feels they are being treated (McKinsey) **86%** are willing to pay up to 25% more for a better customer experience (RightNow).*

**5. Good customer service reduces problems**

Issues are always going to arise for any business, no matter how hard you try to avoid them. While you can't run a perfect business you can ensure your customers are well-informed and looked after. If customers know they can voice complaints and issues will be handled properly, they will feel more comfortable doing business with you.

***73%** of consumers say friendly customer service reps can make them fall in love with a brand (RightNow).*

Customer service can make or break a brand's reputation, having knock-on consequences for staff satisfaction and your bottom line: so getting it right is of paramount importance.




**Factors for adapting to customer service in the digital era**

1. **Keep customers "in the know"**

The age of information requires just that — information. Customers want to know *everything* at all times. That means a company needs to anticipate and provide every detail a customer could want. Here are some strategies to accomplish that daunting goal.

Offer FAQs

Although many customers today want information, they want to be able to find it on their own. In fact, 40 percent of customers prefer self-service over human interaction if possible. Brands should always include a frequently asked questions page on their website to provide instant answers to common queries.

Give shipping and delivery updates

From the moment a purchase is made, customers want to know where their package is and when it will arrive, right down to the time of day. It is pertinent to provide tracking for any shipment, as well as text or email updates about the location of an order.

Share sales, offers and product emails

Customers want to feel like they are in on a secret. They want to know whenever new products are being offered, when a business is having a sale and when there are special offers on products or services they like. In today's digital age, every business should have an email list and send updates regularly.

**2. Personalized experiences and relationship management**

Customer relationship management (CRM) technology is one of the most crucial components of a successful customer service strategy. Tech-industry CEO, Mark Hurd claims, "The way to overachieve…is to seize the very unique opportunity you have to differentiate customer relationships."

Brands must recognize the role customer service plays in their business's overall progress and build long-term, sustainable and personalized relationships with every single customer.

CRM software records customer data — from phone or email exchanges, contact information, purchase history, to demographics. Although that information can be attained manually, CRM programs automatically record it and use AI to organize and analyze that data.

Businesses can use this information to customize the consumer experience. From sending personalized alerts about new products and offers, to sending a birthday gift or card, each user will feel important. This relationship will create a feeling of loyalty and positive opinion of a brand.

**3. Chatbots for customer queries**

800 numbers and "help@" or "support@" email addresses are recent staples in the modern customer service industry. However, in the digital age, chatbots are making these once-modern technologies obsolete.

Consumers don't have time to wait on hold for hours or receive a response email days later. They want instant gratification. Chatbots are an automated, online, text-based technology that allows customers to get answers to questions, concerns and complaints instantly.

They provide quick and accurate answers to common customer queries and can remarkably mimic human conversation — all without the need for a user to deal with an actual person. Not only do chat bots provide fast and easy answers to users, but they are also a cheaper alternative for the businesses employing them.

Customer service is the biggest and most influential piece of a brand's success. In fact, 70 percent of a buying experience stems from the customer service experience. Brands that can adapt to the ever-changing landscape of customer service have the best chance at long-term success.

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# METHODS FOR THE SYMMETRIC AND NON SYMMETRIC EIGENVALUE PROBLEMS

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**Abstract**
Gap and vanquish procedures dependent on rank-one refreshing have demonstrated quick, precise, and proficient in parallel for the genuine symmetric tridiagonal and unitary eigen value issues and for the bidiagonal solitary worth issue. Despite the fact that the partition and vanquish component can likewise be adjusted to the genuine non symrnetric Eigen problem in a clear manner, the vast majority of the attractive qualities of the different calculations are lost. In this paper, we analyze the issues of exactness further rmore, proficiency that can hinder a non-symmetric isolate and win eigen solver dependent on low-position refreshing. In this paper we will discuss aboutmethods for the symmetric and non-symmetric eigen value problems.
Keywords- symmetric, non-symmetric, eigen value problems

## INTRODUCTION

The Eigen values and eigenvectors of a genuine nonsymmetric grid A have generally been registered by first lessening A to Heisenberg structure H and afterward processing the eigen composition of H by the QR technique. The sequential idea of the QR technique joined with the mind-boggling expense of information move on dispersed memory multiprocessors has made parallel usage of this methodology wasteful. The disappointment of parallel QR calculations has started ongoing investigation into new calculations including balanced out tridiagonalization, iterative refinement strategies and homotopy techniques

In this paper, we look at the utilization of separation and overcome strategies dependent on low rank refreshing for tackling the genuine non symmetric eigen value issue. This gap and overcome approach was first connected to the symmetric tridiagonal eigenvalue issue by Cuppen and broke down and executed in parallel by Dongarra and Sorensen. The calculation includes tearing a symmetric tridiagonal grid T into a couple of symmetric tridiagonal submatrices T1 and T2 by expelling off-askew components of T also, utilizing rank-one refreshing procedures to frame the eigen decomposition of T from those of T1 and T2.

The symmetric separation and vanquish method of gives a quick and exact sequential option in contrast to the QR strategy or to cut with reverse cycle. What's more, the separation and overcome technique is proficient when actualized on shared-memory multiprocessors. Comparative strategies have additionally performed well tor the bidiagonal solitary worth issue and for the unitary eigen value issue. In this paper, we demonstrate that the productivity and precision shared by these separation and overcome

techniques can't be normal as a rule when the methodology is connected to the non-symmetric eigen problem.

we exhibit how the symmetric partition and overcome technique for can be reached out in a direct manner to nonsymmetric tridiagonal and Heisenberg eigen problems on the off chance that we expect that the submatrices framed fro1,L tearing are diagonalizable. This calculation enables us to look at the issues with a non-symmetric separate and overcome eigen solver in direct similarity to the symmetric eigen solver. In, Adams and Arbenz consider a general position r update to a nonsymmetric network without expecting diagonalizability. Their proposed calculation bears less likeness to the symmetric calculation, yet huge numbers of the ends that we will draw about our rearranged calculation do have any significant bearing to their total hypothesis. Truth be told, we will demonstrate that one noteworthy hindrance to exact usage of such a strategy emerges for all intents and purposes any refreshing technique that does not utilize the first network T at a few arrange subsequent to tearing. We talk about the challenges that can torment a nonsymmetric isolate what's more, vanquish technique.

All through this paper, except if generally determined, capital Greek and Roman letters speak to grids, lower case Roman letters speak to segment vectors, and lower case Greek letters speak to scalars. A superscript T indicates transpose, a superscript H indicates conjugate transpose, and h is the component shrewd complex conjugate of the vector "h. The vector ej is the j-th "standard vector" with all components equivalent to zero aside from the j-th which equivalents 1.

## SYMMETRIC EIGENVALUE PROBLEM

The symmetric eigenvalue trouble with its rich mathematical structure is one of the most aesthetically beautiful problems in numerical linear algebra. Jacobi commenced his paintings on actual symmetric matrices firstly in 1846 applying plane rotations to the matrix to convert it to a diagonally dominant matrix, elements of whose diagonal have been the eigenvalues. As we have already seen that during widespread the roots of the characteristic polynomial can't be given in closed shape shows that any technique must proceed by using successive approximations. Although one cannot assume to provide the required eigenvalues precisely in a finite no of steps, there exist rapidly convergent iterative methods for computing the eigenvalues and eigenvectors numerically for symmetric matrices.

## NON-SYMMETRIC EIGENVALUE PROBLEM

For nonsymmetric matrices the image is less rosy as compared to the symmetric hassle. Unfortunately, it isn't continually possible to diagonalize a nonsymmetric matrix, and even if it is recognised that everyone eigenvalues are distinct, then it can be numerically unwanted to do this. The most strong methods seem to be primarily based at the Schur factorization, that is for each nxn matrix A, there exists an orthogonal Q, so that QTAQ = R, in which R is top triangular. Apart from variations and signs and symptoms, the matrix Q is precise. The Schur factorization well-knownshows an awful lot of the eigenstructure of A, its diagonal elements are the eigenvalues of A and the off-diagonal elements of R

imply how small the angles among eigenvectors may be. Other techniques like Power method, Inverse and Rayleigh quotient new release can also be implemented to nonsymmetric matrices but numerous studies papers have proven that there exist a hard and fast of matrices for which the algorithms fail.

## THE GENERALIZED EIGENVALUE PROBLEM

The generalized eigenvalue hassle (regarded as a pair of bilinear bureaucracy) for locating nontrivial answers of the equations

$$Ax = \lambda Bx,\ Ax + \lambda Bx + \lambda^2 Cx = 0$$

Is going returned as a minimum to who hooked up the equal of the Jordan form for normal matrix pencils. In the matrix A - λB is called a matrix pencil. The alternatively abnormal use of the word "pencil" comes from optics and geometry: an mixture of (mild) rays converging to a degree does advise the sharp cease of a pencil and, with the aid of a natural extension, the time period got here to be used for anybody parameter circle of relatives of curves, spaces, matrices, or different mathematical gadgets. Later gave a brand new evidence for singular pencils. The hassle reduces to the ordinary eigenvalue problem when B = I, that is why it's far referred to as a generalized eigenvalue hassle. Although the generalization results from the trivial alternative of an identification matrix by way of an arbitrary matrix B, the hassle has many features now not shared with the ordinary eigenvalue hassle. For example, a generalized eigenvalue problem can have limitless eigenvalues. In spite of the differences among the 2 problems, the generalized eigenvalue problem has the equivalents of a Hessenberg shape and a Schur shape. Moreover, the QR set of rules may be adapted to compute the latter; the resulting set of rules is extensively called the QZ algorithm. The electricity approach and RQI are techniques for fixing the homogeneous gadget of equations (A -λB)X = O (or the matrix pencils). Of path A is unknown and so the hassle is not linear. Nevertheless almost every known method for fixing linear structures yields an analogous iteration for the Non-Linear eigenvalue trouble. For example, there may be a successive overrelaxation (SOR) method which can be very powerful for unique issues when triangular factorization isn't possible. See for a complete remedy of those thoughts. Extended the end result to square pencils. For cutting-edge treatments talk to some of the advanced texts.

## REVIEW OF LITERATURE

**L. Adams and P. Arbenz et al. [2013]** An unreduced symmetric tridiagonal grid T of request n = 2m can be composed as the grid total T2 +0Z (1) " where/3 is the mth off-corner to corner component of T, ei is the ith unit vector of length m, and T1 and 7'2 are symmetric tridiagonal of request m. The calculation can be made in reverse stable with O = sign(eTTlem). In the event that the answers for the two littler eigen systems are 7"1 = X1D1XT1 and T2 = X2D2X T, at that point 11)] X T where ( ) (",) X1 D = X = X2 ' D2 ' lT = eTx1 is the last line of X1, and fT = eTx2 is the principal line of X2. To fathom the eigen problem for T, it is important to discover the eigen values and eigenvectors of the

slanting in addition to rank-one lattice D + pzz T = XTTX, where Z T = C ( lT 0-1fT )' and p is chosen so that [Iz 112= 1 .

**G.S. Ammar, D. Cheng, W. Dayawansa, and C. Martin et al. [2014**] The eigen system of T is figured by means of the rank-one refreshing system depicted. To be specific, if all components of z are non-zero and if the askew components of D are particular, at that point the eigen values of D + pzT are the roots A1 > .. • > An of the common condition w(A) = 1 + pzT(D-A)- lz = 1 + j=l (ii – A). In the event that/_ > 0 and the corner to corner components of D are given by (il > ... > (in, every eigen value is sectioned by the nearby corner to corner components of D: (ii > Ai > (ii+l and Iii + pzTz > AI > (il. At the point when/_ < 0, a difference in factors prompts a comparative outcome. This joining property implies that the underlying foundations of w(A) might be discovered effectively utilizing any one-dimensional root discoverer, for example, the one dependent on balanced interjection created in. Once Aj has been discovered, its comparing eigenvector uj is figured from (D-Aj)- lz uj = li (D-Ai)- az 112"

**J. Barlow et al. [2015]** at the point when the askew components of D are not unmistakable, i.e., (it = (it+_ ...= 6t+k, the eigen problem of request n is diminished to one of request n-k by the procedure of emptying. The eigenvector premise is first turned to zero out the components (t+l,..., (t+k relatinn m - 3- to the various components _l+l - """ - For I + 1 _< j _< l + k, the jth eigenvalue in precise number juggling is the jth component of D (Ai = *j), and its comparing eigenvector is the fitting standard vector (uj = ej) . Speaking to the result of all turns by the lattice G, the framework T is communicated as where UAU T is the eigen decomposition of G(D + pzzT)G T. The eigenvalues of T are the corner to corner components of An, and the eigenvectors of T are the sections of U = XGTQ.

**J.R. Bunch, C.P. Nielsen, and D.C. Sorensen et al. [2016]** the above induction expect definite number juggling. Collapse standards have additionally been created for limited accuracy in "revolutions are connected when slanting components of D are close, and emptying happens when components of z are little. Numerical analysis have affirmed that the expansion in speed because of this equation is considerable for sequential also, shared-memory parallel executions. With proper decision of flattening criteria and utilization of expanded exactness, it is conceivable to ensure calculation of very precise eigen values and symmetrical eigen vectors. In parallel usage, the littlest sub problems are unraveled in parallel with one issue er processor, and the work to illuminate bigger request sub problems is shared by additional I than one processor. Specifically, high parallel productivity has been accomplished on shared-memory multiprocessors by progressively allotting autonomous root-finding " and eigenvector figuring errands to isolate processors at each degree of refreshing.

## OBJECTIVES

1. Concerns the non-symmetric eigenvalue trouble. Here we will expand a means for computing the eigenvalues of an arbitrary square matrix.
2. This problem is basically critical within the calculus of numerous variables seeing that many packages require the computation of the eigenvalues

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3. We saw a way to find the eigenvalues of a symmetric matrix through a innovative diagonalization process.

## RESEARCH METHODOLOGY

Convergence of basic methods In this section we will discuss the convergence of basic methods, viz., the Jacobi method, the Gauss-Seidel method and the SOR method for the linear systems involving HST matrices as matrices of coefficients. The details of these methods can be found in [1, 3, 8].

**THEOREM**. Given a linear system of equations involving a HST matrix A = [aij] as a matrix of coefficients. The spectral radius of the Jacobi matrix is unity/f{ki} of the matrix A = [aij] is positive and h, the element on the principal diagonal, is equal to σ, i.e., the sum of the elements of {ki}.

**Proof**. Let A = D + U + L, where D = [di,j] is a diagonal matrix, U = [ui,j] is a strictly upper triangular and L = [Ii,~] is a strictly lower triangular matrix. Let k~' be the $p_{th}$ element of {ki}. The elements in the ith row of (L + U) in the increasing order of the columns are

$$k_i^1, k_i^2, k_i^3, k_i^4, \ldots, k_i^{i-1}, 0, k_i^i, \ldots, k_i^{n-1}.$$

The elements in the $i$th row of the Jacobi matrix $R = D^{-1}(L + U)$ in the increasing order of the columns are

$$-\frac{k_i^1}{h}, -\frac{k_i^2}{h}, -\frac{k_i^3}{h}, \ldots, -\frac{k_i^{i-1}}{h}, 0, -\frac{k_i^i}{h}, \ldots, -\frac{k_i^{n-1}}{h}.$$

The elements in the $i$th row of the determinant of the characteristic equation of $R$, in the increasing order of the columns are

$$-\frac{k_i^1}{h}, -\frac{k_i^2}{h}, -\frac{k_i^3}{h}, \ldots, -\frac{k_i^{i-1}}{h}, -\tau, -\frac{k_i^i}{h}, \ldots, -\frac{k_i^{n-1}}{h}.$$

In this section we give examples of different HST matrices that we have defined in the previous sections. In each case the convergence of the basic iterative methods is compared for h = tr andh = ½a, where h is the nonzero element on the diagonal of A = [ai,j] and a is the sum of the elements of {ki} of A = [ai,j]. The parameter for the SOR is taken to be 1.20 in each case.

**Example.** Let

$$A = \begin{bmatrix} h & \frac{1}{5} & \frac{1}{10} & \frac{1}{15} \\ \frac{1}{5} & h & \frac{1}{10} & \frac{1}{15} \\ \frac{1}{5} & \frac{1}{10} & h & \frac{1}{15} \\ \frac{1}{5} & \frac{1}{10} & \frac{1}{15} & h \end{bmatrix}.$$

A = [ai.j] is a HST with ao = 5, d = 5. The eigen values of A = [al,j] are h + 11/30, h – 1/5, h - h 1/10, h – 1/15 Table 1 compares the spectral radii of the iteration matrices of the different basic iterative methods for the case h = a and Table 2 gives the same comparison for the case h = ½a.

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Table 1
Convergence of basic iterative methods to reduce the error to $10^{-7}$ for the case $a_0 = 5, d = 5$ and $h = \sigma$ ($\eta$ is the rate of convergence, $\rho(G)$ is the spectral radius, $\Theta$ means: does not converge)

| Method | $\rho(G)$ | $\eta$ |
|---|---|---|
| Jacobi | 1.0000000 | $\Theta$ |
| Gauss–Seidel | 0.3156290 | 1.15319 |
| SOR | 0.4166039 | 0.8756195 |

Table 2
Convergence of basic iterative methods to reduce the error to $10^{-7}$ for the case $a_0 = 5, d = 5$ and $h = \frac{1}{2}\sigma$ ($\eta$ is the rate of convergence, $\rho(G)$ is the spectral radius, $\Theta$ means: does not converge)

| Method | $\rho(G)$ | $\eta$ |
|---|---|---|
| Jacobi | 1.99999455 | $\Theta$ |
| Gauss–Seidel | 1.2537077 | $\Theta$ |
| SOR | 1.4083721 | $\Theta$ |

## GENERALIZATION

In this section, we no longer assume that the sets of eigen values of All, A22 and of a are mutually disjoint. While the monotonically decreasing nature of the eigen values of S still holds (whenever they exist), the other theorems require some modifications. Developments here are not mere academic exercises. For instance, if All =A22, i.e., the sub domains are identical, then the theorems of the previous section do not hold.

In the following, for a positive integer p, a zero of f of order -p means a pole of f of order p. The null space is denoted by и(). If μ E A1 U A2, then S(μ) may not exist . However, certain eigen values and entries of S (λ) may still exist in the limit as λ_μ. Whenever we write S(μ) or f(μ), it should be interpreted in this limit sense.

The next theorem completely describes the spectrum of A in terms of the spectrum of S(λ). Examples following the proof give helpful illustrations

Theorem

Suppose λ € A1 U A2 Az and p is a nonnegative integer. Then, λ is a zero of f(λ) of multiplicity p if' A is an eigenvalue of A of multiplicity p.

Suppose μ1 =….. = μp is an eigenvalue of A11 of multiplicity p and it is not in the spectrum of A22. Let x1……,xp be corresponding orthonormal eigenvectors of A 11] and Q= [xl,...,xp].

Suppose 0 is an eigenvalue of S(μi) of multiplicity r. Then μi is a zero of f of order r — min(k, rank (AT13) Q) and N(μi+) = N(μi —) r — min(k, rank (AT13 Q). Furthermore, if s denotes the dimension of N(AT31) and

t denotes the dimension of ..N(ΦT[AT23(A22—μ1)-1 — (A33 —μ1)-1 (A23-μ1)]U), where Φ is a matrix whose columns consist of a basis of N (A13) and U is a matrix whose columns consist of a basis of N(QT A 13 then μi is an eigenvalue of A of multiplicity s + t.Suppose μi =…. = μp is an eigenvalue of A11 of multiplicity p and it is also an eigenvalue of A22 of multiplicity q. Let x1,...,xp be corresponding orthonormal eigenvectors of A11 with Q1 =[x1,...,xp] and yi,...,yq be corresponding orthonormal eigenvectors of A22 with Q2 =(yi,…..yq). Suppose 0 is an eigenvalue of S(μi) of multiplicity r. Then, f has a zero of order r –min (k, raink [AT13Q1,AT23 Q] at μi and [AT13Q1,AT23 Q] +

s denotes the dimension of N[AT13Q1,AT23 Q] and

(b) t denotes the dimension of . N(ΦA33—μi) U) where Φ is a matrix whose columns consist of a basis of ..N[ΦAT13, AT23) and U is a matrix whose columns consist of a basis of

/V(QTA 13 )n ⋂(QTA23),then μi is an eigen value of A of multiplicity s+t .

## CONCLUSION

We have seen that the gap and vanquish strategy that has been so effectively connected to other framework issues can miss the mark when reached out to the non symmetric eigen value issue. The speed and exactness of different strategies depend to a great extent on the accessibility of a quick and all around merged root-discoverer and on title predominance and simplicity of flattening. In any case, there has all the earmarks of being no equal root-discoverer for the non-symmetric case, also, emptying of the non-symmetric issue may not be as beneficial as in the symmetric case. Moreover, on the off chance that it is important to register the left eigenvectors from the privilege eigenvectors to look after precision, the eigenvector calculation may turn into wasteful, particularly in parallel.

The most serious risk with the gap and vanquish strategy, however, lies in its potential flimsiness. Regardless of whether the first framework is well-adapted as for the "eigen problem, an ili-molded sub matrix can be made at any degree of refreshing.

Hence, even little mistakes presented by tearing, flattening, or refreshing can prompt enormous blunders in the processed eigen composition. Since the first network is never used in the refreshing strategy, there is no chance to address a mistake presented by an poorly molded sub matrix. Two separation and vanquish strategies that utilize the lattice unique network 7' in the refreshing strategy and seem to beat poor middle of the road results are talked about.

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# Preparation of Proposal Development Plan of Hansi Town, Haryana using Remote Sensing &Geo-Informatics Technique

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## ABSTRACT
Curent Study describes the methodology for preparation of Development Plan for Hansi town for the year 2031 A.D. using geo-referenced Satellite data. Thematic database consisted of urban information, such as District Boundary, Controlled Area Boundary, Municipal Committee Boundary (old and extended), Village Abadi, Road, Railway, greenbelt, Land use & Landover etc. were digitized and geo-referenced. These are required for further analysis to develop and customize complete urban information system for administrators and planners.
The present study demonstrates the status, scope, need, methodology and outcome of the thematic mapping for the purpose of urban Planning of Hansi town of Haryana. For this high resolution Word-View data for the year 2012 was interpreted and analyzed.
Generation of urban planning thematic layers database is accomplished through a series of procedural steps. Basically the methodology comprised of the functional components like data acquisition, data processing and integration, developing of a classification scheme, field verification, and preparation of Master Plan.
The output was generated based on the design standards and template of development. Development Plan is a detailed plan for a Zone conceived and prepared within the framework of a Master Plan containing proposal for various land used, roads, park and open space, community facilities, services and public utilities etc. The output was generated based on the planning boundaries of the town. These development plan maps are very useful for development of urban area and management at district level.

**Keywords:** Geo-referenced, Controlled Area Boundary, Village Abadi, Management, Word-view.

## 1. INTRODUCTION
Current Study describes the methodology for preparation of Development Plan for Hansi town for the year 2021 A.D. using geo-referenced Satellite data. Thematic database consisted of urban information, such as District Boundary, Controlled Area Boundary, M.C. Boundary (old and extended), Village Abadi, Road, Railway, greenbelt
etc. were digitized and geo-referenced. A Master Plan is a blueprint for the future. It is a comparative document, long range in its view that is intended to guide development in the township for next 10 to 15 years.
The development plan sets public policies regarding growth and development. The information and concept present in the development plan are intended to guide local decision on public and private uses of land, as well as the provision of public facilities.

### 1.1 Objective
Here under this project have taken the Hansi Town of Hisar District of Haryana State for fulfill the following conditions:-
To access the Development Plan's Parameter with the help of Geo-Spatial data and GIS based Information System.

To integrate conventional data sources to develop GIS data bases. To analyze the area of under- development & making planning for better facilities and development.

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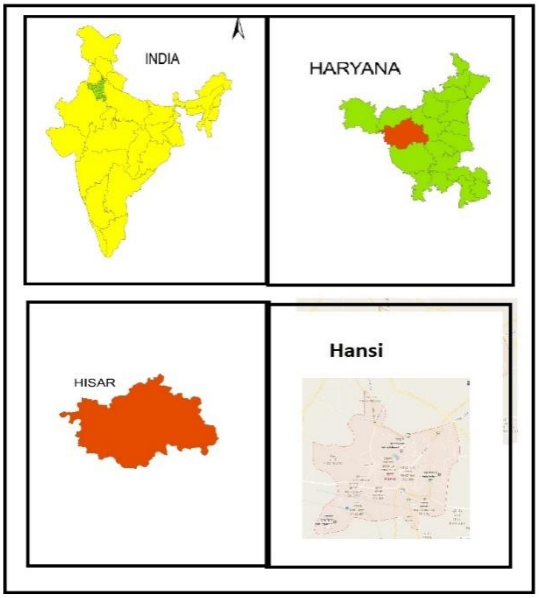
The present study demonstrates the status, scope, need, methodology and outcome ofthe **t**hematic mapping for the purpose of urban Planning of Hansi town of Haryana. For this high resolution Word-View data for the year 2012 was interpreted and analyzed.

## 2. STUDY AREA:-

He use of the study is to shows the use of GIS technology in planning of Hansi Town. He present work is the Development Plan for Hansi of Haryana Towns Haryana State Location and Extent of Haryana State lies between 29.0973° N, 75.9638° E. The total area of the state is 890 Sq. Km. With the help of this technology different land use and land cover patterns have been categorized namely; built up areas, agriculture land, waste land, forest, open spaces, water bodies and transportation etc. The use of this technology saves money, time and gives the result with more accuracy by updating database from time to time.

In the present study the whole procedure of thematic mapping is done in person Geo-database in Arc GIS 10.5,10.6 software. Following steps were involved in the digitization and preparation of Land use/Land cover mapping. There is a General Civil Hospital ,Private Hospital & Education College , School runs.




## 3. DATABASE REQUIREMENTS

### 3.1 Remote sensing data

The satellite Data consist of high resolution Word-view. (0.5 meter) has to be used. The satellite data belongs to 2012. The database is making by different types of scan maps and satellite images. The satellite image is base image and other scan maps are rectified by map to image technique in the ARC GIS 10.5.10.6. There are so many kinds of maps use in the project like cadastral maps called (Musabi) and ( Master plan) Master Plan is a tool to guide and manage the growth of cities in a planned manner of different Townss. All maps are rectified by satellite images.

### 3.2Proposal Development plan:-

The Project area generally confirm to the municipal limits, whereas the urban sable boundaries follow the town/City municipal boundary or the proposal Development Plan boundary & maps.

### 3.3Ground Truth Data:-

Ground truth data collected from the field/site from an important source of information for verification, augmentation and accuracy estimation/validation of thematic details mapped from

satellite imagery. It is vital for quality assessment and evaluation of the spatial information derived from satellite data.

## 4. METHODOLOGY:

Digital image analysis was carried out through study on windows platform using Geomantic and ARC/MAP software packages. In the first step all the shape files are created using Arc Info on Worldview-2 satellite image .All information related to shape file is stored in attribute table of the shape file. Four shape files were created for this research work which included Colony boundary, Major Landmarks Municipal Corporation or municipal Council & Committee, road network and urban land use/cover.

Generation of Urban planning Thematic layers database is accomplished through a series of procedural steps. The methodology used in the preparation of land use/land cover map of the study area is shown in figure**.** Basically the methodology comprises of the following functional components:

**1)** Data Acquisition
**2)** Data processing and integration
3) Developing of a classification scheme
4) Initial Land use/Land cover mapping of Proposal area
5) Field Verification
6) Land use/Land covers Maps Modification
7) Preparation of Development plan.

Collection of Development maps and done Scanning & Digitization of maps. Proposal Development plan of the study area were collected from the Town & Country Planning Department of Hisar , Haryana.

Development plan scanned at 300 DPI color mode. Scanned images are stored in tiff / img format.

## 5. RESULTS: -

In the present study the whole procedure of thematic mapping is done in person Geo-database in Arc GIS 10.5,10.6 software. Following steps were involved in the digitization and preparation of Land use/Land cover mapping. Preparation of Base Map incorporates physical features, topography, drainage pattern, water bodies, power lines, road network, rail, forest area, settlement areas, etc using images, existing land use may be superimposed on the base map in terms of various thematic layers.

Existing land use plan showing various broad land uses in a scale of 1:10,000 such as residential, commercial, industrial, public & semi-public uses, recreational (parks & playgrounds, open spaces, vacant land, land under agriculture, water bodies, utilities & services facilities, circulation system, conservation areas, special areas, committed land uses.

### 5.1 ACCESS THE PROPOSAL DEVELOPMENT PLAN PARAMETER:-

The present study "Preparation of Master Plan of Hansi Town Using Geo-Informatics Approach" clearly demonstrates the importation and role of GIS based information system and potentialities of satellite Remote Sensing technique for preparation of more updated and reliable information.

- The broad contents of the data required for urban planning may be:
- Residential Area
- Commercial Area
- Industrial Area
- Public & Semipublic Area
- Public Utility & Facility Area

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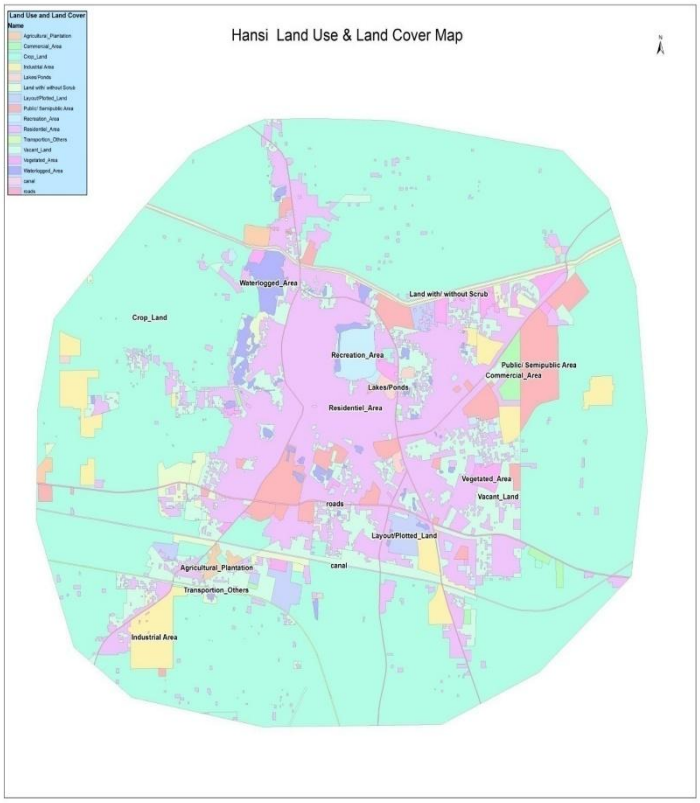
- Open Spaces
- Transport & Communication Area
- Agricultural Area

(According to Town & Country Planning Department)




**Land use and Land cover of Existing Land:-**

**Distribution of Total Geo-graphic Area**

| Sr. No. | Thematic Layers (Polygon Feature) | Area in Acres | Area in (%age) of TGA |
|---|---|---|---|
| 1 | Residential Area | 1410 | 42.8 |
| 2 | Commercial Area | 150 | 4.5 |
| 3 | Industrial Area | 147 | 4.4 |
| 4 | Public and Semipublic | 234 | 7.1 |
| 5 | Open spaces, Vacant Land (Sports grounds stadium, playground, park, green belt) | 1262 | 38 |
| 6 | Transport & Communications (Road transport depots, and parking areas) | 66 | 2 |
| 7 | Agriculture Land | 25 | .75 |
| | **Total** | 3294 | 100% |

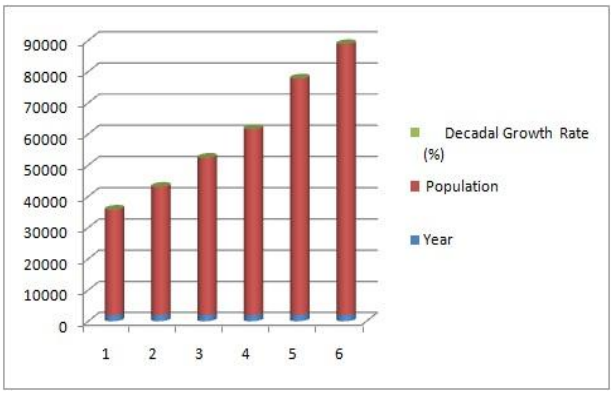
**5.2 Population Graph of Hansi Town:-**

The population projection and the development plan proposals have been made keeping in view the overall trend of population growth, the overall spurt in urbanization leading to increased housing

demand during the last five years period and the strategic location of this town almost mid-way between Delhi . The growth of population in town Hansi over the last four decades may be summarized as follows:

| Year | Hansi Town | | |
|---|---|---|---|
| | Population | Increasing Population | Decadal Growth Rate (%) |
| 1961 | 33,712 | 7875 | 30.4 |
| 1971 | 41,076 | 7364 | 21.8 |
| 1981 | 50,365 | 9289 | 22.6 |
| 1991 | 59,563 | 9198 | 18.2 |
| 2001 | 75,747 | 16,184 | 27.1 |
| 2011 | 86,770 | 11,023 | 14.5 |

Source: Census of India




| Year | 1961 | 1971 | 1981 | 1991 | 2001 | 2011 |
|---|---|---|---|---|---|---|
| Population | 33,712 | 41,076 | 50,365 | 59,563 | 75,747 | 86,770 |
| Growth Rate | 30.4 | 21.8 | 22.6 | 18.2 | 27.1 | 14.5 |

Population Graph of Last 6 Decades Of Hansi

**5.3 Projected Population of Next Two Decades:-**

The population projection for 2011-2031 hasbeen made by adopting a high decadal growth rate of 60% on account of the following factors:

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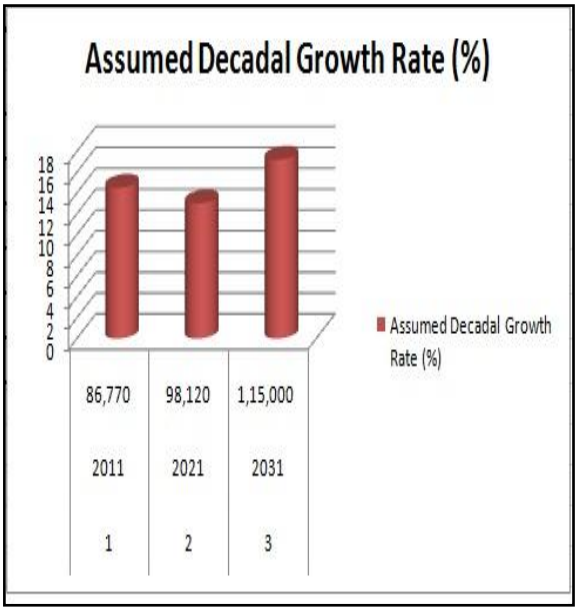
i) The huge development potential available to this town as a 'Highway Tourism Destination' on account of its ideal location on the National Highway-10 at almost mid-way between Hisar and Delhi.

ii) The present dependence of the working class in this twin town, for residential accommodation, on Bhiwani and Hisar due to lack of existence of any formal housing market, which is likely to get a big boost with the development plan proposals.

iii) Keeping into account the factors indicated above, the following population projection has been made for the preparation of the master plan proposals:

**Population of Next Three Decades**

| Sr. No | Perspective Year | Population | Assumed Decadal Growth Rate (%) |
|---|---|---|---|
| 1. | 2011 | 86,770 (existing) | 14.5 |
| 2. | 2021 | 98,120 (projected) | 13.0 |
| 3 | 2031 | 1,15,000 (projected) | 17.2 |



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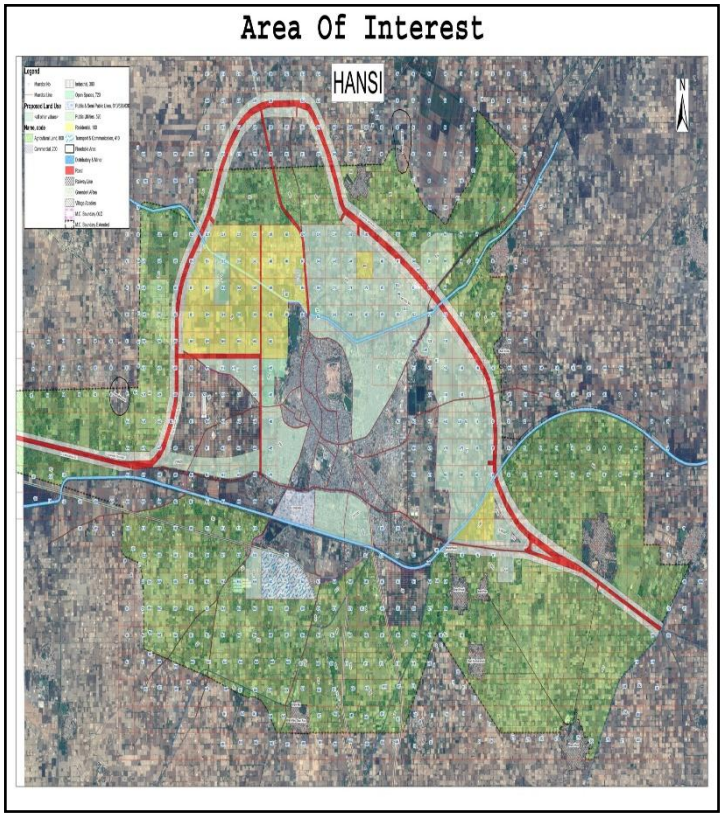
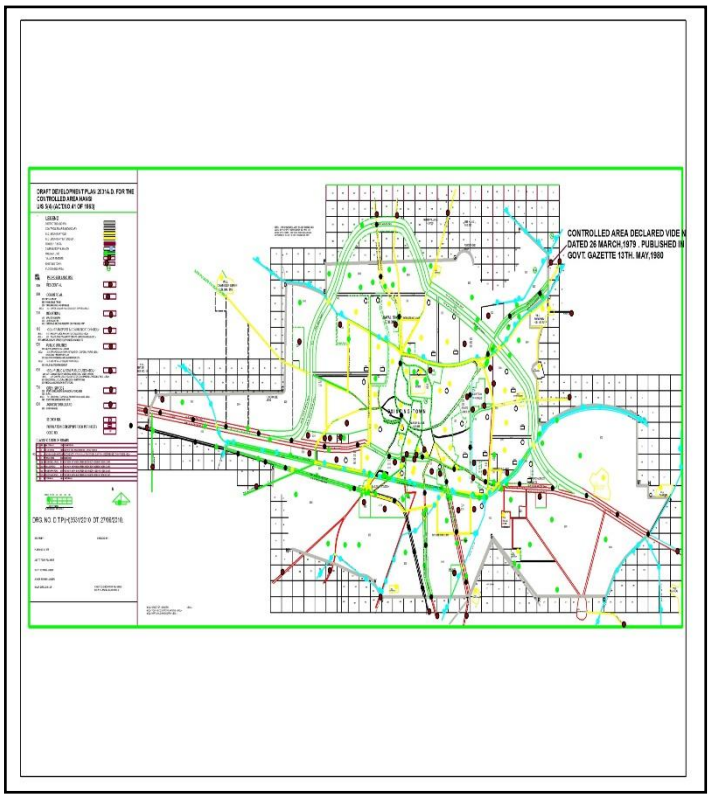
**Proposed Development Plan Map of Hansi Town 2031**




**Proposed Development Plan Map of Hansi Town Landuse and Land cover 2031**



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**5.4 Projected Hansi Town Land use and Land cover:**

The overall development plan proposes to divide the entire development plan area into sectors containing various urban land uses like Residential, Commercial, Industrial, Institutional etc. The location of these land uses has been done keeping in view the existing conditions geographical aspects, easy traffic flow and convenience to the future and present uses.

Area (in acre) of Proposed Land

| Serial Number | Land Use | Proposed Area | Percentage % |
|---|---|---|---|
| 1 | Residential | 2440 | 54.3 |
| 2 | Commercial | 200 | 4.4 |
| 3 | Industrial | 530 | 11.8 |
| 4 | Transport & Communication | 800 | 17.8 |
| 5 | Public Utilities | 235 | |
| 6 | Public & Semi Public | 80 | 5.2 |
| 7 | Open Spaces (Including green belt) | 210 | 1.8 |
| | Total | 4495 | 100 |

**CONCLUSIONS:**

The study show the importance and potentiality Satellite Remote Sensing technique for preparation of more consistent, accurate and up-to-date baseline information on urban land use for future planning, management and development of any area. The study together with satellite data incorporated with ground truth data and secondary data revealed that there are total 7 layers in altogether created in 2 Datasets of Geo-database, namely-

- Land use and Land cover of existing land
- Proposed Land use and Land cover
- In the study area the existing residential area is 1410 acre in which 86,770 Population is living here already in 2011. In the next twenty year (2031) the population may be increase approximately 1,15,000 So the need of extra area is 2440 acre .
- Geographical Information System will be used to quantify and analyze the urban growth and trends of expansion and Global Positioning System will be used to given accurate geographical location of the buildings at micro level.
- Commercial Area of about 200 acre is reserved along Delhi – Hisar road taking into consideration its central existence.
- Industrial area The land use is proposed on the basis of existing trends of industrial development. Most of the industrial (present industrial) are along Hisar and Bhiwani road and total land allocated to this use is 530 acres.

**SUGGESTIONS:-**

After the image interpretation and data analysis, we come to know that the growth of the Hansi town and it's environ is relatively lower than that of the state. Since the city surrounds an agricultural productive land so the expansion of the city urban area will be at the cost of that land. So care must be taken while it's planning. There are some factors responsible for its low urban growth, e.g.

- Slow growth of other social urban infrastructure development
- Congestion problem in the center of city
- Transport problem in the commercial area
- City is facing greenery problem.
- Built-up area is increasing between railway line and NH-10
- Agriculture land is decreasing
- Taking into consideration the above problems following recommendations can be done for the future development planning purpose.

Remote sensing is capable of extracting urban land cover information with robust results

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# A STUDY ON SCOPE & POTENTIAL OF MICE TOURISM IN RAJASTHAN

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**Abstract:**
*The travel and tourism industry has emerged as one of the largest and fastest growing economic sector globally. Tourism is a significant foreign exchange earner for the country. Medical tourism, spiritual tourism and ecotourism are some forms of tourism. Now, MICE (meetings, incentives, conferences and exhibitions) tourism is also emerging rapidly at national and international levels. The present article discusses the impact of MICE tourism in India, various factors contributing to its development, as well as major issues and challenges in the way of MICE tourism. Meetings, Incentives, Conferences and Exhibitions (MICE) is the new but rapidly growing form of business tourism. MICE constitute one of the fastest growing sectors of the tourism and hospitality industry worldwide, which caters primarily to business travellers. MICE cater to various forms of business events including conferences, conventions, exhibitions, product launches and royal weddings.*
**Key Words:** MICE (Meetings, Incentives, Conferences & Exhibitions), Impact, Growth, Development etc

## Introduction:

There are so many types of tourism and so many more types of tourists and travellers around the world. People travel for leisure, fun, adventure, to meet friends and relatives, to see different types of places, and for so many other reasons. Then there are people who are doing business, purely business, and it is for this reason they travel, they actually travel a lot: to attend meetings, to meet a client, to discuss issues with their suppliers. Going further deep, there are people who travel for business purposes and they travel specifically to attend seminars, meetings, conventions, conferences, exhibitions, events and trade shows. This is called MICE travel and it is the sub-segment of travel and tourism industry. MICE stands for Meetings, Incentives, Conferences or Conventions, and Exhibitions or Events. Meetings could be corporate or association meetings and these generally would be large scale meetings.

The term "MICE" within the context of travel is associate word form for conferences, Incentives, Conferences and Exhibitions. It refers to a specialised niche of cluster business dedicated to designing, booking and facilitating conferences, seminars and alternative events. typically cited because the conferences or events trade, MICE travel involves variety of parts. They embrace company meeting planners; conferences and convention departments of hotels, conference canters or cruise ships; food and food managers; supplying firms; personal tour operators and transfer companies; incentive houses; skilled trade organizations; business boards, business trade associations and travel-selling professionals.

Because of the organization and designing concerned (typically, years in advance); travel sellers specializing in MICE are sometimes connected with massive company agencies. Additionally notable as: conferences trade, Events trade. Meetings, incentives, conferences, and exhibitions (MICE, with the "E" typically bearing on events and therefore the "C" typically bearing on conventions) may be a sort of business within which massive

teams, sometimes planned well before, are brought along for a specific purpose. Recently, there has been associate trade trend towards victimization the term 'meetings industry' to avoid confusion from the word form. Alternative trade educators are recommending the utilization of "events industry" to be associate umbrella term for the huge scope of the meeting and events profession.

Most parts of MICE is well understood, maybe with the exception of incentives. Incentive business is sometimes undertaken as a sort of worker reward by an organization or establishment for targets met or exceeded, or employment well done. Not like the opposite sorts of MICE business, incentive business is sometimes conducted strictly for recreation, instead of skilled or education functions. MICE business sometimes includes a well-planned agenda cantered on a topic or topic, like profession trade organization, a {special interest cluster} group or associate education topic.

MICE event locations ar commonly bid on by specialized convention bureaux specially countries and cities and established for the aim of bidding on MICE activities. This method of promoting and bidding is often conducted well before of the event, typically many years, as securing major events will profit the native economy of the host town or country. Convention bureaux could provide money subsidies to draw in MICE events to their town. MICE business is thought for its intensive designing and stringent patronage.

**Importance of MICE Tourism:**

The growth of the economy & region as a whole gets a boost. It results in the betterment of infrastructure, mainly in transportation, accommodation and air services. The different events fascinate investors from other parts of the country and the world. The elements of relaxation, shopping and sightseeing are usually included in MICE trips. Hence, most MICE travellers can be converted into leisure travellers who would spend money on sightseeing and shopping. It is a fact that around 19% of delegates travel with at least one accompanying person and that 39% of them visit other areas either before or after a meeting or conference. Thus, MICE tourism is a powerful revenue earner and the foreign exchange generated goes straight to the core of the region's economy, ultimately generating income for other parts of the country. MICE events increase awareness of the host country, create employment and income, support the development of local and national industries, and help the expansion of export markets.

**Role of MICE Tourism:**

The MICE industry is so extravagant, huge, and diverse that you cannot list out all the stakeholders at one go! However, they can be broadly categorized into the following 3 domains:

*1. Infrastructural facilities:* This includes the actual location or the venue in which the meetings, or conferences, or the events are supposed to take place. The venue can be Convention Centres, Hotels, etc.

*2. Organizers:* The second and the key stakeholders are the organizers. They are the ones who manage things at the back end and make the front end look attractive.

*3. Peripheral Subcontractors:* Mega events like MICE aren't about a day or two of the main event. The field encompasses many other areas which need to be taken care of. There are many services which need to be provided either for leisure or comfort of the attendees. They are included in this domain. For example: PR, Travel Agencies, Caterers, Media, etc.

**The Size of the MICE Industry:**

Globally, the Meeting Incentives Conferences and Exhibitions industry amounts at around USD 280–300 billion. Since its inception in the 21st century, the industry is showing an

abrupt growth curve across all continents. The Asian MICE industry is a leading growth story with 38% escalation in a decade. The Asian industry alone comprises of USD 60 Billion to the Global MICE.

**Impacts of MICE on a country's economy:**

Though MICE is a lucrative deal for its stakeholders, why should a country's government support it? The answer to this question lies in the constructive impact of MICE on a country's economy:

**(i) High Revenue Generation**

MICE events have direct implications on a country's tourism. The attendees of the events from other countries or maybe just other states not only participate in the event but also indulge into tourism. Through their stay in the country, they have to arrange accommodation, leisure, food, travel, etc. This would lead to increased revenue generation for the country.

**(ii) Increase the scope of employment**

To conduct a MICE scale event is a very big thing. It not only requires a lot of resources but also a large workforce. There are tons of fields in which employment is generated due to such a large scale event.

**(iii) An increase in Foreign Direct Investment**

Such large scale business events serve as a platform where the local companies can exhibit their potential. And if done successfully, the lot of Foreign Direct Investment can be secured for the national companies.

**(iv) Storm of innovation**

MICE events are all about growth and development. That is impossible without innovation. Hence, there is a lot of exchange of ideas and knowledge which leads to the growth of companies and ultimately the country.

**(v) An industry larger than ever**

Not only the position, but the size of the industry in India is also likely to grow in the coming 10 years. With increased value of MICE events in the country, it is certain that the situation is going to change rapidly and we will be able to witness a steeply rising curve of the numbers.

**(vi) Increased usage of technology in the field**

Organizing such a MICE scale event is a big task and needs a lot of work. Recently, organizers have started using event management software for many tasks. The future of the industry in India will have a lot more inclusion of technology in organizing and managing the events.

**India on the Global MICE Map:**

Reports of 2016 indicate that the Indian MICE industry is estimated at USD 1.3 Billion. Talking about the Global position of MICE industry in India, the country has climbed to the 31st position on the Global MICE map from 35th the previous year. The list is led by countries like the USA, Germany, Spain, France and the UK.

**Forecast of MICE Industry in India in the next 10 years:**

The terms like World's largest democracy, one of the fastest growing economies, etc. have helped escalate the valuation of MICE in India. Since 2008, this industry is raising sky high in the country. With this escalation, following things can be predicted about the future of MICE in India.

**MICE in India:**

India isn't only one of the world's oldest civilizations, it's additionally the world's largest democracy, and has created large progress among developing nations.

India's spectacular sort of history and culture, from the traditional Gangetic Kingdoms to the current state, harmoniously mix to create a singular atmosphere in over 1,000,000 sq. Kilometres of scenic sights.

A continent-sized country, Republic of India possesses an incredible wealth of sights and sounds, tastes and textures. From a bustling cosmopolitan city to the quiet countryside, hill station or a beach resort, India has destinations, which offer a backdrop of unmatched beauty for a business meet.

You will realize a desirable amalgam of tradition & culture, beauty & nature, vogue &splendour, warmth, feelings & courtesies, comfort & convenience virtually everything the modern conference organizer or delegate could expect. Conferences here bring recent that means of the conception of mixing work with pleasure.

Amidst the unnumbered ways in which Republic of India will capture world attention as a holidaymaker paradise, there additionally exists a dynamic business chance as a splendid venue for international conferences and conventions of no less than global standards.

India is beyond any doubt a singular Conference Destination because it offers cultural and heritage sites, the exotic and mystical, wonderful facilities of beach and journey holidays which may be combined as pre and post conference tours. Enchanting India's image as a conference destination is additionally projected through the chains of hotels, providing international standards in facilities and services. Exclusive business hotels and exotic resorts, with meeting rooms of distinction, spacious convention facilities, modern business centers and a wide range of conference facilities, the different cities and places across the length and breadth of the country. India is in a continual process of upgrading its MICE (Meetings, Incentives, Conferences & Exhibitions) facilities.

There are multiple plans on the anvil for more world-class convention canters, airports that contest with the best in the world and efforts to team the famous Indian hospitality with customisation as per a visitor's requirement. You could additionally provide the credit to the planet category incentive programs, her ability to heal spiritually, her unmatched giving as a health destination or frequently improved infrastructure facilities that over twenty five million foreign tourists crowded her this year generating over USA $200 billion as revenue, even as most other preferred hotspots marked a decline in their tourist graphs.

**The Infrastructure** India provides an impressive combination of accommodation and other conference support facilities to hold a successful Conference. To mention a few; VigyanBhawan in national capital, Centre purpose, Renaissance edifice and Convention Centre in Mumbai, the BM Birla Science and Technology Centre in Jaipur, the Jaypee Hotels & International Convention Centre, Agra and the Cochin Convention Centre, Kochi etc. together with facilities within the business hotels and resorts at varied canter's within the country.

India is going the global way and MICE is fast becoming a major part of its travel and promotional budgets. In the Indian context, incentives is at present the largest component of MICE but in a touring market, it's only a matter of time before the entire gamut of MICE activities square measure undertaken by the Indian company world. With the enlargement within the network of airlines operation on the domestic routes, better tourist surface transport systems including the Indian Railways, new centres of information technology, many new convention centres, hotels and meeting facilities, India is now an important MICE destination.

The Indian sub-continent is emerging as one of the finest Incentive destinations in the world owing to the diverse culture and geography. From the icy mountain range to the tropical islands and from citadels within the desert to abundant jungles it's a world in itself.

With the emergence of exciting new destinations once a year one has alone selections for the inducement operator here. The incentive programmes square measure a mixture of recent world charm and tradition latticed with trendy cosmopolitan sophistication.

Today, there square measure distinct travel divisions among tour firms and airlines that solely target MICE movement. Destinations have additionally begun to plug MICE product to specialised agencies and also the company world at massive. The business of MICE holds huge potential for any country. It is calculable that someone motion to a rustic for a conference or convention spends anyplace four to eight times quite a traditional leisure soul. They pay additional on food, additional on business centre services.

India is globally connected to a network of over fifty international airlines and a number of other domestic airlines, which provide convenient connectivity within India. Added to the present is an elaborate network of surface transportation. There is a superb railroad running through the whole country. All-important cities square measure connected with progressive 'Shatabdi&Rajdhani' specific trains. Special trains like Palace on Wheels and Royal Orient specific, comprising of air-conditioned saloons decorated in the old Maharaja Style offer guests a chance to stay on the train and visit colourful Rajasthan and fascinating Gujarat.

An excellent network of roads, national and state highways, luxury coaches, Indian & foreign-made vehicles add to the convenience and comfort of surface travel. And, to feature to the present, India offers an educated manpower base where fluency in English and other official international languages can be expected. A large range of Convention Centres are available in Republic of India with a roominess of up to 1700 persons.

The vital conference centres within the country square measure at national capital, Mumbai, Agra, Bangalore, Chennai, Cochin, Goa, Hyderabad, Jaipur. Some important hotel chains like the Taj Group, ITC-Welcome Group, the Oberoi's, Meridien Hotels, Marriott Hotels etc. also have excellent conference facilities. The exhibition industry has also gained fresh impetus with exhibition centres like PragatiMaidan in New Delhi, the Nehru Centre in Mumbai and the Chennai Trade Centre in Chennai amongst several other options.

**Facilities available at all the Recommended Venues:**

- Convention Centers, Conference & Banquet Halls.
- Exhibition Centers.
- Auditoriums & Stadiums for hosting opening/closing ceremonies & other events.
- Accommodation in good 5-star and 4-star hotels.
- Restaurants & Bars.
- Recreation activities like Golf Course, Yoga & Ayurveda Centre, Discotheque, Sports like Tennis, Squash, Badminton, Health Club with Spa facilities.
- Easy accessibility in terms of domestic and international flights.

**An escalated rank on the global MICE**:

Currently, India is at the 31st position on the Global MICE map. But with the developing infrastructure and profitable business policies, it is highly possible that the Indian MICE will surpass other countries to reserve a higher position globally.

**Future of the MICE Industry:**

The prospects for the MICE industry are looking very bright. Indeed the changing trends are clearly indicating that this sector is making a steady comeback as the world economy has started picking up. With the economy improving, there is once again a renewed demand for exhibitions, meetings and events to showcase latest products or for brainstorming sessions or simply for attracting clients. Countries are promoting themselves

as MICE venues to attract event organizers. Travel companies are offering specialized MICE services and activities.

**Conclusion:**

India is spreading its muscles in the MICE sector both as a market (domestic and outbound) and as a destination (inbound). The MICE market of is growing rapidly with a booming domestic sector, and a terrific outbound traffic. At same time, with the country's continuous efforts to increase its inbound corporate travel, hotels and convention centres are witnessing gigantic expansion programmes to make India into a leading corporate meetings destination and hub. While foreign NTOs aremaking an very aggressive bid for the Indian MICE traffic, Indian state tourism boards, venues, hotel chains and MICE operators are also not too far behind in growth plans to capture MICE is the buzzword for tourism development today. It is something that every destination is trying to develop.

Almost each country within the world has recognised the importance of MICE monetarily likewise as impact wise. MICE generate a substantial quantity of revenue that stands over standard business. It is additionally seen that relatively MICE leaves lesser impacts on the hosts and also the host destination than associate each touristic activity. In this regard almost every country in the world is trying to project itself as a destination that can give the business travellers the best. More and more countries are trying to hold exhibitions and events the year round to offset the seasonality of tourism. In this way MICE is an activity that every country should try and develop in order to generate revenue the year round and leave lesser impacts.

India includes a immense potential for MICE business, the only thing is to promote and develop its MICE destinations. the maximum share. In my point of view the Indian MICE industry is now providing seamless opportunities for knowledge exchange, globalization & accelerates nongovernmental diplomacy. In such kind of events people tends to spend 20 to 30 percent times more than they spend on average travelling. The key players for the MICE industry in India are – food and beverage, medical, pharmacy, media and infrastructure.

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# A STUDY ON SCOPE & POTENTIAL OF MICE TOURISM IN RAJASTHAN

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**Abstract:**
*The travel and tourism industry has emerged as one of the largest and fastest growing economic sector globally. Tourism is a significant foreign exchange earner for the country. Medical tourism, spiritual tourism and ecotourism are some forms of tourism. Now, MICE (meetings, incentives, conferences and exhibitions) tourism is also emerging rapidly at national and international levels. The present article discusses the impact of MICE tourism in India, various factors contributing to its development, as well as major issues and challenges in the way of MICE tourism. Meetings, Incentives, Conferences and Exhibitions (MICE) is the new but rapidly growing form of business tourism. MICE constitute one of the fastest growing sectors of the tourism and hospitality industry worldwide, which caters primarily to business travellers. MICE cater to various forms of business events including conferences, conventions, exhibitions, product launches and royal weddings.*

**Key Words:** MICE (Meetings, Incentives, Conferences & Exhibitions), Impact, Growth, Development etc

## Introduction:

There are so many types of tourism and so many more types of tourists and travellers around the world. People travel for leisure, fun, adventure, to meet friends and relatives, to see different types of places, and for so many other reasons. Then there are people who are doing business, purely business, and it is for this reason they travel, they actually travel a lot: to attend meetings, to meet a client, to discuss issues with their suppliers. Going further deep, there are people who travel for business purposes and they travel specifically to attend seminars, meetings, conventions, conferences, exhibitions, events and trade shows. This is called MICE travel and it is the sub-segment of travel and tourism industry. MICE stands for Meetings, Incentives, Conferences or Conventions, and Exhibitions or Events. Meetings could be corporate or association meetings and these generally would be large scale meetings.

The term "MICE" within the context of travel is associate word form for conferences, Incentives, Conferences and Exhibitions. It refers to a specialised niche of cluster business dedicated to designing, booking and facilitating conferences, seminars and alternative events. typically cited because the conferences or events trade, MICE travel involves variety of parts. They embrace company meeting planners; conferences and convention departments of hotels, conference canters or cruise ships; food and food managers; supplying firms; personal tour operators and transfer companies; incentive houses; skilled

trade organizations; business boards, business trade associations and travel-selling professionals.

Because of the organization and designing concerned (typically, years in advance); travel sellers specializing in MICE are sometimes connected with massive company agencies. Additionally notable as: conferences trade, Events trade. Meetings, incentives, conferences, and exhibitions (MICE, with the "E" typically bearing on events and therefore the "C" typically bearing on conventions) may be a sort of business within which massive teams, sometimes planned well before, are brought along for a specific purpose. Recently, there has been associate trade trend towards victimization the term 'meetings industry' to avoid confusion from the word form. Alternative trade educators are recommending the utilization of "events industry" to be associate umbrella term for the huge scope of the meeting and events profession.

Most parts of MICE is well understood, maybe with the exception of incentives. Incentive business is sometimes undertaken as a sort of worker reward by an organization or establishment for targets met or exceeded, or employment well done. Not like the opposite sorts of MICE business, incentive business is sometimes conducted strictly for recreation, instead of skilled or education functions. MICE business sometimes includes a well-planned agenda cantered on a topic or topic, like profession trade organization, a {special interest cluster} group or associate education topic.

MICE event locations ar commonly bid on by specialized convention bureaux specially countries and cities and established for the aim of bidding on MICE activities. This method of promoting and bidding is often conducted well before of the event, typically many years, as securing major events will profit the native economy of the host town or country. Convention bureaux could provide money subsidies to draw in MICE events to their town. MICE business is thought for its intensive designing and stringent patronage.

**Importance of MICE Tourism:**

The growth of the economy & region as a whole gets a boost. It results in the betterment of infrastructure, mainly in transportation, accommodation and air services. The different events fascinate investors from other parts of the country and the world. The elements of relaxation, shopping and sightseeing are usually included in MICE trips. Hence, most MICE travellers can be converted into leisure travellers who would spend money on sightseeing and shopping. It is a fact that around 19% of delegates travel with at least one accompanying person and that 39% of them visit other areas either before or after a meeting or conference. Thus, MICE tourism is a powerful revenue earner and the foreign exchange generated goes straight to the core of the region's economy, ultimately generating income for other parts of the country. MICE events increase awareness of the host country, create employment and income, support the development of local and national industries, and help the expansion of export markets.

**Role of MICE Tourism:**

The MICE industry is so extravagant, huge, and diverse that you cannot list out all the stakeholders at one go! However, they can be broadly categorized into the following 3 domains:

*1. Infrastructural facilities:* This includes the actual location or the venue in which the meetings, or conferences, or the events are supposed to take place. The venue can be Convention Centres, Hotels, etc.

*2. Organizers:* The second and the key stakeholders are the organizers. They are the ones who manage things at the back end and make the front end look attractive.

*3. Peripheral Subcontractors:* Mega events like MICE aren't about a day or two of the main event. The field encompasses many other areas which need to be taken care of. There are many services which need to be provided either for leisure or comfort of the attendees. They are included in this domain. For example: PR, Travel Agencies, Caterers, Media, etc.

**The Size of the MICE Industry:**

Globally, the Meeting Incentives Conferences and Exhibitions industry amounts at around USD 280–300 billion. Since its inception in the 21st century, the industry is showing an abrupt growth curve across all continents. The Asian MICE industry is a leading growth story with 38% escalation in a decade. The Asian industry alone comprises of USD 60 Billion to the Global MICE.

**Impacts of MICE on a country's economy:**

Though MICE is a lucrative deal for its stakeholders, why should a country's government support it? The answer to this question lies in the constructive impact of MICE on a country's economy:

**(i) High Revenue Generation**

MICE events have direct implications on a country's tourism. The attendees of the events from other countries or maybe just other states not only participate in the event but also indulge into tourism. Through their stay in the country, they have to arrange accommodation, leisure, food, travel, etc. This would lead to increased revenue generation for the country.

**(ii) Increase the scope of employment**

To conduct a MICE scale event is a very big thing. It not only requires a lot of resources but also a large workforce. There are tons of fields in which employment is generated due to such a large scale event.

**(iii) An increase in Foreign Direct Investment**

Such large scale business events serve as a platform where the local companies can exhibit their potential. And if done successfully, the lot of Foreign Direct Investment can be secured for the national companies.

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MICE events are all about growth and development. That is impossible without innovation. Hence, there is a lot of exchange of ideas and knowledge which leads to the growth of companies and ultimately the country.

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Reports of 2016 indicate that the Indian MICE industry is estimated at USD 1.3 Billion. Talking about the Global position of MICE industry in India, the country has climbed to the 31st position on the Global MICE map from 35th the previous year. The list is led by countries like the USA, Germany, Spain, France and the UK.

**Forecast of MICE Industry in India in the next 10 years:**

The terms like World's largest democracy, one of the fastest growing economies, etc. have helped escalate the valuation of MICE in India. Since 2008, this industry is raising sky high in the country. With this escalation, following things can be predicted about the future of MICE in India.

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**An escalated rank on the global MICE**:

Currently, India is at the 31st position on the Global MICE map. But with the developing infrastructure and profitable business policies, it is highly possible that the Indian MICE will surpass other countries to reserve a higher position globally.

**Future of the MICE Industry:**

The prospects for the MICE industry are looking very bright. Indeed the changing trends are clearly indicating that this sector is making a steady comeback as the world economy has started picking up. With the economy improving, there is once again a renewed demand for exhibitions, meetings and events to showcase latest products or for brainstorming sessions or simply for attracting clients. Countries are promoting themselves as MICE venues to attract event organizers. Travel companies are offering specialized MICE services and activities.

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# The Study of Impact of Fringe Benefits on Employee in Indian Industries

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**Abstract:**

Employee remuneration comprises both direct and indirect elements. In the Industrial organization employees are getting several benefits. During the world war II certain non-monetary benefits were extended to the employees as means of neutralizing the effect of inflationary conditions. These benefits includes housing, health, education, recreation, credit, canteen etc., have been increased from time to time as a result of the demands and pressures from trade unions. It has been recognized that these benefits help employees in meeting some of their life contingencies and meet the social the social obligations of employees. Employees benefits and services include any benefits that the employee received in addition to direct remuneration. Finally this research article objects that searching Impact of Fringe Benefit on Employee in India and understand the concept, objective and various type of fringe benefit.

**Keywords :** Fringe Benefit, Remuneration, Employment Security.

## Introduction:

The purpose of Fringe Benefit and services is to retain people in the organization and not to stimulate them to greater effort and higher performances. They foster loyalty act as a security for the worker. It is a means in the direction of ensuring , maintaining and increasing the income of the employee. It is a supplement to a workers ordinary wages, which is a greater value to them and their family members.

**According to the employees Federation of India**, "fringe benefit include payments for nonworking time, the profits and bonus, legally sanctioned payments on social security schemes,workmen's compensation, welfare cost and the contribution made by employers under such voluntary schemes as cater for the post refinement, medical, educational, cultural and recreational needs of workmen. The terms also includes the monetary equivalent of free lighting , water, fuel etc. which are provided for worker and subsidized housing and related services".

**The ILO described** fringe benefits as 'wages are often augmented by special cash benefits by the provision of medical and other services or by payments in kind, that forms part of the wage for expenditure on the goals and services. In addition, workers commonly receives such benefits as holidays with pay, low cost meals, low rent housing etc. Such additions to the wage are sometimes referred to as fringe benefits. Benefits that have no relation to employment or wages should not be regarded as fringe benefits even though they may constitute a significant part of the workers total income.

**According to cockman,** "those benefits which are supplied by an employer to or for the benefits of an employee and which are not in the form of wages, salaries and time rated payments."

## Objectives of Research:

- To understand the concept of Fringe benefits.
- To searching causes of Fringe Benefits given in Indian Industries.
- To know theImpact of Fringe Benefit on Employee in India.
- To searching the types of Fringe Benefit.

**Types of Fringe Benefit :**

**(1) Premium payment :** It is paid for the time a worker has worked such as payment on daily
or weekly basis, holidays, overtime, pay, shift differentials, the cost of living bonus, bonus in lieu of vacation.

**(2) Payment for special duties :** Such as working on assignments like grievances, redressed procedure, labor contract, negotiations.

**(3) Payment for health and security benefits :** It includes retirement plans, accident and sickness insurance, social security payments, saving plans, profit sharing plans, group life insurance, supplemental employment benefits, medical surgical and hospital insurance, disability insurance, old age and survivor insurance, unemployment compensation, payments under the workmen compensation Act.

**(4) Payment for time not worked :** In includes payment for sick leave, under medical care, for holidays, vacations, witness time, voting time, excused absence, lunch periods, rest periods, work up time, reporting day, severance pay, for call in time, call back time, dressing time, portal
to, portal time and wet time.

**(5) Payment for employee services :** Includes cafeteria, subsidies, union credit, house financing, parking space operations etc.

**(6) Other expenditure :** Such as incurred on making Christmas gift, offering Christmas bonusexpenditure on educational reimbursements, employee uniforms, work clothes, safety equipmentor allowances, laundry allowance, supper money or meal allowances. Dale Yoder and Paul DStandohar classified fringe benefit as under :

**(1) Employment security :** Under employment security fringe benefit such as unemploymentinsurance, technological adjustment pay leave, travel pay, overtime pay, leave for negotiating,leave for maternity, leave for grievances, holidays, cost of living bonus, call back pay, lay off pay, retiring rooms, jobs to sons or daughters of the employees so on given to the employees.

**(2) Health protection :** " Health is wealth ". For health protection of the employees benefits
given such as accidents, insurance, disability, insurance, health insurance, hospitalization, lifeinsurance, medical care, sick benefits sick leave etc.

**(3) Old age and retirement benefits :** It includes deferred income plans pension, gratuity, provident fund, old age assistance, old age counseling and traveling, medical benefits, concession for retired employees, jobs to sons or daughters of the deceased employee and so on.

**(4) Benefits for personnel identification, participation and stimulation :** It covers the benefit schemes anniversary awards, attendance, bonus canteen, cooperative credit societies, educational facilities, housing income tax aid, beauty parlor services, counseling,

quality bonus, recreational programs, stress counseling, safety measures etc. Cockman has made a twofold classification of fringe benefits

**(1) Those which are offered on the basis of status :** It includes car, entertainment facilities,
holiday, foreign travel, telephone, security insurance and medical benefits, children educationalfacilities and work benefits, company scholarships, office accommodation, secretarial services,management training and so on.

**(2) Those which are key benefits :** it includes share schemes, profit sharing, retirement benefits, counseling services, house purchase facilities. On the basis of their identification, they are classified as under :

**A) Employee security payments :** These includes the following :
1) Employees contribution stipulated in legal enactments, old age, survivor disability, health and unemployment insurance.
2) Payments under the workman's compensation Act.
3) Supplemental unemployment benefits.
4) Accident insurance
5) Pensions
6) Contribution to savings plan and health and welfare funds.

**B) Payment for Time not worked :** This includes call back and call in pay., clean up time, health in the leave, family allowance, holiday pay, layoff pay, medical time, paid lunch periods,portal to portal time, pay for religious holidays, reporting pay, pay for rest periods, severance pay, paid sick leave, payment for time spent on collective bargaining and on the redressed of grievance, vacation pay, pay for the time spent for evidence in a court of law or other statutory bodies, payment for the time spent on casting ones vote at election time, educational leave, insurance for life, health and accident may be for individual or for the group.

**C) Bonus and awards :** These includes financial amenities and advantages as holiday,
overtime and shift premiums, attendance bonus, Diwali bonus, bonus for good quality workmanship, safety awards, profit sharing bonus and service bonus, suggestion awards, waste elimination bonus, yearend bonus.

**Objectives of Fringe Benefit:**

The following are important objectives of fringe benefits.
(1) To establish and improve sound industrial relations.
(2) Fostering external competitiveness.
(3) To enhance employee morale.
(4) Increasing cost effectiveness.
(5) To motivate the employees by identifying and satisfying their varied needs.
(6) Meeting individual employees needs and preferences.
(7) To provide qualitative work environment and work life.
(8) To provide security to the employees against social risks like old age benefits and maternity benefits.
(9) To provide safety measures to employees against accidents.
(10) To provide welfare measure to promote employees welfare and well beings.
(11) To retain the employees in the organization.
(12) To comply or to meet requirements of various legislations relating to fringe benefits.

The benefits should be compatible in terms of money. The amount of benefit is not generally
predetermined and there is no contract when the sum is payable.

**Fringe Benefits Offered in India:**

Fringe Benefits given in India is broadly classified as follows
1) Payment for time not worked
2) Employee security
3) Safety and health
4) Welfare recreational facilities
5) Old age and retirement benefits
All these benefits are indicated in the above chart as under which is self -explanatory.

**Legal Aid :** It includes assistance or aid regarding legal matters to employees as and when necessary through company lawyers or other lawyers.

**Employee counseling :** Under this organization provides counseling service to the employee regarding their personal problems through professional counselors. It helps in reducing absenteeism, turnover, tardiness.

**Welfare organizations welfare officers :** Large scale organization set up welfare organizationsto provide all types of welfare facilities at one center and appointed welfare officers to provide the welfare benefits continuously, effectively and fairly to all the employees.

**Miscellaneous :** This includes organizing sports with awards, setting up of clubs, communityservices activities, Christmas gifts, Diwali, Pongal and pooja gifts, birthday gifts, leave travel,concession and awards, productivity performance awards etc.

**Provident Fund :** The employees provident fund, family pension fund and Deposit Linked Insurance Act 1952 provides for the institution of provident fund for employees in factories andestablishments. The act aims at to provide monetary assistance to employees and their dependents during post retirement life. Both the employee and employer contributes to this fund.
**Deposit Linked Insurance :** This scheme was introduced in 1976 under the Provident Fund Act 1952. Under this scheme if a member of the employees provident fund dies while in service, his dependents will be paid an additional amount equal to the average balancing during the last three years in his account. The amount should not be less than Rs. 1000 and the maximum amount of benefit Payable under the deposit linked insurance Rs. 10,000/- .

**Gratuity :** This retirement benefit is to be provided to an employee either on retirement or at the time of physical disability and to the dependents of the deceased employee. gratuity is a reward to an employee for his long service with his present employer.

**Impact of Fringe Benefit on Employee in IndianOrganization :**

The business organization have been extending the fringe benefits to their employees yearafter year for the. A variety of fringe benefits are demanded by the employees rather than pay hike. The benefits help not only to employee but to his family members also to face price index and cost of living. Moreover employees pay no income tax on these benefits and their real wages are increased. When there are more than one trade union in an organization, obviously there is competition amongst them which ultimately results in more and varied benefits to their members. If one union succeeds in getting one benefit the other union persuades management to provide a new fringe. Usually employees prefer to fringe benefits than pay hike. It definitely motivate the employees for more better and greater contribution to the organization. Hence it increase the morale of the employees. There are a number risks while working such as contingences of life like accidents and occupational diseases, therefore the employees has to provide various benefits to safeguard the employees such as safety measure, compensation in case of accidents, medical facilities etc. All these provides security to employees against a number of contingencies. Basically fringe benefits satisfy the workers economic, social and psychological needs. Therefore it becomes easy to improve human relations between employer and employees. Study after study shows that the more employee benefits a career professional receives, the happier and better they are on the job. Access to good health insurance coverage and wellness programs (like that gym membership) will have employee feeling better and doing the types of things (like working out and visiting employee doctor regularly) that will lead to a longer life expectancy. Getting fringe benefits like job training and educational assistance will give new skills that can be put to work in employee own vocation, and can lead to promotions, higher salaries, and better-paying posts down the road. If employee are fortunate enough to be given a company car, employee will not only save thousands of rupees on auto payments every year, employee will save big on vehicle insurance and maintenance, too. Companies that provide free meals or meal discounts are a boon to career professionals who love to eat well and save money. The more free meals employee consume in the workplace, the less employee are paying for breakfast, lunch or even dinner away from the job. Finally fringe benefits motivate employee and built high morale. This will increase the productivity of employee.

**Conclusion:**

Fringes embraces a broad range of benefits and services that employees receive as part of their total compensation packages pay or direct compensation is based on critical job factors and performance. Benefits and services however are indirect compensation because they are usually extended as a condition of employment and are not directly related to performance. The benefits are usually known as Fringe benefits. Different terms have been used for the benefits such as Fringe benefits, wage supplements, welfare expenses, prerequisites other than wages, sub wages or social charges, extra wages, hidden pay roll, nonwage labor cost etc. fringe benefits motivate employee and built high morale. This will increase the productivity of employee.

**Suggestions:**

The following should be considered on the governing the administration of fringe benefits.
(1) Fringe benefits and services must be provided to the employees in the protection and promotion of their wellbeing.

(2) The benefit must satisfy the real need of the employees. The benefits which they did not like may be withdrawn or cancelled.
(3) The benefits must be cost effective.
(4) The benefits must be based on sound foundation.
(5) A sound planning is must for effective administration of benefits.
(6) The wishes of the employees must be considered while deciding the types of benefits to be given to them.
(7) The employees should be educated to make the use of the benefits.

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# "Industrial Expectations from MBA Students: Some Reflection with Reference to RTM Nagpur University, Nagpur"

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**Abstract:**
Management education in RTM, Nagpur University approximately 20 years old. It is precisely designed to develop the business decision-making skills of students. Business Management education plays an important role in developing managerial as well employability skills. The courses in many MBA Institutes across country are exam driven, which aims at creating a plain student rather than its objective of imparting knowledge. The corporate require a student who can be readily absorbed into the company, without the company having the need to spend much on training on how the corporate works and the job assigned to the student after hiring. The business management education should also aim at framing the student's attitude, which should be challenge driven and adaptable.
The paper explores the gap between industry expectations from management students from RTM Nagpur University. Also the outcome of present research paper is expected to benefit academicians like, teachers and students as it will help them in understanding the creativity in Management curriculum in the context of the contemporary local and global economic scenario.

**Keywords**: Education, Management, skills, development, employability etc.

## Introduction:

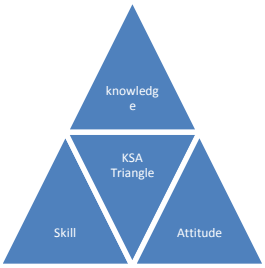
Management education is about developing the skills by sharpening their business insight under the controlled environment. Industries take advantage of on these skill sets that are sharpen in a business management school and add their experiences to shape the future managers. Students perceive business management education as a golden corridor towards a white collar job. But the question arises, that whether this business management education concept fulfills the industry requirements. Because of Globalization there is an opportunity to participate in world market, but it also poses huge challenge of competition from global brands in domestic market.
With the growing of MBA institutes, there has been an exceptional increase in the number of graduating MBAs. The challenge of MBA today is not only to excel in the theoretical framework but the attitude that separates them from the crowd.

## Academic Focus of Management Education:

MBA education in India was a luxury earlier and necessity today. Education is pursued for the reason of learning and broadening ones intellectual horizons. A graduate degree provides a well-rounded and broad reaching education, but a master's degree involves moving up the career steps into the empire of higher level of knowledge which encourages professionalism.
A Master's degree allows the student to have a further insight of the subject that they feel passionate about conducting research, meeting and interacting with faculty members of MBA Institute and industry personnel. This leads to increase in the employability skills and innovation among the students who focus for a Master Degree. Therefore the management educations as a Master in Business Administration (MBA) course have its

own concerns. MBA education is taken as the professional certificate which increases the chances for getting beneficial employment opportunities.

**KSA Approach:**




Katz model (Katz, 1955), recognizes three different abilities that a manager should possess. A technical skillis the expertise in domain 'knowledge' which makes a person more competent and proficient. A human skillenables a person to develop the ability and willingness to work with people, to build relationships, to communicate, and to work in teams.

- **Knowledge**
- **Skills**
  - Leadership skills
  - Communication skills
  - Interpersonal skills
  - Persuasive skills
  - Problem solving skills
  - Logical reasoning skills
  - Behavioral & personality skills
  - Body language & eye contact
  - Listening skills

- **Attitude**
  - Positive attitude
  - Self confidence
  - Assertiveness / Emotional stability

Knowledge today is no longer restricted to the class rooms. Formal education gives the bookish knowledge that is required to be competent. All sources of education together make up the knowledge that we possess and are able to use on a daily basis. Students should be able to make innovative use of knowledge, information and opportunities to create new services, processes and products through enhanced skills.

Conceptual skill brings about expertness and proficiency in the work place. This 'skill' gained through experience and practice in the absence of knowledge and attitude, a 'skilled' person cannot sustain in the dynamic and challenging corporate environment.

Skills give life to knowledge. It is an ability acquired through purposeful, systematic, and continuous effort. It improves the human capability to accomplish the job responsibilities involving ideas (cognitive skills), things (technical skills), and/or people (interpersonal skills). Every student may not have requisite skill, but can acquire and improve through experience over time. Managerial skill brings about a positive impact on the organization through the ability to expand effective and innovative action strategies.

Attitude defines the altitude. A positive attitude towards people, process and organization makes an efficient manager through emphasizing on strengths and converting weakness to constructive learning opportunities. Business Management education should focus on shaping positive attitude of its graduates over the tenure of the program.
An MBA course would sharpen the vision, increase business insight, enhance the skill set, and give a right business perspective. Right methodology encourages students to gain the right knowledge, skill and develop positive attitude.

**Scope of the Research:**
Looking towards current scenario of industrial expectations, as MIHAN project is also developing so fast and in future many companies will place in the Vidarbha region. So question arises that does Management Institutes fulfilling those requirements of industry?
Considering the magnitude of the issue of management education and expectations of industries and its effects on the different section of the society and the precious human resources for productive activities and the fundamental changes in the economic policies and industrial sectors in the last decade of the previous century it is necessary to undertake a research into the effect of Industrial Expectations from Management Students and the Role of Management Institutes With Special Reference to Rashtrasant Tukadoji Maharaj, Nagpur University, Nagpur

- This research will be helpful to understand the students approach towards MBA program
- This research will be helpful to improve the quality of Management Education
- This study will be helpful to understand the industrial expectations from business management students
- This research help out whether there are gap between the expectations of industry employer and performance of the newly hired MBA's in the various profile and sector

**Objective of the Research:**

- To understand the role of Management Institutes in order to cater to the needs of MBA students
- To understand the expectations of industry from the Management Institutes and students

**Hypothesis of the Research:**

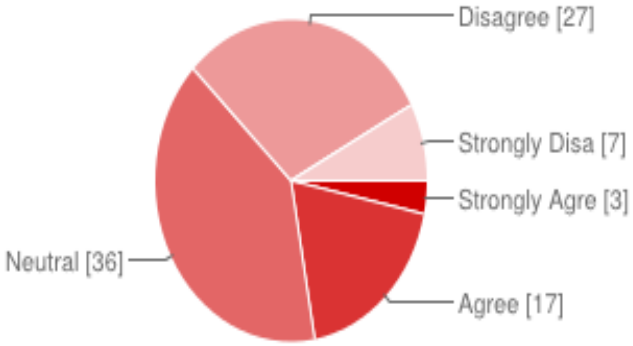
- There is a gap between industry expectations and quality of business management education

**Some Reflection to the Existing and non-existing survival / employability skills of RTM Nagpur University, Nagpur Students:**
Incorporating with industrial expectation and students expectations can be a challenge for Management education. To cope with this, Management Education need to identify the lacking of skills and knowledge in the students and required to nurture those skills to meet the expectations of both i.e. the students and the industry. From the perspective of the Nagpur University students it is needed to be identified the lacking of skills and knowledge among the students who are entering into the empire of Management Education.
To do so a questionnaire survey has been made among total 90 Academiciansfrom RTM Nagpur University, and industry personnel. The questionnaire has been developed keeping in mind the expectations of the employers and the requirement of the present day

industries. It is also necessary to identify the key basic employability skills that are required for an individual along with the job-specific or relevant technical skills as these additions are seen as essential by the employers. The questionnaire study has focused on these several employability skills which are considered so important in this present day scenario.

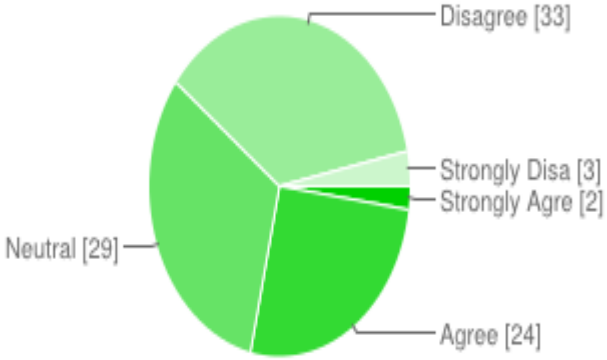
**Analysis and Interpretations:**

**Question: Fresh Management Graduates possess good Communication skills, possess knowledge & Intellectual ability?**




While assessing above question it has been observed that out of 90 respondents, 36% (total: disagree and strongly disagree). 17% are agree, 38% respondents are neutral. This clearly shows that the students of RTM, Nagpur University who are fresh management graduates have lacking in communication skills, knowledge and intellectual ability and this can be a huge barrier in bringing up the employability skills in these students.

**Question: Fresh Management Graduates are good in public speaking and stage daring?**




While assessing above question it has been observed that out of 90 respondents, 39% (total: disagree and strongly disagree). 24% are agree, 31% respondents are neutral. This shows that the students of RTM, Nagpur University are not good in public speaking and stage daring

**Question: There is a gap between Industry expectations and quality of Management Graduates of RTM, Nagpur University?**

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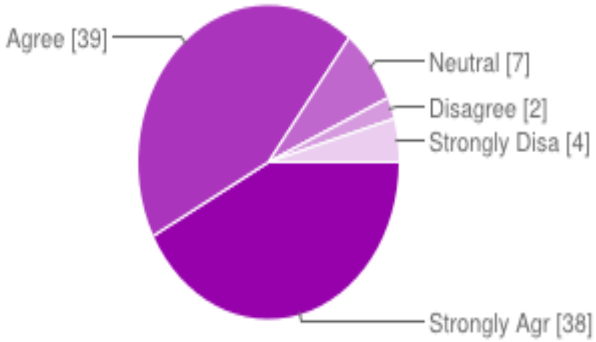


While assessing this question it has been observed that out of 90 respondents, 81% (total: Agree and strongly agree). 6% are disagree, 7% respondents are neutral. This clearly shows that there is a gap between Industry expectations and quality of Management Graduates of RTM Nagpur University, Nagpur.

**Corporate Expectations:**

With improvement of the technologies along with the rapid automation of the industries reduced the repetitive kind of labor intensive jobs. It resulted in increased demand of solution oriented communication jobs, such as responding to discrepancies, improving production processes, and coordinating and managing the activities of others. This led to the increase in demand for business management graduates.

Beginning of multinational companies further increases the mission of the employees with high domain knowledge and skills in all the fields of business management like Finance, Marketing, Human Resource, Banking, Agricultural, IBM, IT, Environments, Personnel and Administration. Even in the Nagpur industrial region MIHAN is developing and will requires skillful managers in future. New and innovative industries requires more educated workforce with the ability to respond flexibly to complex problems, communicate effectively, manage information, work in teams and produce new knowledge. A degree of Master in Business Administration (MBA) is considered to be the gateway to careers in management.

Corporate expects business management graduates to acquire knowledge and develop skills in various fields which constitute science and art of management. Business management graduates should be able to bring in professionalism in the work place by demonstrating best management practices with positively brush up attitude.

The purpose of MBA education is multi-faceted. A critical analysis of the corporate expectations should be incorporated in the business management education. Communication, clarity of thought and enthusiasm to work in a team should reflect in their skills. Corporate expect the managers to manage the business through their commitment towards wok, confidence in their preparedness, posture, attire, humility, quality and discipline. These qualities will ensure employability in the MBA graduates as expected by corporate.

**Existing Gap:**

There is a strong relationship between education and job. The expectation that a degree will automatically leads to a job opportunities. Every corporate expects a relevant educational degree coupled with skill and attitude while employing a person. Employability skills are those set of skills that enable a person to utilize their conceptual and academic learning in a real life context, this is enhanced through right mix of

knowledge, skill and attitude. The growing of management institutes creates more supply of management graduates with less employability proportion which leads to the ironic contradiction. The KSA approach ensures the competency of the management graduates which matches the corporate expectations.

**Factors affecting the creation of employable graduates:**

- **Student's expectations out of business schools:**

Business Schools are perceived by the students as placement agencies. They have a mindset that once the fee is paid and the admission obtained, they are assured of a job on completion of the course. All the MBA aspirants dream to get placed in a multinational company and earn a good salary. The information build up with regards to campus placements, industry associations, good faculty members, and facilities by the business management schools, creates a flowery picture regarding the prospects of their MBA.
This is applying to all young groups. Placement history becomes the important factor in choosing a business school, whereas it is just facilitation provided to the students.

- **Research Encouragement:**

Good managers must be good in both analysis and synthesis. Research increases the analytical ability of the students. There has been a paradigm shift in the primary mission of education towards ensuring student learning, rather than the prevailing instructional mode of only delivering the lectures.

- **Syllabus Up-gradation:**

The institutions of higher learning including business schools need to redesign their curriculum to inculcate integrated thinking among the students to face complex and challenging organizational environments. The effective syllabi should eliminate content overlap and redundancies.

- **Passionate Faculty Members:**

Business School teachers have a bigger role to play in the developing the students into budding managers and leaders with high competence and integrity. To keep the students updated with the fast changing business practices, a teacher needs to be a continuous learner. So, the recruiting of passionate and eligible faculty is a major challenge for management institutions.
Ms. Malini Sen and Tina Ray (Education Times on 05/12/2011), highlighted the role of a teacher has gone through a phenomenal transformation, as technology and globalization have redefined the contours of the world with the availability of access to the information by anybody, anywhere and anytime. So the thing that matters is the way the teacher teaches. The good teachers are the ones who know how to listen as well as talk and don't make feel others that their opinion is not worth anything. It is not the age that is important but their attitude and passion towards teaching that makes the difference. There are teachers who are very enthusiastic about their subjects. Teaching is a performing art and not science. Unless the teachers passionate about teaching and the subject, he cannot become an inspiring teacher.
Teachers need to create an academic ambience and atmosphere conducive to bring out latent creativity and innovation in the students. The ultimate goal for teacher must be to transform ordinary people into extra ordinary individuals through human excellence. This is only possible when the teacher acts as a role model and leads as an example.

**Conclusion:**

The business management institutes of RTM Nagpur University needs to be committed towards bringing in professionalism to management, creating new knowledge in creation of entrepreneurial skills, ethical, socially sensitive, and humane global managers. MBA is only a beginning platform. The corporate expects the fresh MBA graduate to have a basic knowledge along with the attitude for learning, enthusiasm, commitment, good communication and leadership qualities to face the complex situations and challenges of the corporate world which can be achieved through the strengthening of KSA approach of management education.

This paper shows that there is gap between industry expectations and the quality of business management students. The lacking among RTM Nagpur University students that has come out during the questionnaire study can easily be fulfilled if good learning process been adopted properly. The required survival skills among Nagpur University students can be developed by adopting Problem based learning method as a contemporary approach of Management Education in alignment with the industry expectation and students' expectation.
This paper is of the opinion that if the new tools incorporated in the management curriculum will deliver the desire results and allows learners to assume ownership of their learning.
In addition to this there should be a continuous interaction between the industry personnel and the management students and institutes so as to inculcate the new creative techniques in the management students to meet the requirements of the industry

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