Volume 10 Issue 2 July-December 2018

ISSN No. : 0975-4547
Regn. No. : 108534/2010

Indexed and full text available on ProQuest

Gavesana

Journal of Management

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About the Journal

The Gavesana Journal of Management is a bi-annual refereed journal of the Vignana Jyothi Institute of Management. Its objective is to disseminate knowledge of contemporary issues related to management and development. The journal seeks to serve as a platform for intellectuals to share the rapid strides made in contemporary research. The Research Journal has been registered with the Registrar of Newspapers for India (RNI) vide No. 108534/2010 dated 1/3/2011.

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EDITORIAL

Human Resource function (HR), in any organization, has to be that of a strategic or business partner, by developing the talent in the entity through job rotation, job enrichment etc., involving expert teams, business leaders and line management. Such a partnership is a long-term relationship to achieve objectives common to the partners, as also the organization's financial success. In the process, the HR employees, as partners, should perform their assigned roles, and also support the activities of those in other functional areas. This needs a strategic plan which dovetails the HR Vision and Mission into that of the organization.

HR, as a Strategic Partner - increases employee productivity and thus the organization's profitability; enhances competency and talent management; uses the technology and knowledge to formulate, implement and review strategies; copes with the changes in the business environment arising from unforeseen business situations, and globalization; and serves the internal and external customers well. This is done through efficient and effective delivery of human resource services. For this, the HR needs to spend more time in the organization's planning, design and development. It must become part of the business team, involved in planning at the highest level. HR Managers and HR professionals are strategically suited to provide the necessary leadership in change management, which is a challenging task.

The Human Resource Information System (HRIS) has to be effectively used to handle daily administrative HR tasks. Employees can make use of the self-service facility online, to support business strategy development and implementation, which saves time and costs. There should be an HR Head who understands well the strategic partnership/relationship between organizational strategy and human resources. He should be an expert in all HR functions. Someone from within the organization can be groomed for this role.

Research has shown that the HR function will be effective in achieving the business objectives when it assumes the role of a strategic business partner. The top management should ensure this. The administrative reactive approach in people management can no longer support the organization in a competitive business environment. If the HR function is decentralized fully, the line managers and supervisors will eventually put the blame on HR when problems arise. If this happens, it interferes with the effective use of line managers' and supervisors' time in the operations of the organization on daily basis. The line managers and supervisors need to be supported to make them more proficient in managing their subordinates in the performance of daily tasks. Complete participation of HR people in strategy development and implementation promotes HR as a strategic partner. The HR Manager and HR professionals should contribute to business decisions; develop business acumen to understand how a profitable business is run; be customer-centric; and learn how to link HR practices to the organizational business strategy.

The expectations from HR as Strategic Partner include: recruiting the right employees; align corporate values to the recruitment strategy; well-developed competencies of the workforce, and their relevance to organizational core business; participative culture where HR initiatives fully support the overall strategic plan; discard ineffective HR practices that do not contribute to the success of your organization. HR management requires continuous improvement i.e., Kaizen to ensure and retain its relevance as strategic partner. For this, capable and committed people are needed at every level, supported by senior management. Change has to be managed well to avoid or minimize disruption in the organization's activities, and for its success.

The effectiveness of the HR people as a strategic partner is also dependent upon the corporate policies and practices, structure, types of activities carried out, location, effective communication, leadership and motivating employees to keep moving in the right direction as per plan. Every aspect of HR has to be reviewed in the process of implementing the necessary changes and reorganization. Having the right is crucial to help them succeed and engage their full attention with the view to ensure HR truly becomes strategic partner. The HR Scorecard shows whether the organization is making good progress on making HR as strategic partner. The competitive advantage of the organization can be enhanced by aligning the HR strategies to the overall business plan. To ensure that HR truly becomes a strategic business partner, adequate financial backing is necessary. One needs to take measures to eliminate or minimize risks to HR, and it should be ensured that HR plays a meaningful role and not necessarily a major role, particularly during financial crises. It cannot also be a trial and error approach.

In fact, in a business landscape that is changing fast, there is an imminent need for HR to be an active strategic partner. By aligning itself with strategic plans of the business, it needs to foster a stronger relation between the executive team and the workforce. Externally, it can make valuable contribution to branding and the tone of communication. By leveraging customised, more personalised metrics and deep analytics, it can vastly improve organizational learning, training and improve decision-making. Consequently, the human capital program will lend more impact, thereby encouraging and enhancing collaboration between various functions across the organization. HR can no longer be just a functional arm, a distant participant, but will have to assume the role of strategic partner, integral to organizational well-being and growth.

Dr. Ch. S. Durga Prasad

Correlation between Transformational leadership style and its outcome: An empirical survey in a large Indian enterprise

Subba Rao Tulasi*

Article:

1.0 Leadership:

Leadership has been widely studied over a long period of time, yet it remains an elusive phenomenon to understand and develop. Throughout human evolution, human kind has spent countless hours developing a more thorough understanding of what makes leaders more successful.

Leaders establish a vision of the future and align people and resources through any number of leadership approaches, inspiring and directing others. Best leaders are not necessarily the most intelligent, courageous, or intuitive. Good leaders, however, possess the ability to absorb, digest, and use information to motivate others into action. Leadership is about relationship building, challenging the status quo, and the ability to not only visualize one's own perspective, but also the desires and dreams of others. Leadership involves harnessing organizational resources and setting a direction toward achieving both individual and organizational goals. Leaders are expected to establish a course, set standards, challenge current processes and realities, build trust, and encourage right action. The challenge is to transform organizational mediocrity into competitive advantage through effective and ethical leadership[1].

2.0 Transformational leadership :

Transformational leadership is seen as a leadership form at its highest level of evolution . By analyzing 188 cases, Lowe and Gardner (2000) have found that transformational leadership theory captured more interests during the period1995-1999. More recently, Dinh et al (2014) reviewed the articles published in the 2000-2012 period in 10 top-tier academic journals and by analyzing 752 cases, these researchers concluded that transformational leadership theory is still one of the most dominant paradigmsas compared to other leadership theories such as trait theory, behavioural theories, and situational theories.

2.1 Transformational Leadership Theory :

Leadership is a “complex task for which the outcomes are often neither immediate nor concrete” (Popper & Lipshitz, 1993, p. 24). Compounding this aspect of leadership is the difficulty in determining a cause and effect relationship between leadership actions and organizational outcomes. Leadership is essentially motivating others by non-coercive means (Popper & Lipshitz, 1993). According to Rost (1993),the essence of leadership is not the leader, but the relationship between the leader and the follower. Leadership then is not about what leaders do, rather it is about what leaders and followers do together. Leaders must manage an ongoing process of developing and clearly communicating common goals, and gaining commitment from others to attain these goals. This reflects the common understanding of leadership as doing the right thing versus a purely management response of just doing things right[2].

Transformational leadership broke new ground in leadership theory in the late 1970's. It began in rebel leadership which added the notion of the study of leaders who led political revolutions through transformational behaviors (Downton, 1973). However, it was through Burns (1978) and his work with political leaders that transformational leadership emerged. This work expanded the leadership theories associated with traits and behaviors to incorporate values. Transformational leaders were defined as those who could envision a new social condition or state, communicate the vision to followers, and then inspire and transform followers to become leaders. The result of transformational leadership is a relationship of mutual stimulation and elevation that converts or transforms both followers and leaders (Burns,1978)[3].

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In 1978, Political historian James MacGregor Burns published the ground breaking book titled “Leadership”, which became a classic work on transformational leadership (Northouse, 2007). Burns (1978) focused on leadership, leadership roles, and follower ship within various organizational constructs. In the mid-1980's, Bass (1985) provided a more expanded and refined version of transformational leadership that was based on, but not fully consistent with, the prior works of Burns (1978) and House (1976). In his approach, Bass extended Burns' work by giving more attention to followers' rather than leaders' needs, by suggesting that transformational leadership could apply to situations in which the outcomes were not positive, and by describing transactional and transformational leadership as a continuum of leadership behavior. Specifically, Bass (1985) argues that transformational leadership motivates followers to do more than expected by doing the following:

- raising followers' awareness about the importance and value of specified and idealized goals,
- getting followers to transcend their own self-interest for the benefit of the team or organization, and
- motivating followers to address higher-levelneeds[4].

According to Bass and Avolio, Transformational leadership can be defined as “a process of influencing in which leaders change their associates' awareness of what is important, and move them to see themselves and the opportunities and challenges of their environment in a new way[5]”. Transformational leaders do not merely react to environmental circumstances; they attempt to shape and create them (Avolio & Bass, 1988).Transformational leadership is significant because it links follower behavior to management strategy. The focus of transformational leadership is to change the paradigms of the followers so that they are more interested in what they can do for the organization instead of what the organization can do for them (Bass,1999). Boal and Bryson (1988, p.11) argue that the essence of transformational leadership is that such leaders “lift ordinary people to extraordinary heights”.

Transformational leadership emphasizes satisfying basic needs and meeting higher desires though inspiring followers to provide newer solutions and create a better workplace (Chandrashekhar, 2002; Jue, 2004; Marturano & Gosling, 2008). Transformational leadership was initially conceived as consisting of four leadership constructs (Bass, 1999):

- idealized influence (charisma),
- inspiration,
- intellectual stimulation, and
- individualized consideration.

Based on substantive criticism from numerous researchers, Bass and Avolio revised the idealized influence construct into idealized influence related to the leader's behaviors and idealized influence related to the leader's attributes (Avolio & Bass, 2004). Consequently, the original four factors model evolved into the current five transformational leadership factors: idealized influence - attributes, idealized influence - behaviors, inspirational motivation, intellectual stimulation, and individualized consideration.

First, idealized influence (charisma-attributed) refers to the situation where the leader uses attributes such as considering the needs of others over his/her own to inspire trust, respect, and admiration from followers (Bass & Avolio 1995).

Second, idealized influence -behavior involves the leader acting as a role model for subordinates. The leader engages in high standards of moral and ethical acts. Also, s/he has a vision and a strong sense of mission that are shared with subordinates. The subordinates identify with the leader and try to emulate him/her to serve the grassroots.

Third, inspirational motivation involves the leader behaving in a way that provides meaning and challenge to subordinates' work. The leader makes sure that s/he communicates clearly the stated expectations and motivates the employees to strive to meet these expectations.

Fourth, intellectual stimulation fosters creative problem-solving among subordinates to face the vagaries of uncertainties at grassroots. Employees are facilitated to question the status quo and become creative problem solvers (Bass and Avolio 1995; Ohman 2000).

Fifth, individualized consideration involves the leader paying special attention to the growth of each subordinate by acting as a mentor. The leader diagnoses the deficiencies of each of the subordinates and removes those through training, coaching, counseling, and seeking followers' participation in goal-setting, problem-solving, and decision-making. Individual-focused leadership aims at affecting individual employees by considering the uniqueness of each follower, whereas group-focused leadership deals with influencing the group as a whole by creating shared values and seeking a common ground. Two components of transformational leadership behaviors – individualized consideration and intellectual stimulation appear to focus on followers' individuality[6]. It is suggested that individual differentiation is positively related to creative behavior.

These five dimensions represent an effective leader in a knowledge-based economy grounded on developing and managing intellectual capital within organizations.

Transformational leaders motivate followers to achieve performance beyond expectations through the transformational process of thought (i.e., Beliefs and values etc.) and behavior (i.e., Attitudes and attributes etc.). Employees will feel more empowered in terms of competence and control, tend to have a more favorable evaluation of organizational reputation. Transformational leaders achieve the greatest performance from subordinates since they are able to inspire their subordinates to raise their capabilities and develop subordinates' innovative problem solving skills (Bass, 1985; Yammarino and Bass, 1990)[7].Further the subordinates are satisfied with their work lives, feel appreciated and productive, exhibit loyalty to and trust in the organization and its leadership, and feel empowered to contribute to the goals and mission of the organization with their unique skills and talents[8]. Transformational leadership, according to Burns (1978), ultimately becomes moral in that it raises the level of human conduct and ethical aspiration of both the leader and followers such that it has a transforming effect on both. Employees are likely to respect and emotionally identify with a leader who is considerate and is willing to help subordinates to be effective, enhance utilisation of integrating style for handling conflict and improve their job performance (Rahimetal., 2002, 2006)[9].

Transformational leaders are charismatic and the followers are likely to admire and respect them, and be loyal to them as well. Through the influence of behavioral modeling, transformational leaders enhance followers' ability to develop new ideas and question outmoded operating rules. By engaging in intellectual stimulation, they set the expectation for creativity and serve as creative role models for their followers. Through individualized consideration, transformational leaders show consideration, empathy, and support for the followers, which may help them over come the fear of challenging the status quo, thus leading to higher level of creativity (Gongetal., 2009).

2.2 Transformational Leadership Outcomes :

Group performance :

Transformational leadership has been found to be effective in improving group performance. Hoyt and Blascovich (2003) noted that the impact of transformational leadership on objective performance measures has been observed in many domains: financial performance, technological innovation, unit performance, military performance, as well as simulated organizational performance and production tasks[2].Transformational leadership outcomes include increased employee satisfaction, motivation, technological innovation, and leader effectiveness ratings (Humphreys, 2002; Medley & Larochelle, 1995). Followers of transformational leaders are more likely to see their work as fulfilling, enjoyable, and important. Followers of transformational leaders may also show greater levels of creativity and innovation and are more likely to trust their leaders (Avolio & Bass, 2004). Transformational leadership is portrayed as the most appropriate leadership style for improving individual and organizational performance[10]. Transformational leadership, because of the inherent constructs of idealized influence, inspiration, intellectual stimulation, and individualized consideration, has been suggested as the optimum leadership approach to managing change and encouraging high performance (Tichy & Devanna, 1986). The effectiveness of the

transformational leader is realized here as the leader creates a compelling vision of the future[11].Transformational leadership outcomes include increased employee satisfaction, motivation, technological innovation, and leader effectiveness ratings (Humphreys, 2002; Medley & Larochelle, 1995). Transformational leaders build trust, improve organizational learning, and elicit organizational members to share their expert knowledge (Farrell, Flood, Curtain, Hannigan, & West,2005)[12].

Organizational commitment :

Transformational leadership supports a leader-follower construct based on a moral relationship between leaders and followers. Lee and Chang (2006) put forth that transformational leadership positively relate to organizational commitment in reference to effectiveness and outcomes. Porter et al. (1974) asserted that organizational commitment consisted of three core dimensions:

- a strong belief in and acceptance of the organization's goals and values;

- a willingness to exert considerable effort on behalf of the organization; and

- a definite desire to maintain membership in the organization" (p. 604).

Pawar and Eastman (1997) state that transformational leaders seek to enhance organizational members' commitment to organizational interests, thus encouraging them to transcend their individual self-interests. Such alignment of individual self-interestsand collective interests is a key task of transformational leadership.

Bass developed Transformational leadership theory, to explain the way that leaders gain extra ordinary commitment (manifested as attitudes, beliefs and behaviors) from their followers. Transformational leadership has been found to lead to higher levels of Organizational commitment, and has consistently proven advantageous on a range of individual and Organizational outcomes. For example, Barling et al, (1996) found that followers' Organizational commitment was positively correlated with the transformational leadership of their supervisors[13].

Job satisfaction :

Leadership and job satisfaction are recognized as fundamental elements influencing the overall effectiveness of an Organization. In 1988, Hater and Bass indicated that transformational leadership, encourages lower turnover rates, higher productivity, and higher employee satisfaction. In other words, high transformational leaders were believed to focus on high ideals that contribute high levels of job satisfaction[13].

Development of trust :

There are several reasons why transformational leadership facilitates the development of trust in the leader. First, there is a need for leaders to be seen as credible if they are to gain the trust of their followers. Inconsistency between words and actions decreases trust, whereas consistency between one's values and deeds creates perceptions of credibility (Casimir, Waldman, Bartram & Yang, 2006). Second, the leader's ability to carry out the assigned task may be essential to build followers' confidences, which in turn may help to engender trust due to the perceived confidence that the followers have of the leader. Casimir et al. (2006) noted that competence is the nucleus of trust and it is essential for good decision making. Third, trust in the leader transcends from the follower's confidence in the leader's intentions and belief in the leader's concerns for the follower (Casimir et al.). Bass (1999) conceptualized this trust as individualized consideration, or sincere concern, about the welfare of individual followers. For example, followers exert a high degree of confidence and trust in transformational leaders, as a result of the concerns that these leaders articulate about followers, welfare and needs, such as job security and working conditions. Further, since transformational leaders build integrity and trust by empowering and encouraging individuals to make their own decisions, this trust in turn builds confidence and encourages followers to exert extra effort for the leader and the organization; thus resulting in enhanced performance (Casimir et al.; Ozaralli, 2003; Simons, 1999). In sum, an analysis of the literature would suggest that " strong trust in the leader is likely to be an outcome of the transformational leadership behavior, and it may be the key mediating mechanism in understanding the performance-enhancing effect of such leadership" (Casimir et al., p.5)[11].

2.3 Organizational performance under Transformational Leadership :

Organizational performance refers to ability of an enterprise to achieve such objectives as high profit, quality product, large market share, good financial results, and survival at pre-determined time using relevant strategy for action (Koontz and Donnell, 1993). According to Deming (1986), management's failure to plan for the future brings about loss of market, which brings about loss of jobs. Furthermore, management must be judged not only by the quarterly dividend, but by innovative plans to stay in business, protect investment, ensure future dividends, and provide more jobs through improved product and service. There is a significant positive relationship between transformational leadership and company performance. By articulating a compelling and positive vision of the future, communicating high performance expectations, role modeling, and displaying confidence in followers' ability to meet high expectations, transformational leaders have been found to positively influence followers' performance (Shea, 1999; Waldman & Yammarino,1999)[14].

Transformational leadership fuels organizational learning by promoting intellectual stimulation, inspirational motivation, and individual consideration. Transformational leadership has been described as one of the most important means of developing learning organizations (Aragon-Correa et al., 2007). Organizational learning could positively influence organizational innovation (Calantone et al., 2002)[15].

The transformational leader strives to achieve results beyond what is normal and sets higher corporate goals by inspiring a sense of importance about the team's mission, by stimulating employees to think in novatively about a problem or task in new ways, and by placing group goals over personal self-interest (Bass, 1985, 1990; Burns, 1978; Keller, 1992; Tichy & Devanna, 1986). Kelloway and Barling (2000) report that transformational leadership behaviors trickle down through the organization, raising the level of performance at all levels[14].

Transformational leaders, although also viewed as charismatic, gain greater levels of long-term performance by developing followers to a higher level of autonomy. They encourage and foster development; they encourage changes in their mission and vision, and most important, they inspire followers to achieve their highest level of potential4. According to Howell and Avolio (1993) these leaders place much value and emphasis on developing a vision and inspiring followers to pursue the vision; they concentrate their efforts on longer term versus short term goals; they change or align systems to accommodate their vision rather than work within existing systems; and they coach to take on more responsibility for their own development as well as the greater development of others[14].

2.4 Arguments in support of and against Transformational leadership :

It is prudent to present here the arguments in support of the strengths and weaknesses of transformational leadership.

First, proponents (Bass & Avolio, 1994; Northouse, 2003) argued that transformational leadership has been widely researched from many different perspectives by prominent leaders both in the public and private sectors, since its inception in the 1970s.

Second, transformational leadership has intuitive appeal. This leadership style describes the aggressive approach leaders take in advocating change for others, and this concept brings to fruition the dynamic personalities society associate with leadership (Bass & Steidlmeier,1999).

Third, transformational leadership treats leadership like a process that occurs between followers and leaders (Bass & Avolio, 1994; Nort house, 2003). The fact that the process incorporates the leaders' and the followers' needs, transformational leadership is considered a shared process that emerges from a symbiotic relationship between leader and follower.

Fourth, Northouse (2003) stated that “the transformational leadership approach provides a broader perspective that augments other leadership models” (p. 184). He further argued that whereas other leadership styles emphasize the exchange of rewards for achieved goals, the transformational phenomenon incorporates not only the sharing of rewards, but also leaders' attentions to the needs and growth of followers (Bass & Avolio, 1994; Felfe & Schyns, 2004; Northouse,2003).

Fifth, transformational leadership places strong emphasis on meeting individuals' needs, and developing moral and ethical values. An analysis of the moral standards of transformational leaders by Bass and Avolio (1994), and Burns (1978), found that the transformational leaders move individuals to higher standards of moral responsibility by motivating them to transcend their own self-interests for the good of the organizationand community.

However, there are some arguments that the transformational leadership also has several weaknesses.

First, the transformational leadership style lacks conceptual clarity, and there seems to be some overlapping of the four phenomenons (idealized influences, inspirational motivation, intellectual stimulation, and individualized considerations) that correlate highly with each other; mean that they are not separate factors (Carless, 1998; Yukl, 1999).

Second, there seems to be some concerns on the clarity of measurement using the MLQ and how it is used in research relating to leadership behavior.

Third, transformational leadership is criticized for treating leadership as a personal trait rather than a behavior in which people can be instructed.

Fourthly, Transformational leadership fails to recognize other important stakeholders. It also fails to satisfactorily explain the mediators that improve the Organizational effectiveness.

Finally, it has been argued that transformational leadership is elitist and anti democratic (Bass & Avolio, 1994). The fact that transformational leaders play leading roles in effectuating changes by establishing a vision and advocating new directions, gives the perception that they are acting independently of followers by placing more emphasis on their own needs (Bass & Avolio, 1994; Nort house, 2003; Yukl1999).

However, the increased support Transformational Leadership received over the years and successful practice of this form of leadership has negated these presumptive weaknesses and established “Transformational Leadership” as a practical and beneficial tool in several organizations.

Having presented the arguments in support of and against Transformational Leadership theory and the positive contributions that Transformational leadership is expected to contribute to Organizational effectiveness, the Author wishes to submit that Transformational leadership is best suited for top leadership like CEO and top functional leaders who have the requisite authority to bring about Organizational changes and responsibility to sustain Organizational effectiveness.

As Stephen Covey stated, “Leadership needs to create an environment in which people want to be a part of the Organization and not just work for the Organization”[16].

3.0 MLQ survey carried out in a large Private sector enterprise :

The MLQ (Multi factor leadership questionnaire) developed by Bass and Avolio is available in a validated form of 45 questions for Organisational survey, research purposes and for preparation of individual leader reports. Out of these 45 questions, 36 questions assess Leadership while 9 questions assess outcome. Few Leadership instruments assess both Leadership and outcome . The inclusion of both in MLQ, enables comparison of the Leadership on the one hand with performance outcomes in the same instrument. Out of these 36 questions that assess Leadership, 20 questions were framed to assess “Transformational Leadership” which is the subject matter of this article. Transformational leadership consists of five constructs as enumerated below.

- idealized influence (attributes) IIA
- idealized influence (Behaviour) IIB
- inspirational motivation, IM
- intellectual stimulation, and IS
- individualized consideration. IC

Output is assessed in three constructs viz

- Followers' willingness to put in extra effort EE
- Leaders' effectiveness EFF
- Followers' satisfaction with their job SAT

Currently MLQ is owned by Mind Garden, California which also administers the survey questionnaire through internet. The MLQ instrument is administered to the selected Leader and to the raters chosen by the Leader himself. Present Survey was carried out in three divisions of a large Indian Private enterprise through internet in which the participating manager's e mail was communicated to Mind Garden who then sent him the survey questionnaire with a request to respond and also choose his rater(s) and communicate their e mail address. Such a method was adopted to assure the participants of confidentiality of their response. Follow up was further carried out till all the participants including raters completed their response. It is gratifying that in the present survey all the managers (54 of them) and a good percentage of the raters (272 out of 312 ie 87.2 %) chosen by them participated in the survey. Mind Garden collated the response from all the 326 participants to the 45 questions and communicated to the author for further analysis.

Rating scale for Leadership questions :

0 = Not at all

1 = Once in a while

2 = Some times

3 = Fairly often

4 = Frequently, if not always

3.1 Hypothesis :

3.1.1 :

- Null hypothesis is, none of the characteristics of Transformational Leadership such as Idealized influence – Behavior and attitude, Inspirational motivation, intellectual stimulation, Individual consideration influence each of the outcome – Extra effort by the followers significantly.
- The alternative hypothesis suggests that at least one or more characteristics influence the outcome – Extra effort significantly.

3.1.2 :

- Null hypothesis is, none of the characteristics of Transformational Leadership such as Idealized influence – Behavior and attitude, Inspirational motivation, intellectual stimulation, Individual consideration influence each of the outcome – Effectiveness of the Leader significantly.
- The alternative hypothesis suggests that at least one or more characteristics influence the outcome – Effectiveness of the Leader significantly.

3.1.3 :

- Null hypothesis is, none of the characteristics of Transformational Leadership such as Idealized influence – Behavior and attitude, Inspirational motivation, intellectual stimulation, Individual consideration influence each of the outcome – Satisfaction of the followers significantly.

- The alternative hypothesis suggests that at least one or more characteristics influence the outcome – Satisfaction of the followers significantly.

3.2 Analysis of the MLQ survey carried out :

3.2.1 Data Cleaning

Imputing Missing values

- Mean rating is computed for each individual category of leadership for each manager based on the ratings given by his raters (as well as self) towards different questions in each category of leadership. In order to do so, all followers were grouped as "one", Peers as "one", and superiors as "one". Thus the total number of responses were counted as emanating from 163 managers (N) though 326 managers have completed the MLQ questionnaire.
- Wherever a rater has failed to provide rating for any question either to self or to his peer/superior/subordinate, the mean rating of all the questions of that particular category is imputed for missing values. But such instances were few and far between.

3.2.2 Descriptive Statistics of Original Observations

Here responses of all the 163 participants to each of the 45 questions were captured as "minimum", "maximum","mean" and standard deviation was calculated.

3.2.3 Data Normalization

The responses to each question are normalized by subtracting the mean rating of each of the questions from the actual rating and dividing the result by the standard deviation (as calculated above) of the ratings.

As an example, question 45 is considered and shown below.

0 – 3.0734 / 0.83782 = - 3.668

4 – 3.0734 / 0.83782 = 1.106

These normalized values were subsequently used for all calculations.

Table 1 : Descriptive Statistics of the variables after normalization :

	Minimum	Maximum	Mean	Std. Deviation
Zscore(Q1)	-4.513	1.175	.000	1.000
Zscore(Q2)	-2.945	1.294	.000	1.000
Zscore(Q3)	-1.010	2.631	.000	1.000
Zscore(Q4)	-2.831	1.421	.000	1.000
Zscore(Q5)	-.579	4.042	.000	1.000
Zscore(Q6)	-2.745	1.592	.000	1.000
Zscore(Q7)	-.476	4.082	.000	1.000
Zscore(Q8)	-3.203	1.445	.000	1.000
Zscore(Q9)	-3.456	1.209	.000	1.000
Zscore(Q10)	-2.750	1.306	.000	1.000
Zscore(Q11)	-4.204	1.393	.000	1.000
Zscore(Q12)	-.586	5.086	.000	1.000

Zscore(Q13)	-4.179	1.232	.000	1.000
Zscore(Q14)	-3.664	1.187	.000	1.000
Zscore(Q15)	-2.789	1.681	.000	1.000
Zscore(Q16)	-3.013	1.716	.000	1.000
Zscore(Q17)	-1.301	2.518	.000	1.000
Zscore(Q18)	-3.690	1.254	.000	1.000
Zscore(Q19)	-2.453	1.361	.000	1.000
Zscore(Q20)	-.602	4.414	.000	1.000
Zscore(Q21)	-3.307	1.289	.000	1.000
Zscore(Q22)	-2.125	1.594	.000	1.000
Zscore(Q23)	-3.000	1.197	.000	1.000
Zscore(Q24)	-2.205	1.896	.000	1.000
Zscore(Q25)	-3.220	1.119	.000	1.000
Zscore(Q26)	-3.031	1.337	.000	1.000
Zscore(Q27)	-2.430	1.779	.000	1.000
Zscore(Q28)	-.663	4.033	.000	1.000
Zscore(Q29)	-3.254	1.395	.000	1.000
Zscore(Q30)	-3.911	1.446	.000	1.000
Zscore(Q31)	-3.394	1.372	.000	1.000
Zscore(Q32)	-3.982	1.431	.000	1.000
Zscore(Q33)	-.719	4.205	.000	1.000
Zscore(Q34)	-2.662	1.502	.000	1.000
Zscore(Q35)	-3.177	1.332	.000	1.000
Zscore(Q36)	-3.341	1.261	.000	1.000
Zscore(Q37)	-2.895	1.580	.000	1.000
Zscore(Q38)	-3.190	1.409	.000	1.000
Zscore(Q39)	-3.289	1.590	.000	1.000
Zscore(Q40)	-3.268	1.121	.000	1.000
Zscore(Q41)	-5.165	1.227	.000	1.000
Zscore(Q42)	-3.890	1.302	.000	1.000
Zscore(Q43)	-3.505	1.012	.000	1.000
Zscore(Q44)	-3.134	1.155	.000	1.000
Zscore(Q45)	-3.668	1.106	.000	1.000
Valid N (listwise)	163			

3.2.4 Confirmatory factor Analysis of each of the Constructs

Builds trust / Idealized influence- Attributes (IIA)

IIA is assessed by analysing all the 163 responses to questions 10,18,21 and 25. These four questions are framed to assess attributes such as “instills pride” “displays confidence” etc.

Table 2 : Correlation matrix among the z-scores of residuals

Correlation Matrix					
		Zscore(Q10)	Zscore(Q18)	Zscore(Q21)	Zscore(Q25)
Correlation	Zscore(Q10)	1.000	.359	.419	.415
	Zscore(Q18)	.359	1.000	.388	.154
	Zscore(Q21)	.419	.388	1.000	.348
	Zscore(Q25)	.415	.154	.348	1.000

- Correlation evaluates how the questions are answered. Each question is answered in a scale ranging from 0 to 4 and if there is wide variation in answers to these four questions, it becomes a cause for concern.
- As the correlations among the questions in the present survey (except between questions 18 and 25 but which will not meaningfully affect the result) is found to be moderate, factor analysis is performed and one component which is a representative of the four questions is taken as a proxy for IIA.

The purpose of factor analysis is data reduction and summarisation. The interest is centred on relationships involving the whole set of variables.

Table 3 : KMO and Bartlett Test – Measures sampling adequacy and worked out through SPSS

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.691
Bartlett's Test of Sphericity	Approx. Chi-Square	103.949
	df	6
	Sig.(p value)	.000

- As the KMO measure of sampling adequacy (0.691) > 0.5 and p-value (Sig) associated with Bartlett's Test of Sphericity is < 0.05, it can be interpreted that the Factor analysis solution is adequate and hence the factor score will be used as a proxy for IIA for further analysis

Table 4 : Component Weightages and total variance captured by the component

Component Matrix[a]	
	Component
	1
Zscore(Q10)	.784
Zscore(Q18)	.647
Zscore(Q21)	.767
Zscore(Q25)	.657
Extraction Method: Principal Component Analysis.	
a. 1 component extracted	

- Almost all the questions carry equal weight (multiplier) in the formation of the component (Ranging from 0.647 for Q 18 to 0.784 for Q10)
- This component alone captures 51.33% of the total variation present in the data and hence is an adequate variable to represent IIA in further analysis

Total Variance Explained			
	Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %
1	2.053	51.326	51.326
Extraction Method: Principal Component Analysis.			

Acts with integrity/ Idealized influence- Behavior (IIB)

IIB is assessed as responses to questions 6,14,23 and 34. These questions were framed to assess behaviour such as "talks about values" "sense of purpose" "sense of mission" etc.

Table 5 : Correlation matrix among the z-scores of residuals

Correlation Matrix					
		Zscore(Q6)	Zscore(Q14)	Zscore(Q23)	Zscore(Q34)
Correlation	Zscore(Q6)	1.000	.288	.450	.392
	Zscore(Q14)	.288	1.000	.493	.650
	Zscore(Q23)	.450	.493	1.000	.537
	Zscore(Q34)	.392	.650	.537	1.000

- As the correlations among the questions is found to be moderate to high (lowest being .288), factor analysis is performed and one component which is a representative of the four questions is taken as a proxy for IIB.

Table 6 : KMO and Bartlett Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.732
Bartlett's Test of Sphericity	Approx. Chi-Square	193.239
	df	6
	Sig.	.000

- As the KMO measure of sampling adequacy (0.732) > 0.5 and p-value associated with Bartlett's Test of Sphericity < 0.05, it can be interpreted that the Factor analysis solution is adequate and hence the factor score will be used as a proxy for IIB for further analysis

Table 7 : Component Weightages and total Variance Captured by the Component

Component Matrix[a]	
	Component
	1
Zscore(Q6)	.650
Zscore(Q14)	.798
Zscore(Q23)	.803
Zscore(Q34)	.847
Extraction Method: Principal Component Analysis.	
a. 1 component extracted.	

Total Variance Explained			
	Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %
1	2.421	60.532	60.532
Extraction Method: Principal Component Analysis.			

- Almost all the questions carry equal weight (multiplier) in the formation of the component (Ranging from 0.65 for Q6 to 0.847 for Q34)

This component alone captures 60.53% of the total variation present in the data and hence is an adequate variable to represent IIB in further analysis.

Encourages others / Inspirational motivation (IM) :

IM is assessed as responses to questions 9,13,26 and 36 which measure inspiration and motivation such as “talks optimistically about future” “ displays confidence that goals will be achieved” “articulates a compelling vision” etc.

Table 8 : Correlation Matrix among the Z-Scores of Residuals

Correlation Matrix					
		Zscore(Q9)	Zscore(Q13)	Zscore(Q26)	Zscore(Q36)
Correlation	Zscore(Q9)	1.000	.518	.691	.499
	Zscore(Q13)	.518	1.000	.535	.513
	Zscore(Q26)	.691	.535	1.000	.603
	Zscore(Q36)	.499	.513	.603	1.000

- As the correlations among the questions is found to be moderate to high (lowest being .499), factor analysis is performed and one component which is a representative of the four questions is taken as a proxy for IM.

Table 9 : KMO and Bartlett Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.784
Bartlett's Test of Sphericity	Approx. Chi-Square	253.969
	df	6
	Sig.	.000

- As the KMO measure of sampling adequacy (0.784) > 0.5 and p-value associated with Bartlett's Test of Sphericity is < 0.05, it can be interpreted that the Factor analysis solution is adequate and hence the factor score will be used as a proxy for IM for further analysis.

Table 10 : Component Weightages and total Variance Captured by the Component

Component Matrix[a]

	Component
	1
Zscore(Q9)	.832
Zscore(Q13)	.775
Zscore(Q26)	.872
Zscore(Q36)	.795

Extraction Method: Principal Component Analysis.

a. 1 component extracted.

Total Variance Explained

	Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %
1	2.685	67.118	67.118

Extraction Method: Principal Component Analysis.

- Almost all the questions carry equal weight (multiplier) in the formation of the component (Ranging from 0.775 for Q13 to 0.872 for Q26)

- This component alone captures 67.12% of the total variation present in the data and hence is an adequate variable to represent IM in further analysis.

Encourages innovative thinking/ Intellectual Stimulation (IS) :

IS is assessed as responses to questions 2,8,30 and 32 which measure leader's ability to stimulate followers such as “seeks differing perspectives” “gets me to look at problems from different angles” “ re-examines critical assumptions” etc.

Table 11 : Correlation Matrix Among the Z-Scores of Residuals

Correlation Matrix					
		Zscore(Q2)	Zscore(Q8)	Zscore(Q30)	Zscore(Q32)
Correlation	Zscore(Q2)	1.000	.453	.369	.392
	Zscore(Q8)	.453	1.000	.488	.467
	Zscore(Q30)	.369	.488	1.000	.513
	Zscore(Q32)	.392	.467	.513	1.000

- As the correlations among the questions is found to be moderate to high, factor analysis is performed and one component which is a representative of the four questions is taken as a proxy for IS

Table 12 : KMO and Bartlett Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.767
Bartlett's Test of Sphericity	Approx. Chi-Square	153.734
	df	6
	Sig.	.000

- As the KMO measure of sampling adequacy (0.767) > 0.5 and p-value associated with Bartlett's Test of Sphericity < 0.05, it can be interpreted that the Factor analysis solution is adequate and hence the factor score will be used as a proxy for IS for further analysis.

Table 13 : Component Weightages and Total Variance Captured by the Component

Component Matrix[a]	
	Component
	1
Zscore(Q2)	.708
Zscore(Q8)	.792
Zscore(Q30)	.780
Zscore(Q32)	.779
Extraction Method: Principal Component Analysis.	
a. 1 component extracted.	

Total Variance Explained			
	Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %
1	2.344	58.607	58.607
Extraction Method: Principal Component Analysis.			

- Almost all the questions carry equal weight (multiplier) in the formation of the component (Ranging from 0.708 for Q2 to 0.792 for Q8)
- This component alone captures 58.61% of the total variation present in the data and hence is an adequate variable to represent IS in further analysis

Coaches and Develops people/Individual consideration (IC) :

IC is assessed as responses of questions 15,19,29 and 31 which measure leader's attention to each individual such as "helps me develop my strengths" " spends time coaching" "considers me as an individual with needs" etc.

Table 14 : Correlation Matrix Among the Z-Scores of Residuals

Correlation Matrix					
		Zscore(Q15)	Zscore(Q19)	Zscore(Q29)	Zscore(Q31)
Correlation	Zscore(Q15)	1.000	.273	.365	.439
	Zscore(Q19)	.273	1.000	.258	.115
	Zscore(Q29)	.365	.258	1.000	.569
	Zscore(Q31)	.439	.115	.569	1.000

- As the correlations among the questions is found to be moderate(least ofcourse being .115 which does not materially affect findings), factor analysis is performed and one component which is a representative of the four questions is taken as a proxy for IC.

Table 15 : KMO and Bartlett Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.636
Bartlett's Test of Sphericity	Approx. Chi-Square	120.046
	df	6
	Sig.	.000

- As the KMO measure of sampling adequacy (0.636) > 0.5 and p-value associated with Bartlett's Test of Sphericity < 0.05, it can be interpreted that the Factor analysis solution is adequate and hence the factor score will be used as a proxy for IC for further analysis.

Table 16 : Component Weightages and Total Variance Captured by the Component

Component Matrix[a]	
	Component
	1
Zscore(Q15)	.736
Zscore(Q19)	.477
Zscore(Q29)	.805
Zscore(Q31)	.796
Extraction Method: Principal Component Analysis.	
a. 1 component extracted.	

- Almost all the questions except Q19 (0.477) carry equal weight (multiplier) in the formation of the component (Ranging from 0.736 for Q15 to 0.805 for Q29)

- This component alone captures 51.26% of the total variation present in the data and hence is an adequate variable to represent IC in further analysis.

Total Variance Explained			
	Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %
1	2.050	51.261	51.261
Extraction Method: Principal Component Analysis.			

3.2.5 Outcomes :

Generates extra effort (in followers) (EE) :

EE is assessed as response to questions 39, 42 and 44 such as "increases my willingness to try harder" "heightens my desire to succeed" " gets me to do more than I expected" etc.

Table 17 : Correlation Matrix Among the Z-Scores of Residuals

Correlation Matrix				
		Zscore(Q39)	Zscore(Q42)	Zscore(Q44)
Correlation	Zscore(Q39)	1.000	.536	.434
	Zscore(Q42)	.536	1.000	.657
	Zscore(Q44)	.434	.657	1.000

- As the correlations among the questions is found to be moderate, factor analysis is performed and one component which is a representative of the four questions is taken as a proxy for EE.

Table 18 :KMO and Bartlett Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.661
Bartlett's Test of Sphericity	Approx. Chi-Square	147.553
	df	3
	Sig.	.000

- As the KMO measure of sampling adequacy (0.661) > 0.5 and p-value associated with Bartlett's Test of Sphericity < 0.05, it can be interpreted that the Factor analysis solution is adequate and hence the factor score will be used as a proxy for EE for further analysis

Table 19 : Component Weightages and Total Variance Captured by the Component

Component Matrix[a]	
	Component
	1
Zscore(Q39)	.771
Zscore(Q42)	.887
Zscore(Q44)	.842
Extraction Method: Principal Component Analysis.	
a. 1 component extracted.	

Total Variance Explained			
	Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %
1	2.090	69.666	69.666
Extraction Method: Principal Component Analysis.			

- Almost all the questions carry equal weight (multiplier) in the formation of the component (Ranging from 0.771 for Q39 to 0.887 for Q42)
- This component alone captures 69.67% of the total variation present in the data and hence is an adequate variable to represent EE in further analysis

Productive (Leader himself) (EFF)

Leader's effectiveness is measured in response to questions 37,40,43 and 45 such as “is effective in meeting my job related needs” “leads a group that is effective” “ is effective in meeting organizational needs “ etc.

Table 20 : Correlation Matrix Among the Z-Scores of Residuals

Correlation Matrix					
		Zscore(Q37)	Zscore(Q40)	Zscore(Q43)	Zscore(Q45)
Correlation	Zscore(Q37)	1.000	.630	.623	.625
	Zscore(Q40)	.630	1.000	.698	.640
	Zscore(Q43)	.623	.698	1.000	.697
	Zscore(Q45)	.625	.640	.697	1.000

- As the correlations among the questions is found to be moderate to high, factor analysis is performed and one component which is a representative of the four questions is taken as a proxy for EFF.

Table 21 : KMO and Bartlett Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.833
Bartlett's Test of Sphericity	Approx. Chi-Square	338.541
	df	6
	Sig.	.000

- As the KMO measure of sampling adequacy (0.833) > 0.5 and p-value associated with Bartlett's Test of Sphericity < 0.05, it can be interpreted that the Factor analysis solution is adequate and hence the factor score will be used as a proxy for EFF for further analysis

Table 22 : Component Weightages and Total Variance Captured by the Component

Component Matrix[a]	
	Component
	1
Zscore(Q37)	.833
Zscore(Q40)	.864
Zscore(Q43)	.880
Zscore(Q45)	.862
Extraction Method: Principal Component Analysis.	
a. 1 component extracted.	

Total Variance Explained			
	Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %
1	2.957	73.926	73.926
Extraction Method: Principal Component Analysis.			

- Almost all the questions carry equal weight (multiplier) in the formation of the component (Ranging from 0.833 for Q37 to 0.880 for Q43)

- This component alone captures 73.93% of the total variation present in the data and hence is an adequate variable to represent EFF in further analysis.

Generates satisfaction (In followers) (SAT) :

Satisfaction expressed by followers is assessed in response to questions 38 and 41 such as " works with me in a satisfactory way" " uses methods of leadership that are satisfying" etc.

Table 23 : Correlation Matrix Among the Z-Scores of Residuals

Correlation Matrix			
		Zscore(Q38)	Zscore(Q41)
Correlation	Zscore(Q38)	1.000	.559
	Zscore(Q41)	.559	1.000

- As the correlations among the questions is found to be moderate, factor analysis is performed and one component which is a representative of the four questions is taken as a proxy for IC.

Table 24 : KMO and Bartlett Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.500
Bartlett's Test of Sphericity	Approx. Chi-Square	60.233
	df	1
	Sig.	.000

- As the KMO measure of sampling adequacy (0.500) >= 0.5 and p-value associated with Bartlett's Test of Sphericity < 0.05, it can be interpreted that the Factor analysis solution is adequate and hence the factor score will be used as a proxy for SAT for further analysis.

Table 25 : Component Weightages and Total Variance Captured by the Component

Component Matrix[a]	
	Component
	1
Zscore(Q38)	.883
Zscore(Q41)	.883
Extraction Method: Principal Component Analysis.	
a. 1 component extracted.	

Total Variance Explained			
	Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %
1	1.559	77.969	77.969
Extraction Method: Principal Component Analysis.			

- Almost all the questions carry equal weight (multiplier) in the formation of the component (0.883 for both the questions)

- This component alone captures 77.97% of the total variation present in the data and hence is an adequate variable to represent SAT in further analysis.

3.2.6 Relationships between leadership styles and outcomes

Bivariate correlations between each characteristic of transformational leadership vs. each outcome through "Regression analysis" finds out the degree of relationship between a dependent variable (outcome) and a set of independent variables (Leadership styles) by fitting a statistical equation through the method of least squares and attempts to prove the hypothesis.

Hypothesis : Three outcomes vs. Five Characteristics of Transformational leadership

- Null hypothesis is, none of the characteristics of Transformational Leadership such as Idealized influence – Behavior and attitude, Inspirational motivation, intellectual stimulation, Individual consideration influence each of the outcome – Extra effort by the followers significantly.

- The alternative hypothesis suggests that at least one or more characteristics influence the outcome – Extra effort significantly.

- Null hypothesis is, none of the characteristics of Transformational Leadership such as Idealized influence – Behavior and attitude, Inspirational motivation, intellectual stimulation, Individual consideration influence each of the outcome – Effectiveness of the Leader significantly.

- The alternative hypothesis suggests that at least one or more characteristics influence the outcome – Effectiveness significantly.

- Null hypothesis is, none of the characteristics of Transformational Leadership such as Idealized influence – Behavior and attitude, Inspirational motivation, intellectual stimulation, Individual consideration influence each of the outcome – Satisfaction of the followers significantly.

- The alternative hypothesis suggests that at least one or more characteristics influence the outcome – Satisfaction significantly.

Extra Effort vs. Five components of Transformational leadership

Table 26 : Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.806[a]	.650	.639	.60124514

a. Predictors: (Constant), IC, IM, IS, IIA, IIB

b. Dependent Variable: EE

Table 27 : ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	105.245	5	21.049	58.228	.000[a]
	Residual	56.755	157	.361		
	Total	162.000	162			

a. Predictors: (Constant), IC, IM, IS, IIA, IIB

b. Dependent Variable: EE

Table 28 : Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.124E-17	.047		.000	1.000
	IIA	.239	.077	.239	3.117	**.002**
	IIB	.002	.090	.002	.019	.985
	IM	.327	.083	.327	3.926	**.000**
	IS	.182	.074	.182	2.468	**.015**
	IC	.182	.077	.182	2.377	**.019**

a. Dependent Variable: EE

- ANOVA table above (p-value = 0.000 < 0.05) suggests that the regression model is significant and is better than just taking the mean of EE values as the estimate for EE. This also indicates that EE can be predicted based on different characteristics of transformational leadership.
- However the accuracy of the model is 65% (R-squared from model summary) indicating that there is almost 35% uncertainty around EE prediction using the characteristics of transformational leadership. EE can be a result of some other factors which are not captured as a part of the study.
- From the coefficients table, we can infer that IIA, IM, IS and IC are significantly positively impacting the EE (p-values < 0.05) whereas IIB is not significantly impacting EE (p-value > 0.05).
- Thus Alternative hypothesis is proved.

· Looking at the standardized coefficients (Beta), it can be interpreted that IM is the most significant characteristic impacting the EE, followed by IIA, IS and IC.

Effectiveness (of the Leader) vs. Five Components of Transformational Leadership

Table 29 : Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.856[a]	.733	.725	.52461101

a. Predictors: (Constant), IC, IM, IS, IIA, IIB

b. Dependent Variable: EFF

Table 30 : ANOVA [b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	118.791	5	23.758	86.325	.000[a]
	Residual	43.209	157	.275		
	Total	162.000	162			

a. Predictors: (Constant), IC, IM, IS, IIA, IIB

b. Dependent Variable: EFF

Table 31 : Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.653E-17	.041		.000	1.000
	IIA	.260	.067	.260	3.886	.000
	IIB	.173	.079	.173	2.193	.030
	IM	.321	.073	.321	4.416	.000
	IS	.167	.064	.167	2.599	.010
	IC	.055	.067	.055	.827	.410

a. Dependent Variable: EFF

· ANOVA table above (p-value = 0.000 < 0.05) suggests that the regression model is significant and is better than just taking the mean of EFF values as the estimate for EFF. This also indicates that EFF can be predicted based on different characteristics of transformational leadership.

· However the accuracy of the model is 73.3% (R-squared from model summary) indicating that there is almost 26.7% uncertainty around EFF prediction using the characteristics of transformational leadership. EFF can be a result of some other factors which are not captured as a part of the study.

· From the coefficients table, we can infer that IIA, IM, IS and IIB are significantly positively impacting the EFF (p-values < 0.05) whereas IC is not significantly impacting EFF (p-value > 0.05).

- Thus Alternative hypothesis is proved.
- Looking at the standardized coefficients (Beta), it can be interpreted that IM is the most significant characteristic impacting the EFF, followed by IIA (though its P value is same), IIB and IS.

Satisfaction vs. Five Components of Transformational Leadership

Table 32 : Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.729[a]	.531	.516	.69539334

a. Predictors: (Constant), IC, IM, IS, IIA, IIB

b. Dependent Variable: SAT

Table 33 : ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	86.079	5	17.216	35.601	.000[a]
	Residual	75.921	157	.484		
	Total	162.000	162			

a. Predictors: (Constant), IC, IM, IS, IIA, IIB

b. Dependent Variable: SAT

Table 34 : Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.197E-17	.054		.000	1.000
	IIA	.290	.089	.290	3.261	.001
	IIB	.187	.104	.187	1.794	.075
	IM	.119	.096	.119	1.232	.220
	IS	.079	.085	.079	.925	.357
	IC	.163	.089	.163	1.837	.068

a. Dependent Variable: SAT

- ANOVA table above (p-value = 0.000 < 0.05) suggests that the regression model is significant and is better than just taking the mean of SAT values as the estimate for SAT. This also indicates that SAT can be predicted based on different characteristics of transformational leadership.
- However the accuracy of the model is 53.1% (R-squared from model summary) indicating that there is almost 46.9% uncertainty around SAT prediction using the characteristics of transformational leadership. SAT can be a result of some other non-transformational leadership factors which are not captured as a part of the study.
- From the coefficients table, we can infer that only IIA is significantly positively impacting the SAT (p-values < 0.05) whereas IIB, IM, IS and IC are not significantly impacting SAT (p-value > 0.05). However when we take 90% confidence level (with P value as 0.1) then, IIB and IC are also contributing to SAT. But IM and IS do not seem to have any effect on satisfaction.

- Alternative hypothesis is proved.
- Looking at the standardized coefficients (Beta), it can be interpreted that IIA is the most significant characteristic impacting the SAT, followed by IC and IIB.

4.0 Conclusion :

MLQ is an effective instrument in measuring effectiveness of Leadership outcomes, with particular reference to people related issues. Out comes in terms of profit, productivity, market standing etc can be quantified and assessed but quantification is very difficult while assessing people related issues such as job satisfaction and willingness to put in extra effort . These are assessed by MLQ as direct measures in a survey.

Transformational leadership is assessed by five constructs which are then correlated with outcomes and as can be seen from the above survey, interesting conclusions are drawn.

4.1 Idealized influence (Attributes), Inspirational motivation, Intellectual stimulation, and Individual consideration are significantly positively impacting the Extra Effort (p-values < 0.05) whereas Idealized influence (Behaviour) is not significantly impacting Extra Effort (p-value > 0.05).

4.2 Likewise we can infer that Idealized influence (Attributes), Inspirational motivation, Intellectual stimulation, and Idealized influence (Behaviour) are significantly positively impacting the Leader's effectiveness (p-values < 0.05) whereas Individual Consideration is not significantly impacting Effectiveness (p-value > 0.05).

4.3 we can also infer that only Idealized influence (Attributes), is significantly positively impacting the Satisfaction (p-values < 0.05) whereas Idealized influence (Behaviour) , Inspirational motivation, Intellectual stimulation, and Individual Consideration are not significantly impacting Satisfaction (p-value > 0.05). However when we take 90% confidence level (with P value as 0.1) then, Idealized influence (Behaviour) and Individual consideration are also contributing to Satisfaction. But Inspirational motivation, Intellectual stimulation, do not seem to have any effect on satisfaction.

5.0 : Leadership aspects : Future study required

Is the " Transformational Leadership " panacea for all the problems that confront the leaders ! Has "Transformational leadership" theory addressed all the evolving aspects of Industry intricacies of 21st Century ! Does this theory provide the much needed "Thought" leadership to the present day managers !

One key aspect that present day top management finds it essential is the ability to articulate a compelling vision that would guide the industry in the foreseeable future , say ten years and the ability to align the managerial work force to actualize the vision. Though "Transformational leadership" is reported to envision the future, the five constructs enunciated by Bass and Avolio have not been very vocal on this aspect. It is true that one question (question number 26) does mention that a leader articulates a compelling vision for the future but this aspect deserves much more space and attention in the current times.

Innovation is an important key requisite for any industry segment in the present day world. Most leadership studies involving innovativeness, have set creativity or innovative behaviour as dependent variables (e.g. Rosing et al., 2011; Scott and Bruce, 1994). The studies reviewed by Rosing et al. (2011) revealed Transformational leadership to positively influence innovativeness, but to exert such influence more directly at the organizational than at the individual level. In addition, Denti (2011) found that leaders can best affect innovativeness on a team level, but then the whole organization should be supportive. Mumford et al. (2002) proposed that Transformational leadership might enhance innovation "through motivation and intellectual stimulation". Thus "Intellectual stimulation" is a construct that assesses innovative spirit in the Organisation but would need to be considered as a dependant variable and thus would need further study in view of its criticality.

Building capacity for change is another important key aspect. Change has always been happening in human history but it is the percentage of change that is more rapid and thus the need for the top management to be ever vigilant and

alive to changing environment. Thus "Change Management" is a key focus area for senior management in any Organization competing in the present day world. Transformational leadership theory has to specifically coin a new construct and work out a method to assess the same.

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A Machine Learning Based Approach for Healthcare Services

Akhter Mohiuddin Rather* and J. Selvapriya**

Abstract

In this paper an attempt has been made to solve classification problem using two different machine learning techniques: artificial neural networks and decision trees. For this purpose, healthcare data has been chosen as domain of the problem. It is observed that there is huge overlap between the classes of the data, thus making it extremely difficult to solve using statistical models. Therefore, with the aim to solve such problems, artificial intelligence-based models have been adopted here. A comparative study of two data mining models is done to find the optimal model for the domain of study here. As expected, artificial intelligent models yield better and optimal results.

Keywords: Artificial Intelligence models, Statistical models, Classification, Blood Donation

Introduction

The healthcare industry is witnessing more advancements and becoming more social and patient-driven. Acquiring potential blood donors is a challenge faced by the health care industry every day. For this purpose, a thoroughly reviewed dataset of a healthcare data is identified. The goal is to classify the prospective donors. This study focusses on behavioral classification (based on recency, frequency, quantity aspects) rather than on the demographical classification.

The classification problem encountered here because of the huge overlap between the classes, demand us to use more sophisticated machine learning techniques. Classification is a supervised learning technique, which groups data into categories based on predetermined characteristics. The underlying idea here is by learning the characteristics of training set, the model becomes equipped to classify the data when categories are not specified. The underlying purpose of the effort is to provide the system, the ability to automatically learn and improve from instances without programming explicitly. There are various models available to achieve this purpose. Few prominent models are decision tree, naïve bayes, ANN, Support vector machine, logistic regression, multinomial regression. The well-known artificial neural networks and decision tree are some of the most incredible contributions in the field of the classification.

Literature Review

Classification of observations into one of two groups is a critical task in many business processes and is a fundamental technique used in business decision making. (Ragsdale and Stam, 1992)

Machine learning is an artificial intelligence technology that enables computer systems to learn without being explicitly programmed. In the health care setting, machine learning provides systems with the ability to scan huge volumes of data and use pattern recognition to make predictions about future outcomes. (PR Newswire , 2018)

ANNs are information processing units which have inspired from human brain (Mc Culloch, and Pitts,W,1943).

Work on decision tree induction in statistics began due to the need for exploring survey data (Fielding, 1977).

Most of the companies have understood that customer databases are very important assets (Jones, Mothersbaugh, and Beatty, 2000) that could be used to analyze the customer characteristics in order to formulate the appropriate marketing strategies and to customize them (Kim, Suh, and Hwang, 2003).

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Methodology Used

This section provides an overview on the methodology used in this work.

Artificial Neural Network

ANN operates on an entity referred to as Hidden State. These hidden states are similar to neurons. Each of these hidden state is a transient form which has a probabilistic behavior. A grid of such hidden state act as a bridge between the input and the output.

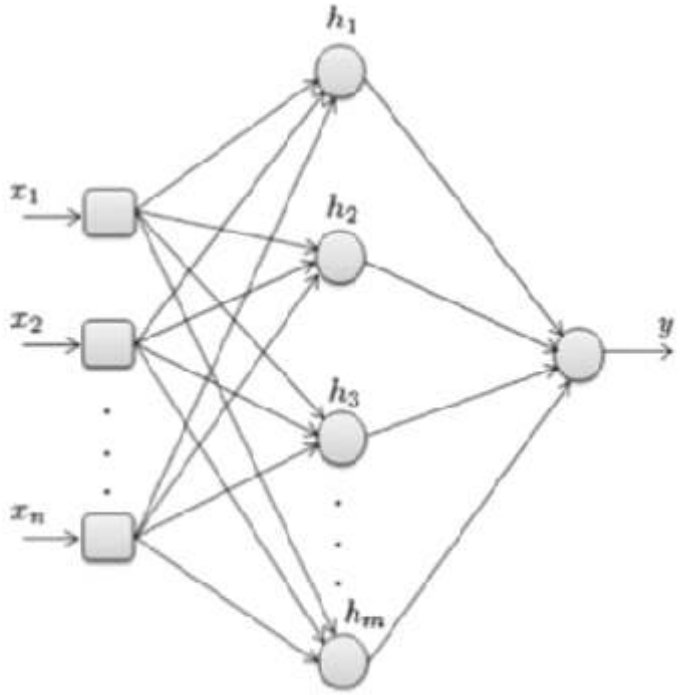


Figure 1 : Artificial Neural Network with one Hidden Layer

A typical ANN is shown in Fig 1.It shows a typical ANN with *n* input neurons *(x_1, x_2,...,x_n)*, *m* hidden neurons *(h_1, h_2,...,h_m)*. Such ANN is also known as multilayer perceptron (MLP) and is most widely used ANN. The connection links between different layers are associated with random weights and weighted sum is calculated at the forward layer. For instance, if the input neurons x_1, x_2,...,x_n are associated with weights w_1, w_2,...,w_n the weighted sum is calculated as shown in below Equation (1) , which shows weighted sum being collected by j^{th} hidden neuron.

$$h_j - a_0 + \sum_{i-1}^{m} x_i w_i \qquad (1)$$

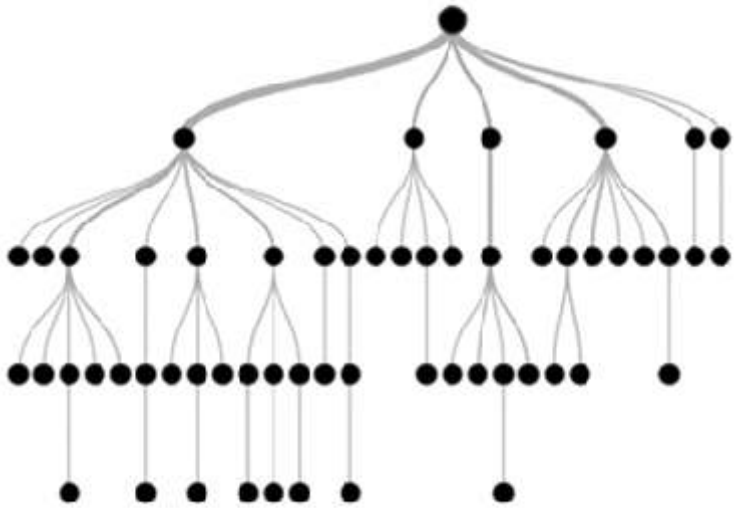
Where a_0 is known as bias; final output *y* is collected after it passes through a nonlinear function *σ(y)*.

There can be multiple hidden layers in the model depending on the complexity of the function which is going to be mapped by the model. The network learns using back propagation algorithm by adjusting weights in each epoch depending upon data, its characteristics such as how much noise it has, an ANN may require hundreds or millions of epochs to converge.

In the field of prediction-based models and classi? cation, ANNs have replaced existing linear models and they still continue to catch the interest of researchers. This is because of their excellent performance and robustness that they are still being explored and improved.

Decision Tree

Decision tree is a type of supervised learning algorithm (having a pre-defined target variable) that is mostly used in classification problems. It works for both categorical and continuous input and output variables. In this technique, we split the population or sample into two or more homogeneous sets (or sub-populations) based on most significant splitter / differentiator in input variables.



The algorithms work top-down, by choosing a variable at each step that best splits the set of items into two or more homogeneous sets (or sub-populations). Decision trees use multiple algorithms to decide to split a node in two or more sub-nodes, such as Gini Index, Chi Square, Entropy, Variance Reduction depending on the target variable.

Decision trees Performs well with large data sets using standard computing resources in reasonable time. There is an additional beneficial technique called pruning, that reduces the size of decision trees by removing sections of the tree that provide little power to classify instances. Pruning reduces the complexity of the final classifier, and hence improves predictive accuracy by the reduction of over fitting.

Experiments and Results

This section covers data definition, results from experimentation and their comparative performance.

Data

The Sigtuple data is a real time database of Blood Transfusion Service Center in Hsin-Chu City in Taiwan in March 2007. The data is characterized by the LRFM Model with Length(Time), Recency, Frequency, and Monetary indices.

Table 1: Data Definition

Number of Attributes	5
Number of Instances	748

Feature	Definition	Range
Recency	months since last donation	Integer ranging between 0 and 74
Frequency	total number of donation	Integer ranging between 1 and 50
Monetary	total blood donated in c.c	Integer ranging between 250 and 12500
Time	months since first donation	Integer ranging between 2 and 98
Donated	A binary variable representing whether he/she donated blood in March 2007.	1-donating blood 0- not donating blood

The identified dataset has 4 independent variables and 1 dependent variable (Donated).The machine learning models uses the independent variables – recency, frequency, monetary and time to categorize the observations into donating(1) and not donating (0).

The plot of the dataset is made with the 2 variables – recency and frequency to understand the linearity/ non - linearity of the data as seen in Figure 3.

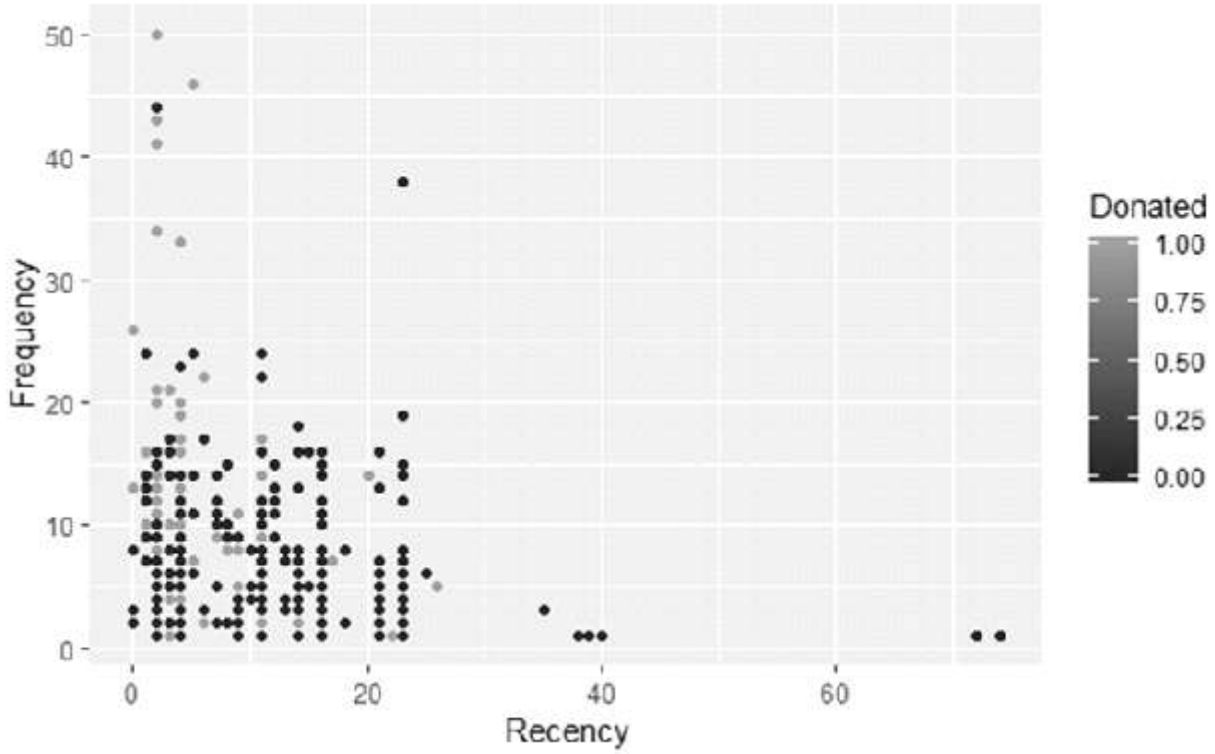


Figure : Overlap Between the 2 Classes of Data

The degree of visual overlap of the two numerical data-Frequency and Recency of blood donation, is clearly evident.

Results from Artificial Neural Network

The ANN model is trained with the dataset with one and two hidden layers with varying number of neurons in each layer and the accuracy of the model is studied. The results are shown in the table 2.

Table2: Experiment Results of Decision Tree

Split	Hidden	Epochs	Training set		Test set	
			Accuracy	Error	Accuracy	Error
70:30	5	28223	82%	18%	79%	21%
70:30	2,3	7571	83%	17%	76%	24%
80:20	5	18986	81%	19%	78%	22%
80:20	2,3	45857	81%	19%	76%	24%

Results from Decision Tree

The dataset is used to train the decision tree and the respective results on its accuracy is represented in the Table 3.

Table 3: Experiment Results of ANN

Split	Training set		Test set	
	Accuracy	Error	Accuracy	Error
70:30	48%	52%	48%	52%
80:20	48%	52%	48%	52%
90:10	47%	53%	42%	58%

Comparison

The performance of Decision tree has been minimal, and it was unable to capture the patterns of the data. This has resulted in high prediction error. However, as expected ANN outperforms Decision tree.

Conclusion

The study clearly shows how the machine learning phenomenon can be used for deriving better outcomes in delivering optimal healthcare services. The success of healthcare industry lies in providing seamless medical care for the patients in need. In future, this study can be extended and used in categorizing the prospective blood donors into appropriate groups such as core donors, potential donors, lost donors and new donors, and so on. Using the classification results, the healthcare organization can strategize several blood donor acquisition methods. The limitations of this work are that optimal results are not guaranteed for every dataset, rather the models are data dependent. Another limitation of the models is time complexity. The future work involves exploring some better methods so as to reduce time complexity of the models with least prediction error.

Acknowledgment

Research support from Vignana Jyothi Institute of Management is highly acknowledged.

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Decision Drivers Using Competency Grid in Talent Acquisition and Performance Management

Yamini Meduri* and Kedarisetty Vaishali**

Abstract

This is a pilot study report on a larger research exploring the roles, competencies and skills of professionals in organizations. The competencies which are required for different service level jobs and to know what the decision drivers are during the talent acquisition and performance management is observed. The research is designed to compile the different responsibilities and deliverables given during the period. The research includes the talent acquisition procedure, performance appraisal evaluation criteria. Understanding of the competency framework being used by the Novotel organization for the different HR activities has been observed and how will it is useful for an organization.

Keywords: Competency Based HRM, Talent acquisition, Performance Management, HRM

Introduction

Business organizations today are operating in a highly Volatile, Uncertain, Complex and Ambiguous (VUCA) environment because of which responding both quickly and efficiently has never been more relevant. The environmental variables that extremely influence the performance of the organization both at the domestic and global level are the economic climate, political factors and competitive structure (Smolski, 1980). However, there is also a definite need to understand the global factors that influence the performance of an organization as they may grow to operate in different nations.

The strategic models of the organizations (Prahalad & Hamel, 1990) emphasize the organizations on developing core competencies which shall help them cope with the dynamic nature of the business environment and are often referred to as "competence". Building competencies-both individual and organizational levels, would lead to both horizontal integration of HR processes and vertical integration of the business activities related to HR (Sodequist *et. al.,* 2010). It is evident from the literature that competency model integration is essential for the organizations functioning in a dynamic business environment.

Ever since the seminal paper of David McClelland (1973), organizational people research moved towards building competencies to achieve a competitive advantage over the competitors. Boyatzis (1982) defines competency as the behavior of the individual which contributes to the improved performance of the incumbent on the job. According to Pickett (1998), competencies are knowledge, skill and attitude combined with experiences which are expressed as an outcome relative to the workplace and not a process.

Competency is the tool is now widely used in organization to improve the performance excellence. The degree of human resource efficiency reflects in the core competency of an organization; to what extend the organization can optimize its resources and utilize the potential market opportunities of business environment depends solely on the human competency an organization builds. It is off late that the many organizations have understood the significance of competency based management but it is still a mirage to many organizations for its complexity and intricacies of building the competencies for the organizations.

Competency management is defined as a comprehensive human resource strategy that identifies and builds the most relevant competencies to facilitate peak employee and organizational performance. It includes the identification of critical knowledge, skill and attitude that is to be possessed by an employee to perform his role effectively. This may be categorized under the individual, departmental and organizational heads. Grouping the different level competencies may develop a competency model for the organization. The articulated and customized competency model brings out the competency based performance. The competency based performance may be better used to reward, career development, leadership, measuring performance and culture building.

Literature Review:

Competencies are a combination of knowledge, skill, attitude, behavior which are linked to desired level of performance of an individual by providing the organization a sustainable competitive advantage (Ahey and Orth, 1999). Competencies include a range of individual, team and organizational capabilities. The concept has also been taken to strategic level which introduced the core competency and core competence. Core competency means a specialization of a person and a core competence is ethics. The degree of change impacting many companies today the concept of competency has taken on much broader dimensions. To identify the competencies organizations go through the process of competency mapping. Competency mapping is the heart of competency based human resource management. It is a process of identifying the key competencies for an organization and job, incorporating those competencies throughout the various processes like job analysis, recruiting, and training of the organization (Johri, 2014).

In this business world, for the betterment and development of organization competency mapping is critical and important for sustaining in the competitive world. If the process of mapping the competencies is not done, organizations will end up in creating human liabilities than the assets which will be catastrophically dysfunctional. The relationship between competencies and performance ensures a situation specific behaviour. In organizations these behaviours lead to continuous improvement in quality, productivity, sales, and other economic results and also innovation in the development of new products and services. Ganesh (2017) stated that competency mapping may create expectations which help in performance superiority and this in turn results in professional development, better job satisfaction and improved employee retention. This helps in increasing the efficiency and effectiveness of training and development programs of an organization. Organizations use competency mapping to help the individual/employee know the strengths and weakness of their performance and can find out where career improvement efforts need to be taken. In the article the author has given an example of how competency mapping is used in Karnataka agencies and what was the impact. The Karnataka agencies has a 7S model with reference to competency mapping, they are structure, skill, style, staff, strategy system, shared values. The competencies that are used to perform a task or job such as technical knowledge, functional information, analytical skills, communication skills, planning and organizing skills, interpersonal skills, leadership skills, team building skills, problem solving skills, decision making skills, time management skills. They used a descriptive research and also used SPSS software to know the impact. After the research the result is employee's involvement and commitment at Karnataka Agencies is highly related to competency mapping and the employees are creative in dealing with difficult situation at the work place and contribute in effective implementation of new and creative ideas.

Research Questions

Competency based performance assist the organizations to achieve their vision, mission, objectives and goals. It also paves the career path of the employees. It creates a system which may focus on developing human capital of the organization. There are studies which developed 10 significant reasons why there should be competency based performance assessment such as Performance, Culture Change, Training and Development, Recruitment and selection, Business objectives, Career Planning, Skill analysis, Flexibility, Clarity of role, Integrating human resource (Pickett, 1998).

Strategy to Identifying Organizational Objectives Competency based performance management system will help the organization to identify the organizational objectives and communicate that to the employees to channelize their effort to achieve them.

To Evaluate the Human Potential: Competency based performance helps in identifying and assessing the human capital in the organization. It identifies the knowledge, skill and attitude of the employees and helps in planning and developing the professional growth of the employees.

To Identify the Managerial Objectivity: The system of competency based performance management will help the organization to assess the managerial objectivity and its accuracy in attaining the objectives.

To Build Consistency and Completeness: Competency management in performance assessment will provide a consistency and it creates a continuation and completeness in the process.

To Maximize Productivity and Efficiency: The competency based assessment helps in increasing the productivity by increasing the efficiency reducing the mistakes since right person is in right job.

To Create a Benchmark: Competency based performance evaluation fix the standard of performance.

To Provide Strategic Advantage: A strategic approach to the management style can be achieved with the introduction of competency based performance management system in the organization. Identifying the required knowledge, skill and attitude set in the employees may create a strategic edge for the organization.

Hence, understanding the use of competency models for managing human resources is important to understand the dynamics of competency mapping in the workplace. The current article attempts to present a detailed analysis of the competency model being used by Novotel Hotels in real time specifically in talent acquisition and performance management. Further, the paper also attempts to present the key decision drivers for selection and promotion decision. The information used for the purpose of this research is collected through policy analysis over three months from April- July 2018 and is real-time data.

About the Organization: Novotel Hotels

Novotel Hyderabad airport is a mid-scale hotel serves hospitality and comes under the parent company of Accor international brand. Accor hotels was first founded in the year 1967 by Paul Dubrule and Gérard Pélisson founded the *Société d'investissement et d'exploitation hôteliers* (SIEH) hotel group and opened the first Novotel hotel outside Lille in northern France, it is a French multinational hospitality company that owns, manages and franchises hotels, resorts, and vacation properties.

The main and important prooduct for any hospitality sector is Rooms and services it provide, it differs from property to property according to brand standards and segments it comes in. Novotel Hyderabad Airport is a luxury hotel in india and has it own brand standards and guidelines.

Positioning: Novotel positions itself as a Modern easy living upper midscale hotel catering to midscale to premium customers.

Novotel Hyderabad Airport designed to help guests find their way around easily is built on simplicity and elegance and well positioned near the new international airport. The hotel features 305 rooms and suites in the Premier Floor with Wi-Fi access, along with 2 restaurants, a bar, a beautiful outdoor swimming pool and meeting rooms accommodating up to 400 guests covering a total area of 7 acres.

Focus on Sustainable Development

As a certified sustainable – ISO 14001 company with PLANET-21, they have made 21 commitments to act together for the well-being of our world. With 7 pillars, 21 commitments and concrete actions within the hotels, it encompasses their commitment to sustainable development actively in the areas of nature, carbon, innovation, local development employment and dialogue.

Presence of hotels across world and pipeline ready for future expansion.

Consolidated revenue for the end of December 2017 totalled €1,937 mn, up 7.9% year on year at comparable scope of consolidation and exchange rates (like for like). On a reported basis, it is up 17.7%.

HR at Novotel

The Human Resources department in Novotel is named as Talent and Culture. On the first day when I entered the department I asked what the meaning was. They welcome talent and provide an open culture to learn. The major part of my project involved in understanding the competency grids and their usage in the different HR functions and specifically to Talent Acquisition and Performance Management System. The next sections of the report discuss about the process in which the competency grids are used in PMS and TA processes.

Competency Grid

The human resources of Novotel Hotels get into the organization at the Associate Level and have an opportunity to move up to a position as high as Vice President. The entire process is founded on a competency grid that is divided into three proficiency levels-namely enabling, collaborative and entrepreneurial. Each job role is designed with competencies across the three levels and job incumbents are required to possess these competencies and develop incrementally to progress through the job levels.

The different job levels in the organization are:

- Future leaders (Associates)
- Emerging leaders (TL&AM)
- Professional leaders (MANAGER& HOD)
- Executive leaders (EXCOM)
- Strategic leaders (GM & HM)
- Inspiring leaders (AREA GM & DOP)
- Visionary leaders (VP).

The competency grid that is used in Novotel Hotels for the different job levels listed above is as follows:

Designation	**Competencies**		
	Enabling	**Collaborative**	**Entrepreneurial**
Future leaders (Associates)	• Open minded • Guest centric	• Self-confidence • Communication • Team player	• Proactive and initiative • Business awareness and improvement
Emerging leaders (Team leaders & assistant manager)	• Positive orientation • Developing an empowered team • Guest centric	• Leading an example • Communication • Enabling the team	• Problem solving and decision making • Business awareness and improvement • Self-development& self-management.

Professional leaders (Manager and HOD)	• Positive orientation • Developing an empowered team • Guest centric	• Leading the team • Communication • Enabling the team	• Problem solving and decision making • Business awareness and improvement • Self-development& self-management • Strategic thinking and analysis • Business awareness.
Executive leaders (Excom)	• Positive orientation • Developing an empowered team • Advocating guest passion	• Leading the team • Communication • Enabling the team	• Operational decision making • Business improvement and change
			• Self-development& self-management • Analyzing and executing strategy • Business planning and analysis.
Strategic leaders (GM & HM)	• Representative-ness • Builds an empowered team • Negotiating with influence • Advocating guest passion	• Leading and inspiring the team • Communication with impact • Organizing and planning	• Operational decision making, • Change leadership and innovation • Shaping and executing strategy • Business acumen and analysis.
Inspiring Leaders(AREA GM)	• Representative-ness • Aligning and emerging an empowered team • Building business partnership • Advocating guest passion	• Inspirational leaders • Communicating with impact and influence • Organizing and planning	• Strategic decision making • Driving change and innovation culture • Establishing a strategic decision • Commercial acumen
Visionary Leaders(VP)	• Social intelligence • Enabling leadership • Motivates guest passion	• Collaborative leadership • Inspiring communication • Forward thinking	• Strategic decision making • Entrepreneurial leadership • Builds vision and strategy • Commercial acumen

Competency Grid of Novotel Hotels

Acquiring human resources across departments and also the promotion decisions are guided through the above competency grid.

After a year, each and every employee undergoes performance appraisal what have they learnt, did they reach the target, eligible for a promotion and incentive.

Talent Acquisition Process in Novotel

Talent acquisition process flow chart at Novotel Hyderabad Airport.

Resource Request: In Novotel when there is a vacant position in a department the manager sends a resource requisition form to Talent and Culture informing we need manning.

Recruitment: The talent and culture team firstly raises a flash internally in accor.com about the vacancy because the first priority is given to internal employees and then they post in naukri.com, linked in, Facebook page.

Selection: After the screening we call them for an interview. The candidate faces a PANEL INTERVIEW. In this interview the panel ask questions like

Why you wanted to choose Novotel?

Where would you like to see yourself in next 5 years?

What should you do when guest enter the hotel?

Technical questions

The detailed table of Decision drivers of selection process for different designations at Novotel hotels is as follows:

Designation	All Skills Required	Decision Drivers
Associates	• Communication and interpersonal skills • Performance • Customer focus • Job knowledge • Team work • Adaptability • Attitude • Stability • Experience	• Communication • Customer focus • Experience • Job knowledge
Team Leaders	• Communication skills • Team work • Problem solving skills • Customer focus • Inspiration • Decision making • Experience • Job knowledge • Attitude	• Experience • Communication • Problem solving skills • Decision making • Job knowledge

Assistant Manager	? Experience ? Communication ? Interpersonal skills ? Job knowledge ? Problem solving skills ? Decision making skills ? Business awareness ? Self-management ? Self-development ? Planning skills	? Interpersonal skills ? Problem solving skills ? Decision making ? Business awareness ? Planning skills
Manager	? Leadership skills ? Flexibility ? Problem solving skills ? Flexibility ? Organizational skills ? Business awareness ? Communication ? Experience ? Job knowledge ? Self-management ? Planning skills ? Strategic thinking	? Organizational skills ? Strategic thinking ? Problem solving skills ? Business awareness ? Flexibility
Head Of The Department	? Ability to engage ? Flexibility ? Adaptability ? Interpersonal skills ? Strategic thinking and analysis ? Problem solving & decision making ? Leading the team ? Developing an empowered team ? Business awareness and improvement ? Job knowledge ? Experience	? Developing an empowered team ? Leading the team ? Problem solving and decision making ? Business awareness and improvement ? Strategic thinking and analysis ? Adaptability
Executive operations	? Positive orientation ? Developing an empowered team ? Advocating guest passion ? Leading the team ? Communication ? Enabling the team ? Operation decision making ? Self-development ? Analysing strategy ? Business planning	? Advocating guest passion ? Operation decision making ? Self-development ? Analysing strategy ? Business planning

General Manager	? Representativeness ? Negotiation ? Strategic planning ? Communication ? Inspiring the team ? Business analysis ? Innovation driven ? Communication ? Job knowledge ? Experience	? Representativeness ? Negotiation ? Strategic planning ? Business analysis ? Innovation driven
Area General Manager	? Leadership skills ? Enthusiasm ? Communication with impact and influence ? Organizing and planning ? Driving change ? Innovation culture ? Experience ? Networking ? Representativeness ? Job knowledge ? Establishing strategic decision ? Advocating	? Strategic decisions ? Driving change ? Innovation culture ? Networking ? Organising and planning
Vice President	? Social intelligence ? Motivation ? Enabling leadership ? Communication ? Future thinking ? Collaborative leadership skills ? Entrepreneurial knowledge ? Commercial acumen ? Job knowledge ? Experience ? Building vision and strategies	? Motivation ? Future thinking ? Collaborative leadership skills ? Entrepreneurial knowledge ? Commercial acumen ? Building vision and strategies

Table 1: Decision Drivers of Selection Process for Different Designations

Psychometric Test: If the candidate gets selected in the interview he/she should attempt this test which is divided into four parts namely, Quantitative, Logical reasoning, Psychometric, Technical.

Reference Check: Then a reference check will be done by calling to the candidate previous employment organization or their degree college to know how the candidate behaves and any complaints on him. Then Offer will be sent to the candidate through mail where he/she should accept/reject in two days. A salary annexure will also be sent.After the acceptance of the offer, they ask the candidate a date to come for joining. Accordingly they arrange and approve the date. A day before date of joining the candidate is sent a mail at what time to report and list of documents to be carried.

Step-4: On boarding

On the date of joining the employee will be welcomed by whole talent & culture team with chocolates. Then a set of documents is given to the employee to fill up the details likeSignature on job description, employment application form, welcome letter, date of joining letter, name badge form, uniform form, locker form, medical dependency form, Neerikshana form, PF form, ESI form, Form F, Group Life Insurance Form, Tax deduction Form, Background verification form.Then the employee is told to fill up his details in an excel sheet named as HRMS.

Step-5.1 : Induction

Next he/she should wear their uniforms and start induction where the employee should go to each department and take induction so that the employee will know himself where the departments are.

After induction the employee is told to go for a medical checkup next day to the given address and later come back to the organization. An orientation program is also conducted to all new employees imparting about Accorhotels, waag (Women at Accor generation), vigil mechanism etc. and also they take an heartiest program where they treat each and every employee as a heartiest. Heartiest is like a Facebook for the Accorhotels.

Step-5: Placement

After returning he is sent to his department and starts his job. Training will not be given as the employee has an experience and industrial training, so the employee grasps the work in one day.

Step-5.1: Probation

The employee undergoes PROBATION for three months, this means if the employee is able to work or not a fit. On what parameters they evaluate after probation period for the confirmation of job.

Performance Management:

This appraisal is taken for every employee in the organization which starts from the month of January. Performance appraisal is done annually and every designation has different competencies to be met. These competencies are same for all the hotels of ACCOR group. When Performance appraisal is done, according to the target in it the employee will be given incentive once yearly. Performance appraisal is done yearly and it has certain competencies to be met for promotion.

From	To	Time Period	Decision Drivers
Associates	Team leader	2 years	• Team player • Proactive and initiative • Communication • Developing an empowered team
Team Leader	Assistant Manager	2 years	• Developing an empowered team • Enabling the team • Problem solving and decision making • Business awareness and improvement
Assistant Manager	Manager	3-4 years	• Guest centric • Strategic thinking • Business awareness • Leading the team • Problem solving skills
Manager	Head of the Department	4-5 years	• Developing an empowered team • Leading the team • Problem solving and decision making • Business awareness and improvement • Strategic thinking and analysis

Head of the Department	Excom	5 years	• Operational decision making • Business improvement and change • Analyzing and executing strategy • Business planning and analysis
Excom	General Manager	5-6 years	• Builds an empowered team • Negotiating with influence • Communication with impact • Change leadership and innovation • Business acumen analysis
General Manager	Area General Manager	5-7 years	• Representativeness • Driving change and innovation culture • Establishing a strategic decision
Area General Manager	Vice President	8-10 years	• Enabling leadership • Forward thinking • Entrepreneurial leadership • Builds vision and strategy • Commercial acumen

Table 2: Performance Appraisal Parameters

From the above table for an associate to become a team leader, he/she should have the above competencies which are team player, proactive and initiative, communication, developing an empowered team and the promotion takes a time period of two years.

Performance Evaluation

They are four evaluation keys in performance appraisal namely Exceptional performer- Demonstrates all of the behaviors of the competency all of the time at a very high standard or frequency. Their performance indicates that they would be considered as a role model to others or an expert in this area.

Successful Performer: Demonstrates all of the behaviours of the competency most of the time at a very high standard or frequency. Their performance indicates that they have mastered this competency.

Developing Performer: Demonstrates all of the behaviours of the competency but there may be some inconsistency or further development required.

Non Performer: Demonstrates the need for significant improvement in critical areas of competency. This may be due to the lack of exposure or development activity to this competency in their current role. Or it can be due to a lack of effort, ability or willingness.

Discussions are based on performance throughout the year. The form should have three ratings that is

Manager rating

Talent rating

Finalized rating

This is a one on one session where the manager and employee sits together and decides or discusses about the competencies or the targets are achieved.

The employees can get promotion through performance appraisal and there is one more program named AELP where they take this course and attempt an exam if they get graduated the employee can get a promotion. AELP (ACCOR EMERGING LEADERSHIP PROGRAM) this program is like an performance appraisal for supervisor level. This program is for one year where the employee will be given assignments and work for 6 months later few will be shortlisted for the final round and after according to target and learning they will be given a promotion. Rounds in this program are psychometric, team building activities, quiz, JAM, interview.

Observations and Recommendations

Talent Acqusition: I have designed an evaluation format for Talent acquisition which will be helpful for understanding the evaluation process.

Talent acquisition evaluation format is given below:

JOB ROLE: **LEVEL:**

COMPETENCIES:

- Communication
- Performance
- Customer focus
- Guest centric
- Stability
- Attitude
- Job knowledge
- Team work
- Adaptability
- Experience

DECISION DRIVERS:

LOW **HIGH**

COMPETENCIES	1	2	3	4	5
Communication					
Performance					
Customer focus					
Job knowledge					
Team work					
Adaptability					
Experience					

Recommended: Yes No

Reasons:

Signature of the interviewer

Table 3: Talent Acquistion Evaluation Format

Performance Appraisal

I have known the decision drivers for different designations. I observed the opportunity of performance appraisal is give once in year with a promotion or an incentive.

Suggestions: Implementing an evaluation format for performance appraisal which helps to take better decisions. They can implement a 360 degree feedback where the employees can learn more and also makes the process more objective, participate and transparent.

When the appraisal sheet is given to the employee we should ask what his /her learning was.

Performance Appraisal: For a better understanding of the Appraisal process, a clear format is been designed.

Performance Appraisal Evaluation Format is given below:

DESIGNATION:

COMPETENCIES:

- Open minded
- Guest centric
- Self confidence
- Communication
- Team player
- Proactive and initiative
- Business awareness and improvement

DECISION DRIVERS:

COMPETENCY	1	2	3	4	5
Team player					
Proactive & initiative					
Communication					
Developing an empowered team					

TRAINING NEED:

PROMOTION: YES NO

SIGNATURE OF THE APPRAISOR

Table 4: Performance Appraisal Evaluation Format

Enquiring about the learning's while issuing the appraisal sheet will help the employee to focus on their work.

Map the goal sheet to the "competency grid" and communicating the same to the employee during the goal setting phase, this will help the employee to work efficiently.

Conclusion

Hospitality services need to understand the skills and competencies typically required of those employed in the industry to ensure they hire the best and brightest for any position, especially those in management. Individuals employed in the hospitality industry must meet specific professional standards to be effective in the position. These standards allow businesses operating in the hospitality sector to service clients and customers in an appropriate manner.

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A Study on Use of Artificial Intelligence in Human Resource Management

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Abstract

Artificial intelligence which is also known as machine learning is a software or computer based robot which is designed to think like human beings. Artificial intelligence in modern days is still on its initial phase where it is not fully adapted by the society. When we talk about artificial intelligence in human resource management has made a progress over a decade. Artificial intelligence in human resource is reforming the way company is able to function in terms of workforce management and make human resource plans, that helps in increasing their productivity making work easier. The work of artificial intelligence in human resources can vary according to the companies or sector. But few things remain common such as recruiting, training, performance analysis, company evaluation. Our first objective is to study the perception of employees towards AI. How employees think about it and its utilization in their work life. Also to analyze how it helps them in dealing with problems. Second objective is the list of companies that have incorporated artificial intelligence in human resource management. Over the years how artificial intelligence has evolved and helped employees in reducing their burden. Third objective is scope of artificial intelligence in human resource management. What more could be done in human resource management in reference to artificial intelligence. Our last objective is importance of artificial intelligence in human resource management. When it comes to new ideas artificial intelligence cannot propose new ideas as it is only design to do the assigned work so, human resources are required to generate new ideas artificial intelligence have no feelings so they can't really connect with people and understand their problem. Human resources are required to deal with crisis and connect with real people and help them in understanding.

Keywords: Artificial Intelligence, Human Resource and work.

Introduction

Artificial intelligence in human resource means using computer based or software to deal with things related to human resource management such as recruiting, training, data analysis etc. Organizations these days have taken artificial intelligence into consideration seriously where executives and human resource leaders are merging with artificial intelligence for the benefits of human resource and also to improve overall benefit of employee existence.

Artificial intelligence in human resource management have been making work easier for humans over decades but over the time it has made a lot of improvement. In terms of artificial intelligence things like personalized employee experience in which employees can acquire information from their neighbour. Every information is passed in fraction of seconds. Other introduction is cognitive decision making in which it shows cognitive methods to help employees to make day to day decision in workplace. Decisions like vacation request, determining employee's mood, training of entire team and hiring process of the organization.

Next is smarter people analytics, in this software companies have been collecting information of their customers to help in prediction of future events. It helps in deciding what is to be done in future by the company so as to retain the customers and keep them satisfied. Out of all the positive facts about artificial intelligence in human resource management there are certain negative consequences towards it as for example it is a high cost investment because hardware and software needs upgradation time to time to come up with the changing technologies. Hence, all the companies cannot afford such kind of investment time to time. Also due to introduction of artificial intelligence in human resource unemployment rates have been increased as new machines have replaced employees. This led to increase in unemployment. When it comes to new ideas artificial intelligence cannot propose new ideas as it is only design to do the assigned work so, human resources are required to generate new ideas

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artificial intelligence have no feelings so they can't really connect with people and understand their problem. Human resources are required to deal with crisis and connect with real people and help them in understanding.

Therefore, artificial intelligence in human resource management helps us in certain ways but we cannot depend on them completely as it was only developed to help in reducing workload from employees and get job done faster.

Objectives

- Our first objective is to study the perception of employees towards artificial intelligence.
- Second objective is the list of companies that have incorporated artificial intelligence in human resource management.
- The third objective is to see the application of artificial intelligence in human resource management.
- Our last objective is advantages of artificial intelligence in human resource management.

Literature Review

Robert Charlier (2016) "Emerging technology brings a fundamental change in the nature of work by enabling man and machine to make decisions together."

Pooja Tripathi (2012) "The demand for skilled personnel is increasing, due to more and more multinational companies entering India for their operations. This has resulted in a surge in the demand for seats in reputed technical institutions."

Stefan Sfrohmeier (2004) "Artificial intelligence technologies enable the prompt analysis of data by people that do not have special skills in data analysis."

Robin Elliot (2006) "The application of AI to personnel and management issues is likely to trigger future quandaries for HR professionals.""

John J. Lawler (2013) "This study examines an expert system within an HRM context, the results are useful as one test of expert system efficacy within the more general area of managerial decision making."

Reuter and Ludwig (2016) "The technology of expert system development also is a potentially fruitful area. There is now considerable experimentation with computer learning systems, so we might envision a generation of artificial intelligence applications that both apply heuristic rules and learn from the consequences of decisions."

Methodology

1. Sample Size	-	200.
2. Sample Unit	-	Employees.
3. Sampling Technique	-	Simple Random Sampling.
4. Sampling Frame	-	Different parts of Bangalore.
5. Collection of Data	-	Structured Questionnaire.
6. Analysis of Data	-	Pie-charts, Area Chart, Line graph, Bar Graph
		Chi-square test, Cramer's V and Phi.

Companies that use Artificial Intelligence in Human Resource Management

There are certain companies who are based on artificial intelligence in human resource management because of artificial intelligence employees also have advantage of the technology. The companies are as follows -

1. Mya System

A Mya system was found in 2011 and has received funding of $14.4 mn in past two years. The company is located in San Francisco, CA and technology which is a recruiter. It is platform through which scheduling, sourcing and interviewing candidates to save time and money. In this company artificial intelligence creates alist of candidates so that HR manager can perform faster and take better decisions for the company when it comes to recruiting candidates.

2. Talentoday

Talentoday Company which was founded in 2013 which is located in San Francisco has a funding amounting to $4.94 mn. It is platform created to provide information and insight based on psychometrics and predictive analytics. Talentoday basically helps people to make crucial choices and optimize job placement in their respective field. People in over 160 countries have access to this technology.

3. Text Recruit

It is located in San Joe, CA and has received $3 mn in funding. The policy uses artificial intelligence to text, chat and creates a recruiting funnel. Such kind of technology is generally used by companies such as Whole Foods Market, UPS, Ford and Liberty Mutual. Each company can customise their Chabot to their tone and brand. In result, the technology has an employee and candidate management system to keep a tract of applicants.

4. Workey

This company was founded in 2014; Workey has received $9.6 mn. The company provides career development in artificial intelligence. Employees can also see what companies are working for and are interested in without giving their personal details unless they want a career with that company.

5. Relink

Relink company was found in 2013 in Copenhagen. The company has received $2.14 mn. The company main purpose is to link job applicants to job via artificial intelligence. Artificial intelligence analyzes millions of candidates on a frequent term to identify and pre-identify different candidates for position. It helps in collecting information and gives a summary of trends, skills and overall. As the working of artificial intelligence, it keeps learning and it never goes to sleep.

6. Wade and Wendy

This company is located in New York and has received a funding of $1.5 min. The company is specialised in artificial intelligence in human. Wade is a personal artificial intelligence career guide who learns and makes progress while showing professional opportunities. And Wendy is a hiring artificial intelligence assistant to shape company to complement the culture.

7. Rotageek

Rotageek is a London based company founded in 2009. It has a funding of $3 mn. The company uses technology to predict demand on any prescribed day and then creates schedules using data science to meet it. The software takes care of employees as well as business performance, creating data-driven scheduling that benefits organisation and improves the work life balance of employees. This company has grown over the years and expanded to Melbourne and saved a lot of money of company over the years.

Application of Artificial Intelligence in Human Resource Management

1) Recruitment

There are various AI aided tools that help the HR professionals to evaluate the potential candidates for a particular job. This can start right from application screening to post placement assessments. AI helps in analysing the profiles of various candidates to check whether they possess the required skill set. It also helps in communication by sending automated emails or messages to the candidates. AI bots prepare an in-depth set of challenges and rewards for the employees who walk in to become a part of the organisation. Thus, Prospective employees can be selected in a much faster process using AI-aided tools in the hiring process.

2) Employee Engagement

One of the important functions of HR is to make employee friendly policies that would enable the employees to work efficiently , AI plays a significant role in this by bringing in a host of activities that is beneficial for employees.

AI can take care of the various manual sorting and organisation tasks that HR professionals have to tackle on a daily basis. AI-aided bots can prepare reports for the daily tasks and summarise them to the professionals on-the-go at a scheduled time when in office. Also, Interactive portals for inter departmental communication has made work easier.

3) Performance Evaluation

Evaluating employees on a timely basis is one of the crucial functions of Human resource management. They have to take care of tabulating and keeping a record of the performance analysis factors of the employees. AI acts as a helping hand in this process too. It sets and keeps standardised tables and reports for evaluating the performance.

4) Training

Conducting efficient training programs is important for the growth of the employees and organisation. Training programs for new employees can be remodelled using AI feedback. By using a predictive analysis model, AI can merge interpretations of psychology and skill areas to create a effective and customised training module for employees. Pedagogic tools to use during the training process in a remodelled curriculum can also be aided by AI tech. Furthermore, natural language processing techniques can also improve training sessions provided at organisations using cost-effective methods.

5) Conflict Resolution

With diversified working environments, conflicts are likely to arise. But because of growing networks and decentralisation the gap between the management and employees has increased. AI helps in bridging this gap by acting as middlemen. AI aided bot can provide the platform for the employees to express their problems and thus in turn provide a solution to it.

Advantages of Using Artificial Intelligence in Human Resource Management

In the corporate world, one of the best fields to put AI to good use are HR departments, as the companies' first line in dealing with the “human” component of their businesses. In AI, they can find a great ally at all stages of their professional work, from early shortlisting of talents and applicants' screening to later on boarding procedures and performance assessment. In addition to removing the unneeded burden from HR personnel, AI can help with streamlining all of these tasks and gaining unprecedented insights into the real performance potential of each candidate and employee. All of this is done without the limitations of human bias and capacity for error, making AI an HR management tool of the future, with benefits already ripe for picking. The advantages are as follows -

Customized Approach

HR leaders are embracing modern training methods in order to manage a multi-generational workforce and tech-savvy millennial who expect instant solutions to their problems. A uniform learning module may not be beneficial

for everyone as different individuals have are characterised by different learning styles, and to accommodate that, HR professionals use AI to provide customized corporate training.AI captures useful employee data pertaining to a broad array of worthwhile learning experiences and behavioural appraisal of potential employees. The AI/ML algorithms offer suggestions when it comes to training the workforce, thus making training programmes more rewarding.

Diminishes biased Appraisals

One of the major challenges that HR managers face during performance appraisals is to remain unbiased. AI aided tools go beyond spread sheet analysis by carrying out employee assessments via regular, unprejudiced performance appraisals. Similarly, this technology can be utilized to evaluate the career path of the employees to prepare them for career advancements.

Estimating workplace morale

The HR industry is increasingly depending on AI technologies at identifying performance patterns of their employees over time. These robotic technologies come with face-recognition technologies that are capable of identifying gender and measuring employees' psycho-emotional traits on a scale from very sad to euphoric. With the data accumulated by these technologies, organisations can develop a closer bond with their workforce by utilising the derived insights to empower employees so that they can identify their true potential.

Recruitment procedure

AI has simplified every stage of the recruitment process by equipping HR leaders with personalised research tools to pick out the finest talent in the industry. An applicant tracking software (ATS) can ease the trouble of an HR leader who has to go through countless resumes, thereby reducing blunders and ambiguities during recruitment. The ATS can analyse incalculable resumes based on keywords, location, qualification and expertise. This technology enables HR experts to shortlist candidates faster and with fewer slip-ups.

Simplifies billings

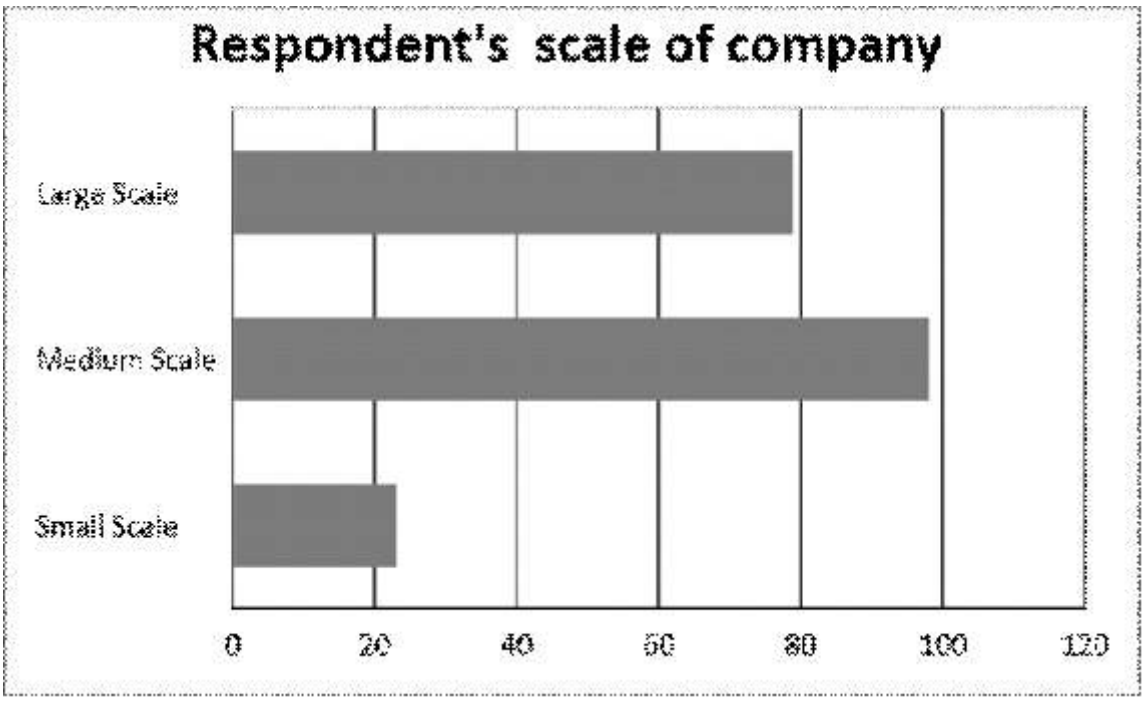
HR bots can also take care of payroll and expenses efficiently. One does not have to waste time in filling out the forms documenting transportation expenses. The Bot will notify the manager and get the bill approved.

Improved prediction models

AI has the potential to know a company better-whether it is forecasting the future ROI, increased or reduced engagement levels of employees, problems pertaining to completion of projects and other unforeseen glitches that would normally take years to come into sight.

Analysis and Interpretation

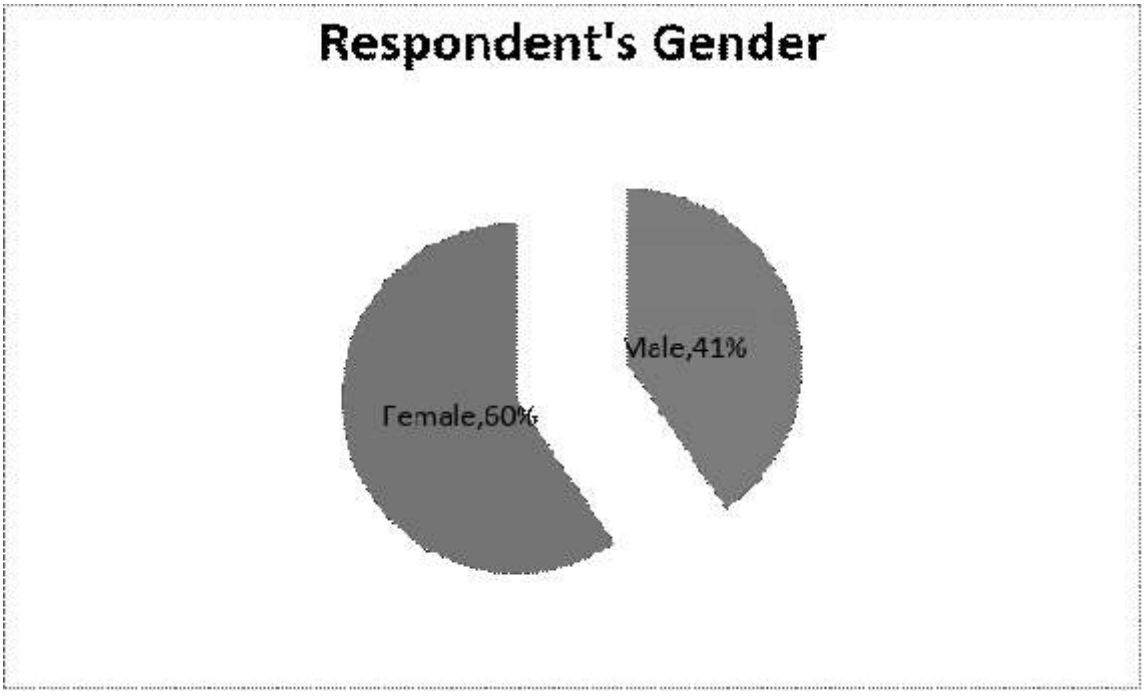
Figure 1: Showing the Respondents Scale of Company.



Inference

The above graph shows the distribution of respondents based on the scale of company they work in. AI technology adopted by different organisations would differ based on their scale of operations. Hence, covering respondents from all three scales was necessary. About 22 out of 200 respondents worked in a small scale company and 79 respondents worked in a large scale company. Majority of them belonged to a medium scale company.

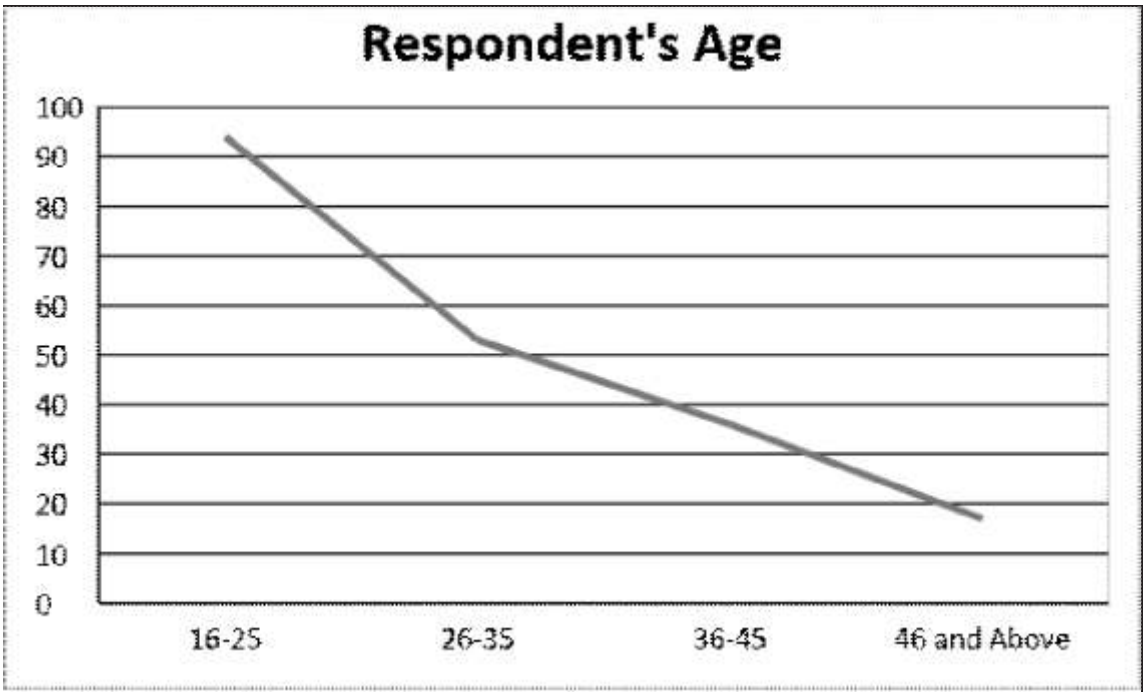
Figure 1.1: Showing the Gender of the Respondents



Inference

The above graph shows the gender based distribution of the respondents. 60% of the respondents were female and the remaining 40% were male. Perception of AI may differ for male and female employees as the workload, job profile and salaries differ for both from organization to organization.

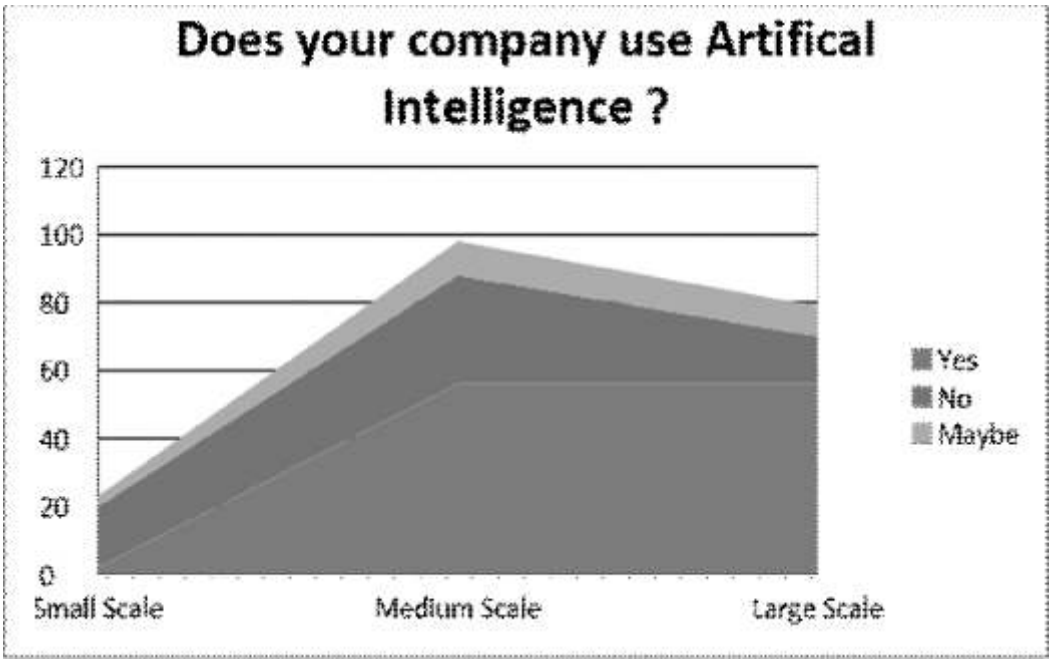
Figure 1.2: Showing the Age of the Respondents



Inference

The above graph shows the age composition of the respondents. Majority of our respondents were aged between the ages 16-35. Only about 18% of our respondents were above the age of 46. Approach towards a new technology varies between youngsters and middle aged adults. Youngsters are generally more tech savvy and can easily adapt to new technologies.

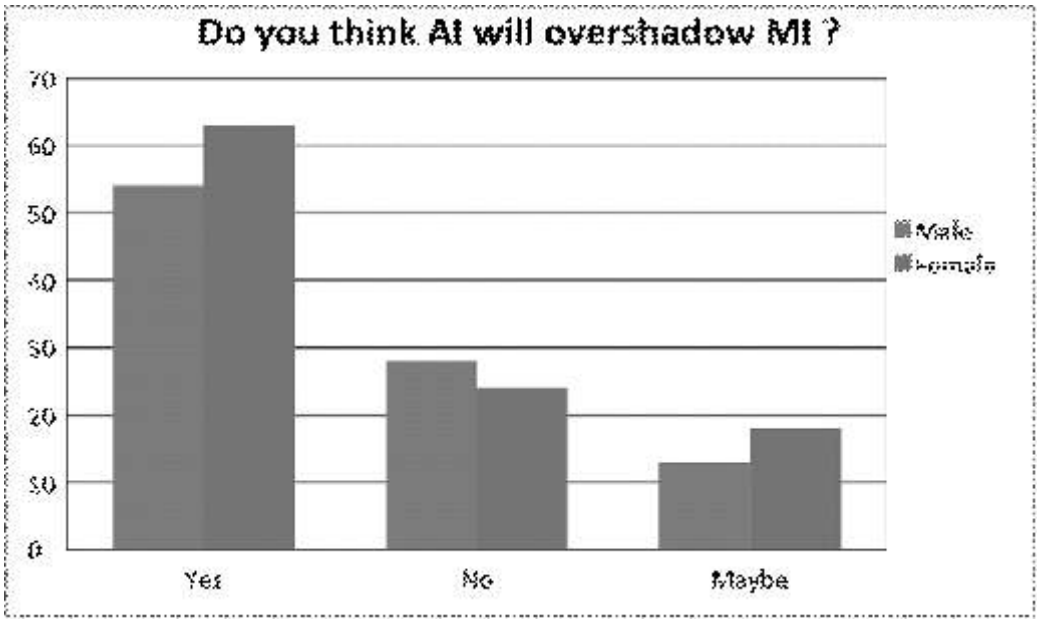
Figure 1.3: Showing Whether Different Scales of Companies use Artificial Intelligence or Not



Inference

The above graph shows whether companies of different scales i.e. small, medium and large use artificial intelligence or not. Majority of the small scale companies do not use AI, only about 5% of them use it. In case of medium scale organizations, about 50% of them use AI. Similarly, majority of large scale organizations use artificial intelligence.

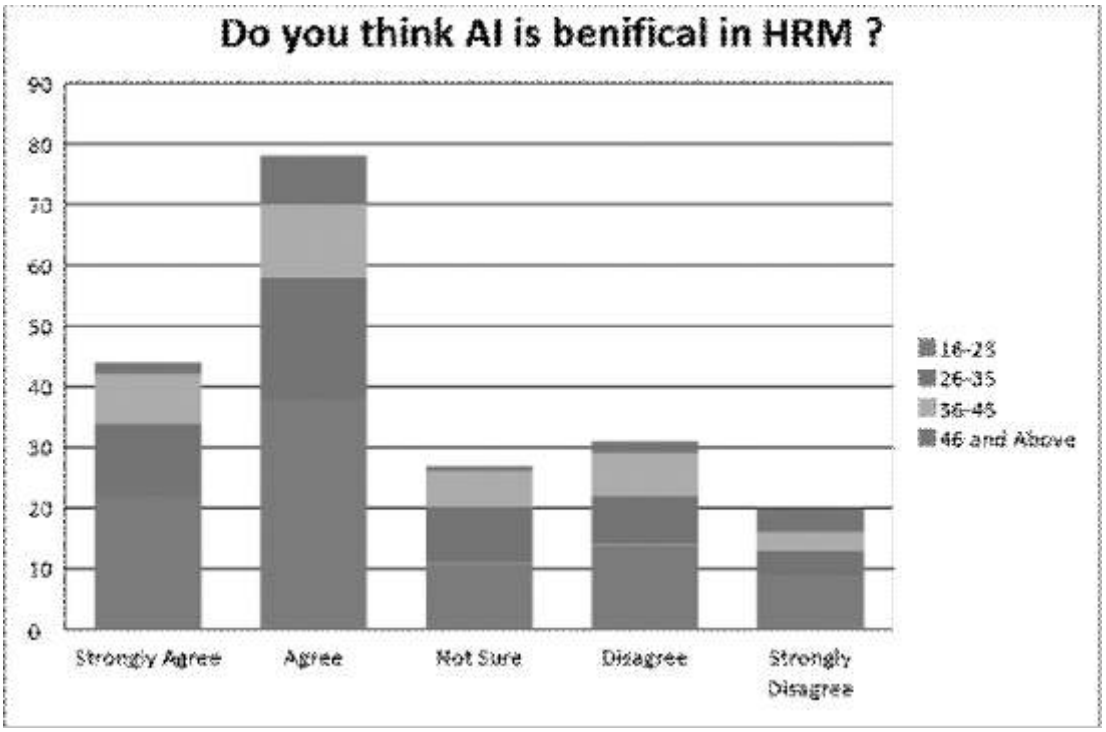
Figure 1.4: Showing the Perception of Male and Female Employees of Whether AI will Overshadow Humans



Inference

The above graph depicts the insecurity level of humans towards artificial intelligence. It shows the perception of employees whether AI will overshadow humans or not. Majority of the female employees think that AI will overshadow them. Very few of them think the other way and about 6% of them are not sure. Among the male employees, more than 60% of them believe that AI will overshadow them and only 20% disagree.

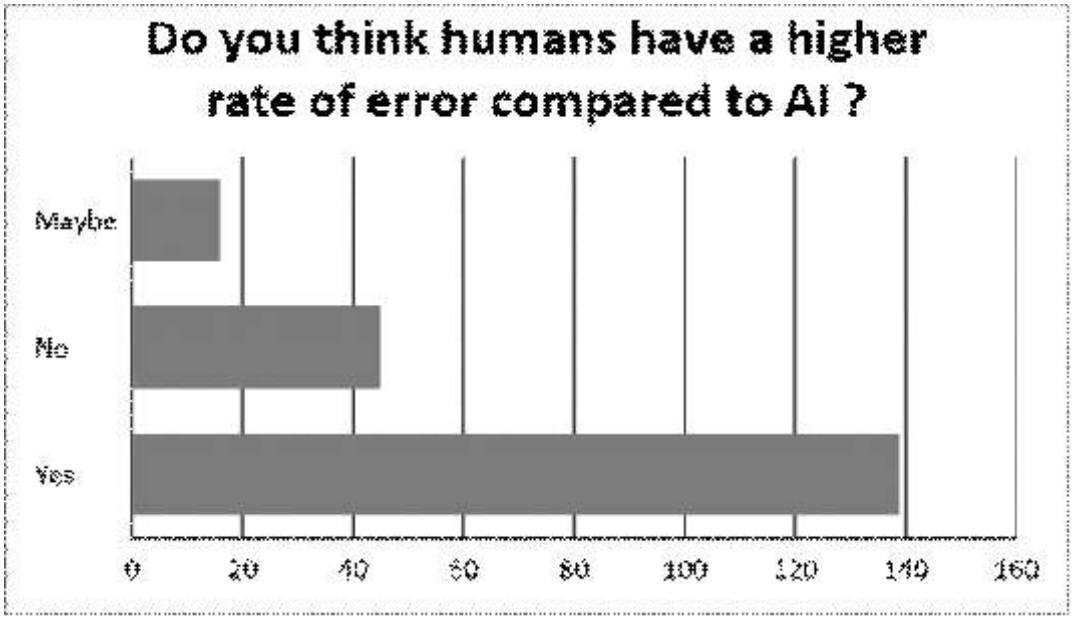
Figure 1.5: Showing the Perception of Employees on the Benefit of AI in HRM



Inference

The above graph shows whether employees of different age groups find artificial intelligence beneficial or not. In the age group of 16-25, about 50% of the respondents believe that AI is beneficial. Rest of the 50% are either not sure or disagree that AI can be useful in human resource management. In the age group 26-35, only 30% of the respondents feel that AI can be useful. Similarly, employees of age group 36 and above too have a negative opinion on benefits of AI in HRM.

Figure 1.6: Showing Whether Humans can have a Higher rate of Error than AI



Inference

The above graph depicts the comparison between level of accuracy of AI and humans. About 70% people believe that AI can be more accurate than human's i.e. humans have a higher rate of error. About 22% of the respondents think that AI is likely to make more mistakes and the rest 8% are not sure of the outcome.

Chi-Square

This is the Chi-square statistic testing that the canonical correlation of the given function is equal to zero. In other words, the null hypothesis is that the function, and all functions that follow, have no discriminating ability. This hypothesis is tested using this Chi-square statistic.

H_0: *There is no association between scarcity of job and scale of company working.*

H_1: *There is association between scarcity of job and scale of company working.*

Level of Significance = **0.05**

Chi-square SPSS Output

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	4.351[a]	4	0.361
Likelihood Ratio	4.488	4	0.344
Linear-by-Linear Association	1.275	1	0.259
N of Valid Cases	200		

Significance

This is the *p*-value associated with the Chi-square statistic of a given test. The null hypothesis that a given function's canonical correlation and all smaller canonical correlations are equal to zero is evaluated with regard to this p-value. For a given alpha level, such as 0.05, if the *p*-value is less than alpha, the null hypothesis is rejected. If not, then we fail to reject the null hypothesis.

Interpretation

The *p*-value(0.361) is more than the alpha level (0.05), and it falls under non rejection region. Hence, we accept the H0 which states that there is no association between scarcity of job and scale of company working.

Cramer's V

Cramer's V corrects for the problem that measures of association for tables of different dimension may be difficult to compare directly. Cramer's V equals 0 when there is no relationship between the two variables, and generally has a maximum value of 1, regardless of the dimension of the table or the sample size. This makes it possible to use Cramer's V to compare the strength of association between any two cross classification tables. Tables which have a larger value for Cramer's V can be considered to have a strong relationship between the variables, with a smaller value for V indicating a weaker relationship. The formula for Cramer's V is as follows:

$$\phi_c = \sqrt{\frac{\chi^2}{N(k-1)}}$$

- φ^c denotes Cramer's V
- χ^2 is the Pearson chi-square statistic from the aforementioned test
- N is the sample size involved in the test
- K is the lesser number of categories of either variable.

PHI

The measure of association, phi, is a measure which adjusts the chi square statistic by the sample size. The symbol for phi is the Greek letter phi, written *φ*, and usually pronounced 'fye' when used in statistics. Phi is most easily defined as

$$\phi = \sqrt{\frac{\chi^2}{N}}$$

- φdenotes Phi
- χ2 is the Pearson chi-square statistic from the aforementioned test
- N is the sample size involved in the test

Symmetric Measures SPSS Output

		Value	Approx. Sig.
Nominal by Nominal	Phi	.139	.361
	Cramer's V	.139	.361
N of Valid Cases		200	

The above mentioned table indicates the value of V and Phi obtained after the analysis with 200 samples. The value obtained (0.139) states that there is a very week relationship between scarcity of job and scale of company working.

Findings

- Majority of the small scale companies do not use AI, only about 5% of them use it. In case of medium scale organizations, about 50% of them use AI. Similarly, majority of large scale organizations use artificial intelligence.
- Majority of the female employees think that AI will overshadow them. Very few of them think the other way and about 6% of them are not sure.
- Among the male employees, more than 60% of them believe that AI will overshadow them and only 20% disagree.
- In the age group of 16-25, about 50% of the respondents believe that AI is beneficial. Rest of the 50% are either not sure or disagree that AI can be useful in human resource management
- In the age group 26-35, only 30% of the respondents feel that AI can be useful. Similarly, employees of age group 36 and above too have a negative opinion on benefits of AI in HRM.
- About 70% people believe that AI can be more accurate than humans, i.e., humans have a higher rate of error. About 22% of the respondents think that AI is likely to make more mistakes and the rest 8% are not sure of the outcome.

Suggestions

- Artificial Intelligence shouldn't be seen as a disruption or threat. Like any other technology, it is going to simplify our work.
- Organization should assure their employees that their jobs are safe and implementation of AI technology is not going to affect their jobs.
- Clear explanation of use of AI and transparency could enable in retaining the confidence of employees in the management.
- Employers should train the HR department to work in conjunction with advanced technologies so as to comprehend the power of robotics in HR.
- Simultaneously, new job roles should be identified to fully utilize AI in HR industry in order for growth in the field.

Conclusion

Artificial intelligence is considered to be the future of Business world but it's high time we realize that it's no longer the future, it is the present and the reality. Organizations should learn to adapt and cope up with it. Specially, the human resource department of the organization plays a significant role in helping the employees in understanding the benefits of AI. The tussle between humans and technology is causing disruptions in the business.

The misconceptions and negative information revolving around the use of AI must be cleared. Artificial intelligence is helping in smooth flow of work by reducing the work load. It does the regular mundane jobs so that employees can concentrate on more Strategic and important work. It may be helpful for all the recording and analysing of data but when it comes to tackling with a sensitive issue, the manager or HR leader has to directly be involved. So people must understand that technology cannot entirely substitute humans therefore they shouldn't be threatened by its existence. Instead, they should learn to work hand in hand with it. Only then the organization and the employees can fully utilize the benefits artificial intelligence is going to offer them and help the company.

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Key Drivers of Excellence in Supply Chain Management (SCM) with Reference to Computer Manufacturing Industry

Venkatesh*

Abstract

Twenty first century is all about computers which connects every human virtually. The only way these computers reach to every person in an efficient manner is through a potential supply chain management. Supply chain management and logistics is a process which involves potential performance of suppliers, manufacturer, wholesaler and retailer. This secondary research and the literature review analyse the future scenarios, how value chain and supply chain is practiced by multinational companies in the computer manufacturing industry like Dell, HP and Lenovo.

This research paper aims to provide the reader with an understanding of the strategic models by achieving efficiency and productivity, through the integration and collaboration of Supply chain management. This paper also highlights how the computer manufacturing companies operate in a dynamic environment with their effective use of supply chain process.

This research paper also talks about the drivers, differentiators and challenges of supply chain management through an empirical survey of a select retail outlet in the city of Hyderabad, Telangana State.

Keywords: Efficiency and responsiveness of computer manufacturers, Supply chain management and logistics of Dell Inc, Drivers of Supply Chain, Applications of Supply Chain and Dell Inc, Strategic models of Dell Inc, HP and Lenovo; Optimized Supply Chain, Influence of latest technology on supply chain management, Future of supply chain and logistics, Challenges in supply chain and logistics.

Objectives

Obj-1: Introduction and Overview of supply Chain Management in Relation to computer Manufacturing industry.

Obj-2: Articulate integration and collaboration of Supply Chain Management in top top-3 computer manufacturing companies in relation to future growth of the company.

Obj-3: Strategic models of achieving efficiency and Productivity for the identical computer manufacturing company.

Obj-4: Key Driver and Differentiators which enables the growth of computer manufacturing industries in relation to supply chain.

Introduction

Supply chain management is a business practice that has been employed in order to give an effective service to customers and make the business sustainable by considering all aspects from the suppliers to customers. Supply chain integrates all these features such as manufacturer, supplier, transport, wholesalers, retailers and customers. The key role of SCM is to fulfil customer demands by adding value to their set portfolio of products and services. In the personal computer manufactuing industry, rapid convergence of personal computers with other electronic devices led to PC based and Ubiquitous computing situations, while in the server industry growing demand of on-demand applications and increasing outsourcing of IT infrastructure led the industry to have centralized and de-centralized and de-centralized server customer scenarios.

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Supply Chain Management

FIG - 1: SUPPLY CHAIN MANAGEMENT

Types of Supply Chain

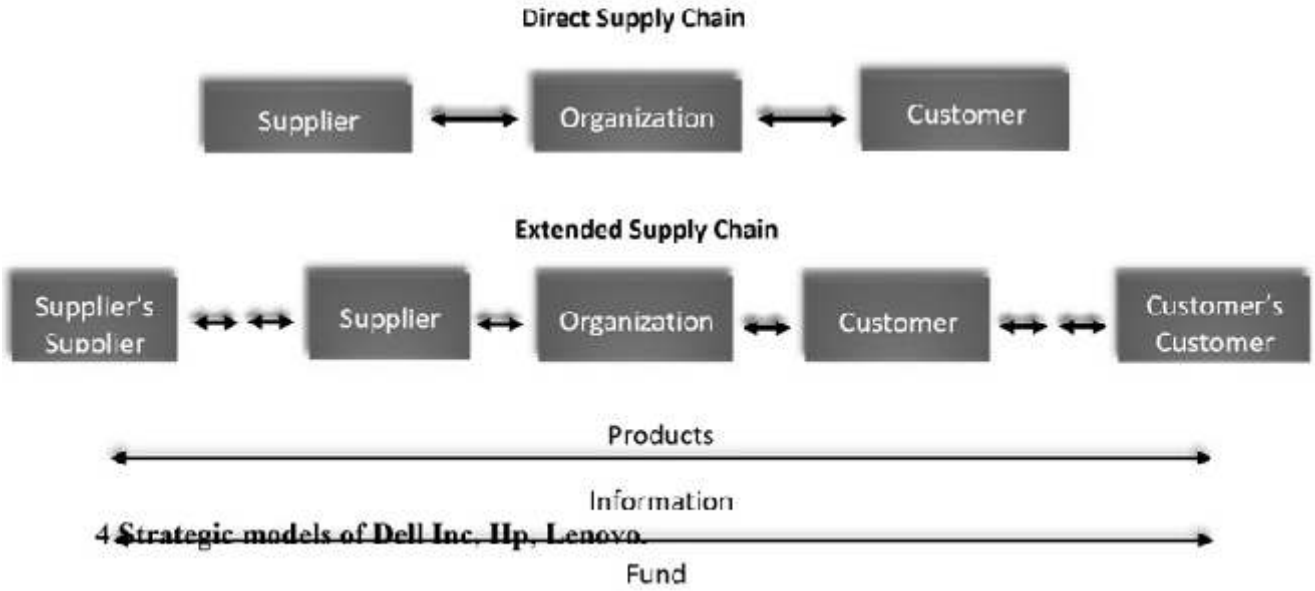

Figure 2: Types of Supply Chain

Strategic Model of Dell Inc:

Dell's Innovative 'Push-Pull' Strategy (a Combination of Push + Pull Strategy)

FIG - 3: DELL'S INNOVATIVE 'PUSH-PULL' STRATEGY

Dell's Strategy for 2018 - 2019

"Dell cloud strategy" – Dell cloud consulting & application services: customers are given a choice of building their own cloud infrastructure.

The key 5 industry forces which determine Dell's long-term success (Dell's future growth strategy)

1. Cloud Dell's Key Differentiator IT Transformation is Modernized

Dell's de-emphasis of a protracted IT convergence (faster transformation of IT services is directly proportional to increase in competitive advantage Dell's Push Strategy.

Dell's Future Strategy: Investments in the areas of 'open systems-based system software', 'provisioning and management', and 'open stack' in which Dell is planning to invest a big time in the next few years →these are the key drivers for increase in 'operational efficiency' and 'reduced cost'.

Dell has invested couple of millions of dollars to build its own cloud capabilities and has futuristic plans to scale all its existing customers to shift towards large bundled services.

2. Embracing Consumerization BYOD and Beyond

Dell's future strategy is to analyze 'BYOD' & Beyond →Bring Your Own Device, addressing the devices, the data, the infrastructure and the application development. Dell has plans to leverage the key 5 IT firms which were acquired to address this issue, which includes: Wyse, SonicWALL, KACE, SecureWorks and Quest.

3. Harnessing the Power of Social Networking

Dell has plans to engage social media tools engage in 'product roadmap', 'product design' and 'support'; etc. Dell is planning to launch a social media COE (Centre of excellence) to offer consulting services in the areas of social media and develop strategies to benefit the customer ROI.

4. Big Data turning Data into Insights

Dell plans to invest in Big Data in order to develop expertise in AI and Analytics and plans to support open systems and tools in pursuit of Big Data. Dell also plans to invest in 'open source big data analytics techniques and tools' and would soon build the cloud resources needed to support big data projects for SME and large enterprises.

5. Security

Dell plans to position Secure Works as a big data-based solution to tackle security threats. Secure Works based services tie up with client's network to several big data applications, cloud computing and integrated monitoring. Dell's focus is in the areas of 'end-to-end security solutions.

Lenovo Strategic Business Model

Attack and Protect Strategy: Lenovo operates with a strategy called Attack and Protect Strategy. Where it meant to be like protecting leading position in the Chinese computer manufacturing market and meanwhile attacking on emerging markets like Brazil, Russia, India.

Protect Strategy: In laying out the Protect strategy, Lenovo makes use of two business models called as 'Transactional and Relationship Business models.'The Transactional strategy model deals with retail customers and small to medium sized people in both formats like in the Online and offline platforms. The Relationship business model deals with heavy organizations, educational offices and Government Offices, where they were provided with company's staff and engineers to provide assistance to the customers.

Attack Strategy: The Attack strategy model deals like, holding market leadership in Chinese Computer manufacturing industry and entering in to emerging markets and having the company's presence in the country and later looking for more profits in the computer manufacturing industry in that Country.

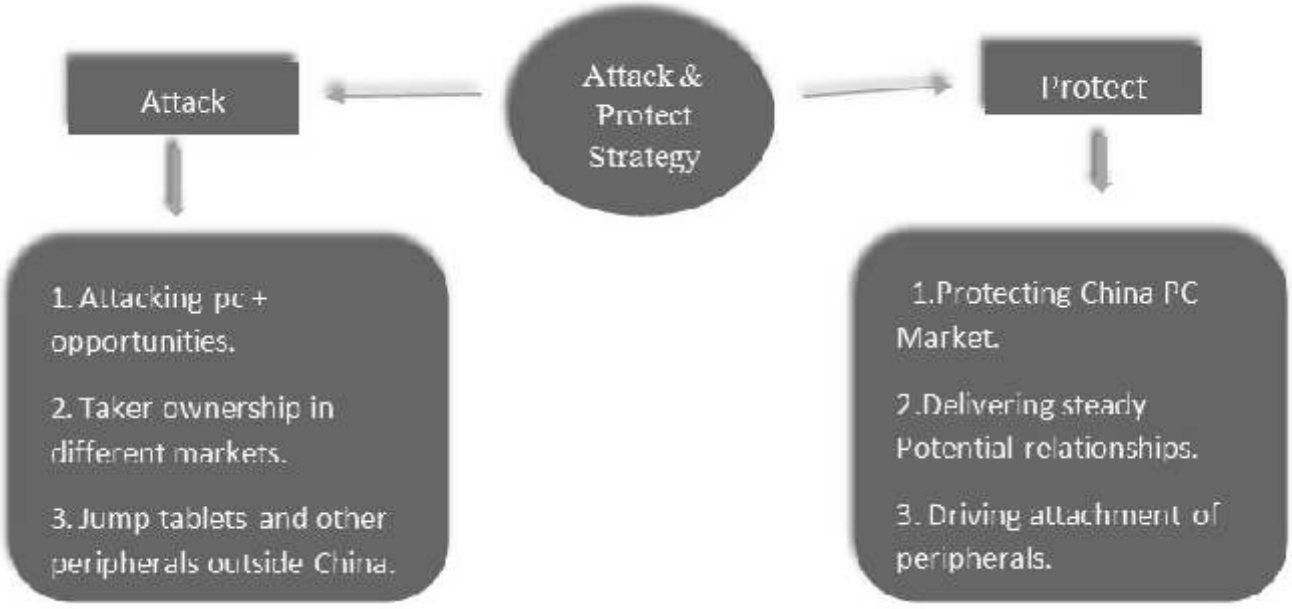

Figure- 4: Lenovo Attack and Protect Strategy

Hewlett Packard mainly drives its organization by "Three pillars of success" strategy. The three pillars of success of HP are Core, Growth, Future, the main aim of this strategies is,

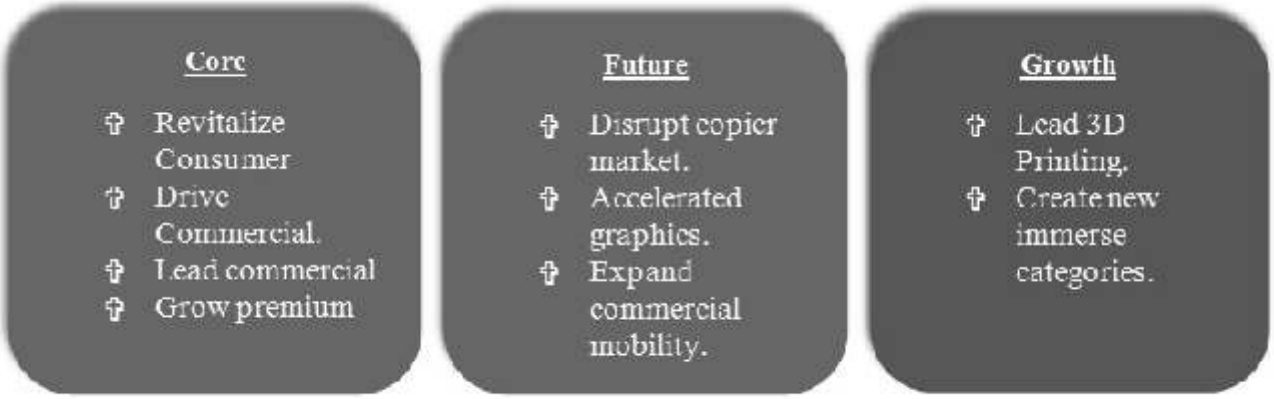

FIG- 5: HP'S STRATEGIC MODEL

Built on a Foundation of Strength

Across all the strategies of Hewlett Packard the three-pillar strategy is being the foundation for all services and products produced by it. Market and Customer trends, Competitive dynamics, Investor perspective, and Practical capabilities are the four key factors for company's innovation and strategy.

Dell and its Supply Chain Management

In the recent times, Dell Computers Corp has enhanced its supply chain management by adding new specialized SME vendors, which has helped the company to identify optimized solutions for the company to increase its customer service and enhance its market share.

Dell also implemented a program to reduce errors in their direct internet ordering system and create a clearance area on its web site for computers manufactured in error. The company has also enhanced its customer support services.

Dell, a computer technology corporation manufactures, sells, repairs and supports computers and computer related products. In the initial stages, two decades ago, Dell recognized the vital aspects of SCM and its advantages in the current competitive environment across the globe.

HP and its Supply Chain Management

HP's mission is to see their supply chain go above and beyond for customers, delivering a competitive advantage for HP's business and its partners. HP changed so many structures, systems, logistics routes, supplier relations and organizational structures within supply chain within a year span. Now the new company is already starting to reap dividends from a more flexible, agile supply chain setup, backed up by what is still a $48+ billion Fortune 100 organizations. HP supply chain operations is to deliver numerous benefits to their customers in terms of reliability, efficiency and cost. HP also found that there is a clear correlation between improvements in speed and predictability of the supply chain and boosts in their customer satisfaction metric. Also, HP's supply chain is an enabler of cost effectiveness and which ultimately increases in margins and profits. Every 60 seconds, the company ships 35 PCs into more than 100 countries in Europe, Middle East and Africa. It also uses visualization technique that reduced the time required for network optimization projects by up to 50 percent.

Lenovo and its Supply Chain Management

Lenovo own and run their own factories and has trusted suppliers which promotes end-to-end security to their supply chain. They intensely improved in their supply chain performance which reduced their planning time from 10 hours to 10 minutes. This approach gives Lenovo optimal supply chain flexibility, agility and cost-competitiveness, while mitigating risk associated with market volatility.

Lenovo's manufacturing model is hybrid and unique among the major computer manufacturing companies with a key competitive advantage. To improve the operational efficiency and reduce time to market, they implement lean six sigma concept. They also install a daily business management system on the shop floor, so everyone knows their goals and what to do to achieve the goals every day.

We can see the position mapping of the companies in Computer Manufacturing Industry here

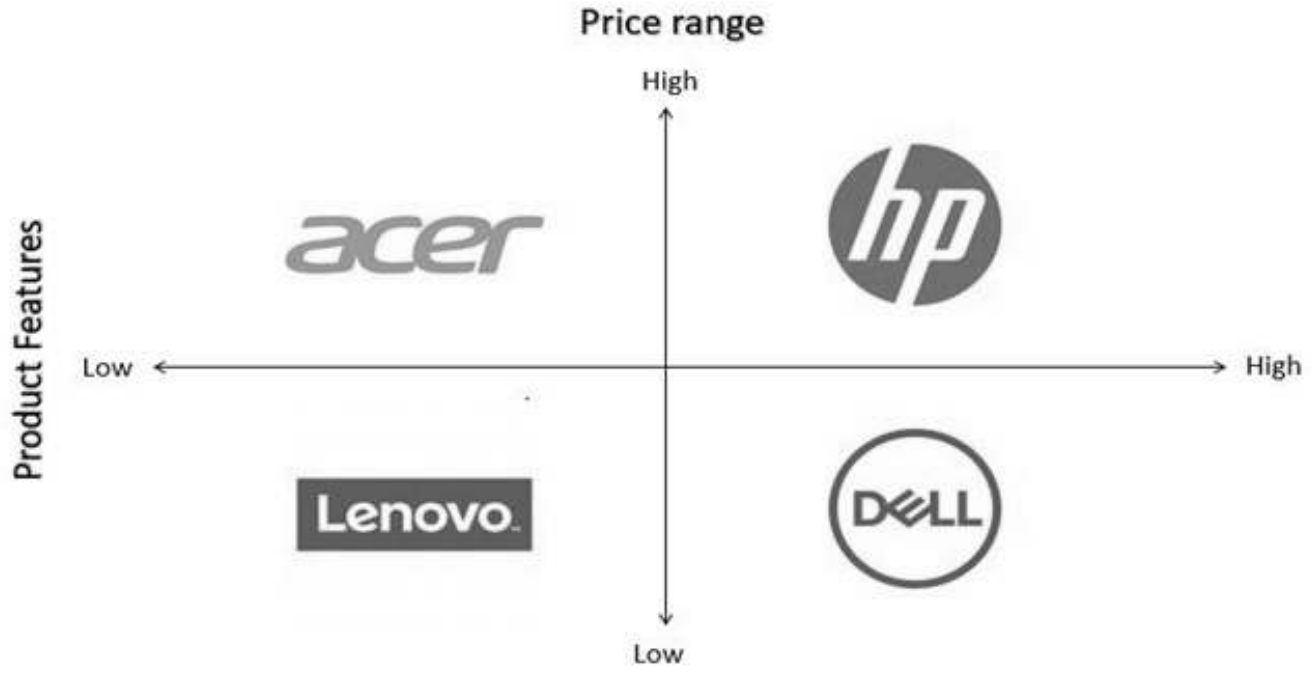

Figure 6: Position Mapping of Companies in Computer Manufacturing Industry

Logistics Drivers

1. Facilities

Manufacturing - From its early beginnings, Dell operated as a pioneer in the "configure to order" approach to manufacturing—delivering individual PCs configured to customer specifications. To minimize the delay between purchase and delivery, Dell has a general policy of manufacturing its products close to its customers. This also allows for implementing a just in-time (JIT) manufacturing approach, which minimizes inventory costs.

2. Inventory

The Zero Inventory Strategy. Dell computer sales follow the Build-to-Order strategy for selling PC's. In this method the products do not sit in the inventory and lose their value before they are sold, and the inventory does not need to be cleared for the new products. For every 7days that a computer sits in the Dell warehouse it loses 1% of its value.

3. Transportation

Shipping by sea helps minimize environmental impact. Recently Dell switched to greener transport. Dell developed their air-to-sea initiative, converting many of Dell's longer-lead, overseas shipments (such as those from retailers and other channel partners) to transport via ocean freight rather than aircraft. Moving products by sea rather than air reduced emissions and fuel usage per product shipped. They also achieved further efficiency through truck-to-rail initiative. For many routes, such as Asia to Europe and China to South Asia, they now use rail rather than trucks to transfer shipments from ocean terminals to Dell fulfilment centres.

Cross Functional Drivers

1. Sourcing

Dell makes strategic sourcing the foundation of its business model. By doing so, they eliminate the burden of hiring employees, managing them and paying their benefits, all the while ensuring that they are getting parts and labor from best-in-class suppliers. Dell chose outsourcing to IBM, who was expert in this area. IBM choice could guarantee customer satisfaction and brand control, IBM was their fierce competitor in PC market.

2. Pricing

The specific price what Dell Company set for any product has two factors. One is demand for the goods and services and the other factors is the cost of those products. By improving Global IT spending, Dell is targeting in operating income and cash flow from net income.

3. Information Technology

The Dell IT group ran its SCM database applications on large, expensive, proprietary servers based on the UNIX OS. However, as the company grew, servers lacking the necessary capacity had to be replaced with even larger, more powerful servers. The increased performance of industry-standard Dell Power Edge servers, still, has enabled Dell IT to create cost-effective, highly scalable systems using Oracle Real Application Clusters (RAC) 10g.

4. Distribution

Dell figured out a new way to sell computers to the consumer, which is through direct distribution. By using a direct distribution approach, Dell was able to gain a competitive advantage for several reasons. This is effective because without retailers, Dell does not have to receive customer orders through thousands of different retailers- they can take orders directly from the customer and eliminate the hassle of selling their product through retailers. Selling customized computers directly to customers to meet burgeoning PC demand.

TABLE-I: KEY DIFFERENATIATORS

Point of Difference	HP	DELL	LENOVO
Strategic Model	Three pillars of success.	Push-Pull Strategy	Attack and Protect Strategy
Shipment in Q1, Q2 & Q3 2018	Q1-12.86 million units Q2-13.59 million units Q3-14.63 million units	Q1-9.88 million units Q2-10.46 million units Q3-10.74 million units	Q1-12.35 million units Q2-13.6 million units Q3-15.89 million units
Revenue	$53 Billion	$78.7 Billion	$45 Billion
Market Share by Shipment (2017)	22.7%	16.1%	21.1%

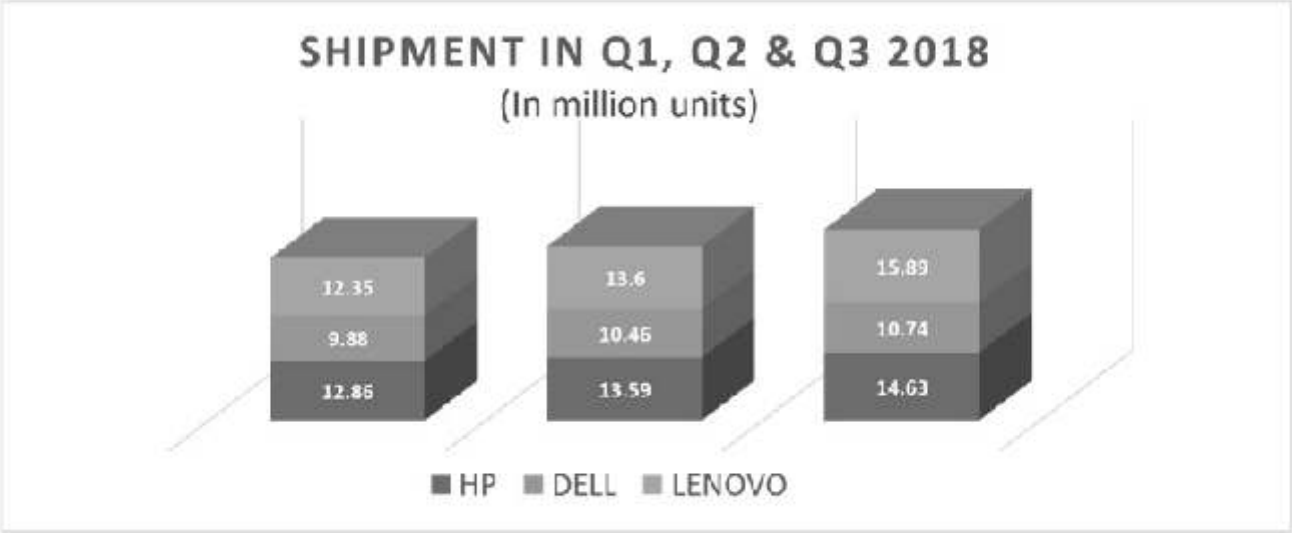

FIG-7: SHIPMENT IN Q1, Q2 & Q3

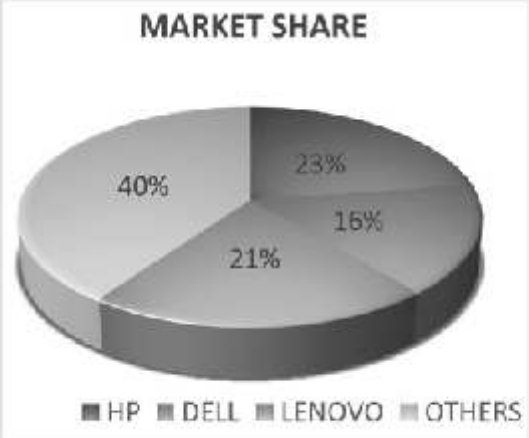

FIG-8: MARKET SHARE

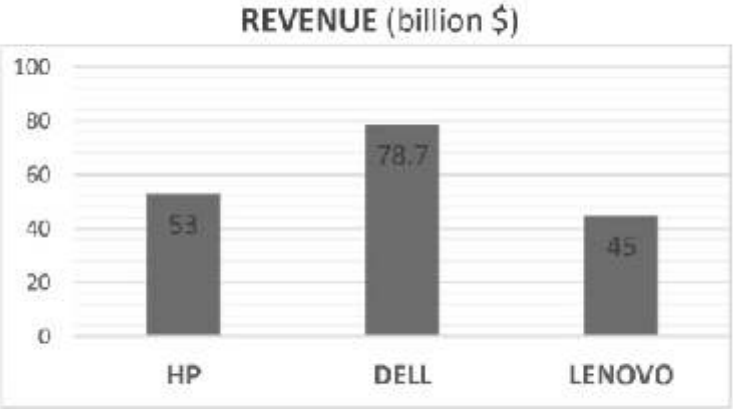

FIG-9: REVENUE IN BILLIONS

The empirical and secondary data represents the following information:

Table-2: Secondary Data

Specifications/ Brand	HP	DELL	LENOVO
Processor	i3 8th Gen. Intel Celeron Dual-Core	i3 8thGen. Intel Celeron Dual-Core	i3 8th Gen. AMD Dual-Core
Clock speed	2Ghz	2.20Ghz	2Ghz
RAM	4GB	4GB	4GB
ROM (Storage)	1TB	1TB	1TB
Operating System	Windows 10	Without Operating System	DOS
Weight	2.0Kg	2.25Kg	2.20Kg
Power Supply	45 W AC Adapter W	45 W AC Adapter W	45 W AC Adapter W
Battery Cell	4 Cell	4 Cell	4 Cell
Battery Type	Li-Ion	Li-Ion	Li-Ion

TABLE-III: SECONDARY DATA ON PRICING

MRP (Maximum Retail Price)	Rs. 40,383	Rs. 32,607	Rs. 33,890
E-commerce Price	Rs. 38,884	Rs. 28,990	Rs. 27,490
Retail Price	Rs. 40,180	Rs. 42,350	Rs. 33,750
Retail Procurement Price (Approx.)	Rs. 39,380	Rs. 41,000	Rs. 33,250
Profit % margin to retailers on each laptop. (Approx.)	2%	3%	1.5%

Challenges

The global notebook PC market has experienced sluggish growth due to the maturity of the market as well as competition and threats from Smartphones and tablets. In 2017, worldwide notebook PC market declined, thanks to commercial PC replacement demand; yet, the industry still lacks long term growth momentum as replacement demand in the consumer market remains weak. This report analyses current status and future development of the worldwide and Taiwanese notebook PC industries while looking into key issues facing them.

Future of SCM and Logistics w.r.t Computer Manufacturing Industry

Most of the companies are attempting to find ways to improve their flexibility and responsiveness in turn competitiveness by changing their operations strategy, methods and technologies that include the implementation of SCM paradigm and IT. A very critical issue in SCM is to forecast the demand for each computer peripheral item and determine the appropriate schedule to place an order for required quantity. Traditionally 7companies-maintained inventories of items but in recent times due to the great success of the Japanese technique called, JIT philosophy of materials management all the Computer manufacturing companies are putting a great deal of effort into making the inventories of items as low as possible. In the computer industry the main driving force behind the effort to keep inventories as small as possible is the rapid rate of technological change and shortened product life cycles with the result prices of items fall over time often every week and sometimes drastically once every day. The following is an illustration of an integrated supply chain model which was used by organizations across the globe, before disruption in technology.

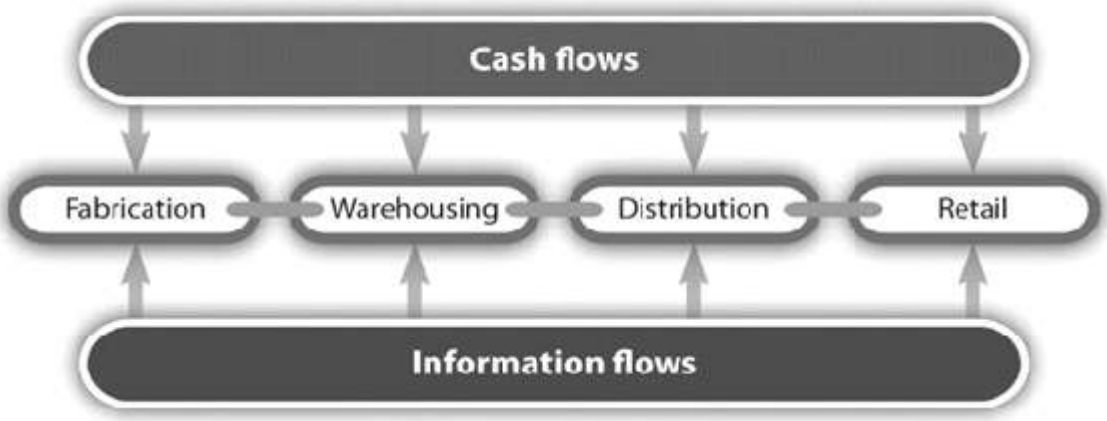

Figure10: Supply Chain Model

According to the research analyst group IDC, the future of SCM in the computer hardware industry looks optimistic and evolving with disruptions in technology. Prior to 1980s the supply chain member organizations were paper based. The paper-based transaction and communication was slow. IT infrastructure capabilities provides a competitive positioning of business initiatives like cycle time reduction, implementation, implementing redesigned cross functional processes.

The three critical factors which have impacted this change in the importance of information.

1. Pleasing customers has become something of a corporate obsession. Serving the customer in the best, most efficient and effective manner has become critical.
2. Information is a crucial factor in the managers' abilities to reduce inventory and human resource requirement to a competitive level.
3. Information flows plays a crucial role in strategic planning.

In the development and maintenance of Supply chain's information systems both software and hardware must be addressed. The success of a computer manufacturing business and its supply chain is increasingly determined by the business's ability to react quickly to the market forces and make smart decisions based on the structured data (Big Data).

For the past decade or so, large enterprises like Dell, HP and Lenovo have been obsessed with collecting and storing data about their customers, their own internal processes, external market information and product pricing. The problem is that the computer manufacturing industry has so far found itself paralyzed by the amount of data they have collected which was hard to analyze before introducing the latest technology know-how. Given the current data analysis challenges, most of the computer manufacturing companies are investing aggressively in analytical tools and advanced business tools through the help of data scientists in order to gain a competitive edge over the market.

Internet of Things (IoT) and Virtual Reality in Supply Chain Management

IoT technologies is being extensively used in the field of Supply Chain and Fleet Management which assists from monitoring to tracking consumer behavior and efficiency and productivity in the supply chain process. In the computer manufacturing industry, IoT is used to predict asset management needs, while sensors allow logistics service providers to monitor potential supply chain issues.

The other applications of IoT in the areas of Supply Chain and Logistics include enhanced traceability of shipments which would improve the customer service and help ease regulatory compliance issues. IoT also helps automate the inventory management system with a much lesser cost as compared to the existing functionality. Further, use of business intelligence tools and analytical infrastructure helps SCM to become more digitized for assisting in taking more informed corporate decisions across the computer manufacturing units.

The below illustration is an example of how Amazon has started to use IoT applications for automating its warehouse using robots which reduces human labor cost.

Figure 11: Figrobots At-11: Supply Chain Model Amazon Warehouse

The future of Supply Chain and logistics would have a massive and disruptive form of innovation in the areas of technology which would expedite the speed with which customers receive their products (Drone Delivery) as well as technologies that drastically enhance online shopping experience for customers (Virtual Reality).

The following is an illustration of a technology enabled value chain (futuristic business model) in the computer manufacturing industry

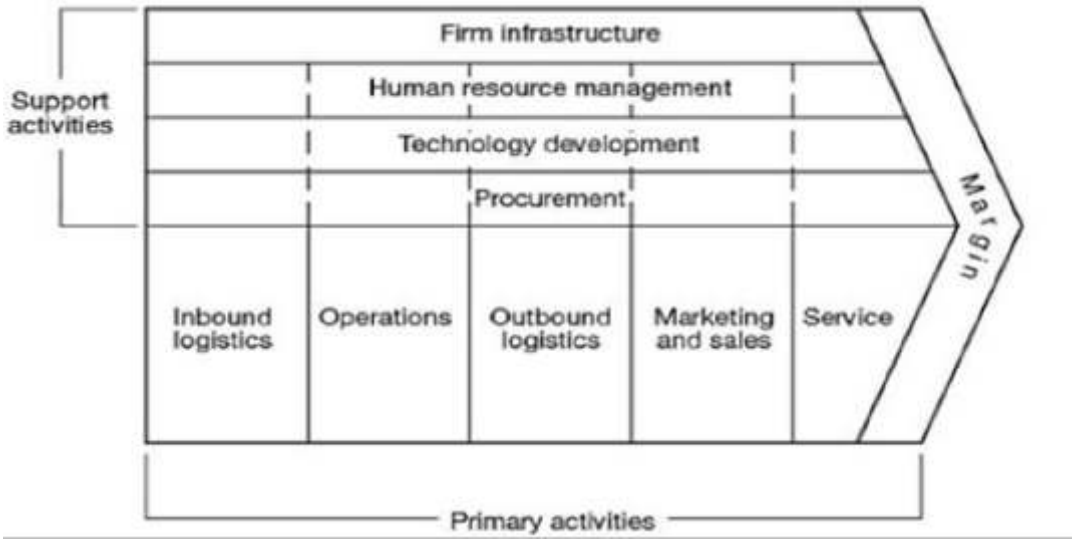

Figure12: Futuristic Business Model

Internet technology, World Wide Web, electronic commerce etc. will change the way a company is required to do business. These companies must realize that they must harness the power of technology to collaborate with their business partners. That means using a new breed of SCM application, the Internet and other networking links to observe past performance and historical trends to determine how much product should be made as well as the best and cost effective method for warehousing it or shipping it to retailer.

Impact of Technology on Supply Chain Management

Leading technology helps in real-time tracking and accurate delivery systems. It helps greater efficiency and transparency. Supply chain uses cloud computing to automate systems and improve accuracy. Besides being faster, automated technology also provide better data capture. Information stored in the cloud can be viewed and accessed by all the people involved in logistics and supply chain area.

There is an increased visibility in the distribution, shipping process, supply chain in both B2B and B2C segments also. Companies are turning towards automation technology to bring down the costs and increase profitability. Technology made it so easy in sharing the shipping information with customers. It is also speculated that robotic warehouses can be the future in the digital supply chain.

Impact of Supply Chain on the Future of Computer Manufacturing Industry

Supply chain management affects computer manufacturing companies in a variety of ways, including the availability of inputs needed for production processes, costs and profitability of manufactured items (computer peripherals), company infrastructure and ways in which companies interact with their suppliers and customers. Understanding the ways that supply chain management affects computer manufacturers from both a daily operational perspective and a strategic viewpoint is important for all managers and entrepreneurs in the industry.

Digitization is disrupting the way businesses are done across the computer manufacturing industry with use of digital supply chain tools and technologies which influence a substantial increase in the growth of overall economy. This digitization and supply chain information and material flow enables real-time analysis of computer manufacturing companies like Dell, HP and Lenovo, to name a few.

The following is an illustration of the Digital Framework in Supply Chain Management with respect to computer manufacturing industry – source: Bearing Point Consulting Inc.

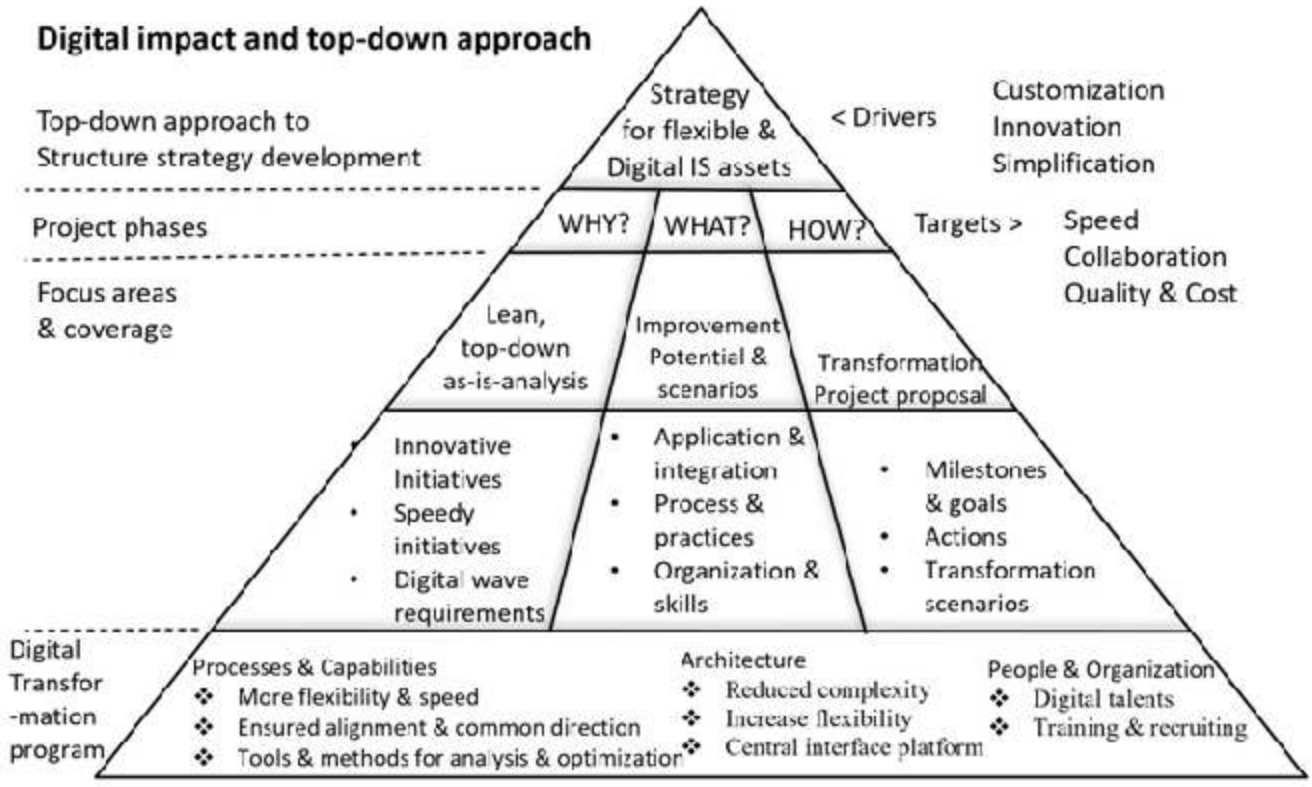

FIG-13: DIGITAL IMPACT AND TOP-DOWN APPROACH

Dependency on Inputs

Effective SCM can ensure that raw materials consistently arrive at production facilities on time, using a Japanese technique called Just in Time (JIT). A poorly management supply chain, on the other hand, can bring production to a halt. Without reliable delivery of inputs, assembly lines can lie dormant while employees have no work to perform, which could leave a company unable to fulfil time-sensitive orders. Most of the computer manufacturing companies follows JIT process and Dell Corp is the leader in SCM ensuring the raw materials and supplies to arrive on time at each of their production plants.

Virtual Teams and SCM

The design, manufacture and delivery of a computer machine requires ever-higher levels of knowledge and expertise within the supply chain. Virtual teaming is the most appropriate mechanism to examine the relationship between all parties along the value chain, created across a distributed supply chain, with members separated geographically. In principle, virtual teaming could allow joint commitment, feelings of mutuality, trust and creativity and rapid decision making to operate within a supply chain. Dell Computers across its global offices for increasing their productivity in the areas of supply chain integration which it feels has an increase in efficiency and higher cost savings with better ROI as compared to the competitor.

Supply Chain 2020 Initiative

SCM 2020 initiative depends on the changing customer requirements, government and regulatory changes, technology advancements in the supply base, changing oil OR raw material prices and increased emphasis on supply chain security. It also includes alignment of SCM strategy with the overall organizational goals and objectives, align supply chain strategies with internal customer strategies (customer-centric approach), Use of forecast analytics through some of the key analytical tools as inputs to develop an organizational strategy.

The mission of this long-drawn initiative spans across achieving consistent cost savings from suppliers, ensuring continuity of suppliers, improvements in efficiency of SCM function, improves all aspects of supplier performance year-on-year and acquire new value-added technologies and innovations from supply markets.

Table 4: The Critical Forces of Change in Business Strategy as Related to SC 2020 Initiative

External forces of change	Achieve high service quality	Reduce cost of purchased good/s	Reduce internal costs	Realize synergies across divisions	Improve flexibility and customer responsiveness demand
Changing customer requirements	0.215*	0.069	0.044	0.059	0.237*
Government regulatory changes	0.086	0.122	0.111	0.177	0.037
Technology advancements in the supply base	0.146	0.090	0.186*	0.114	0.184*
Changing oil/raw materials prices	-0.169	0.212*	0.082	0.186*	-0.137
Increased emphasis on supply chain security	0.155	0.234*	0.214*	0.265*	0.190*

External forces of change	Achieve consistent cost -savings from suppliers	Improve the efficiency of the supply management function	Ensure continuity of supply	Improve all aspects of supplier performance year-over-year
Changing customer requirements	0.077	0.050	0.121	0.132
Government regulatory changes	0.251*	0.146	0.283*	0.308*
Technology advancements in the supply base	0.218*	0.272*	0.242*	0.304*
Changing oil/raw materials prices	0.221*	0.087	0.157	0.285*
Increased emphasis on supply chain security	0.238*	0.204*	0.302*	0.286*

External forces of change	Align supply management strategy with overall company goals	Align supply management strategy with internal customer strategies	Employ a formal process to develop and manage supply strategies for important categories across the organization	Manage total expenditures for key categories across the organization	Use total cost to drive decisions	Conduct spend analysis across the company in both products and services
Changing customer requirements	0.076	0.007	-0.157	-0.004	0.023	-0.094
Government regulatory changes	0.260*	0.204*	0.261*	0.261*	0.078	0.112
Technology advancements in the supply base	0.245*	0.274*	0.139	0.142	0.130	0.135
Changing oil/raw materials prices	0.151	0.076	0.276*	0.232*	0.072	0.049
Increased emphasis on supply chain security	0.166	0.228*	0.153	0.099	0.212*	0.080

The following is the Emerging Framework from the SC 2020 initiative

FIG 11: EMERGING FRAMEWORK FROM SC 2020 INITIATIVE

Research Outcomes

The competitive and business strategy of this supply chain initiative spans across some of key strategies such as: achieving high service quality, reduction in cost of purchased goods and services, reduced internal operational costs, development of a synergy across various SBUs and improvement in flexibility and responsiveness to customer demand.

And also, the research proves that the supply chain model JIT plays a crucial role in SCM with respect to

computer manufacturing industry. Earlier paper-based supply chain has transformed into technology based in course of time. Applications of IoT is being taken over in the areas of supply chain to improve customer service and for a speedy delivery of goods. Warehouses using robots to reduce human power and an increased visibility of supply chain is observed in both B2B and B2C segments.

Dells unique value proposition of Build-to-Order has let it gain a slice of market share. Though HP and Lenovo have captured more market with a greater number of sales than Dell, Dell has managed to gain more revenue than both the companies.

When it comes to final price of product and profits, Dell enjoys more profit per shipment by quoting a little higher price than other two. It also earns more profits because of its direct distribution model, which save heavy logistics cost.

Conclusion

As the PC market has almost reached the saturation point in the consumer market, companies need to focus on providing such specification which are not available in its substitute products. Business markets still have a reasonable growth rate because of the upgraded Operating System, growing business environment and other organizations. So, it is viable to decrease the length of the supply chain and increase the efficiency of the supply chain to sustain and enjoy a bigger slice in the market.

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“Pulse Candy” Rightly caught the Pulse of Customers in HBC Segment

Dr. Vinit Vijay Dani*

Abstract

Innovation in product creates long-term growth and customer satisfaction for the company. Introduction of latest flavours and Innovation are two key growth drivers for Hard Boiled Candy (HBC) category. Pulse candy with its peaking fruity taste and a tangy burst has disrupted the Indian confectionary market by wooing the Indian consumers. Pulse candy was created after widespread sampling exercise with a raw mango-flavour HBC with a tart salty centre. Players need to continuously reinvent their product offerings to prevent fatigue and remain top of mind especially in the HBC category where we see very low consumer loyalty. Using innovation in Pulse candy by employing various marketing techniques has helped Pulse candy stay ahead of its competition by generating good quality leads that are more likely to engage with them. For a product to run in the market, it must be different, cheap and should satisfy customer's need. The case study focuses on the Pulse candy's journey in the HBC market of India and various marketing strategies used for making the brand market leader in the confectionery segment.

Keywords: Hard Boiled Candy, Innovation, Strategy, Confectionery, Marketing

Introduction

The evolution of confectionery industry has happened in three classes: chocolate confectionery, sugar confectionery and gum items. Each of the three classes are described by the utilization of a lot of sugar and sugar substitutes. Although confectioneries are commonly low in micro nutrients but are wealthy in calories and starches. The size of the market for global confectionery industry was valued at $184,056 million (12,81,1309.91INR) in 2015, but it is expected to touch $232,085 million (16,15,4392.47INR) by 2022. Array of food products such as raw pastes, chocolates and various sugar-based preparations are part of the confectionery market. The preference choice in confectioneries changes according to the geographical areas due to differences in the regulatory systems and parameters such as economy and consumer preferences and tastes.

According to the research statistics and insights of Nielsen India, while the aggregate sweet candy segment, is believed to be at INR 8,500 crore ($1.3billion), it is growing at 9 per cent CAGR (Refer Exhibit 1) in India. Reports from different sources recommend that Indian market is one of the fastest growing confectionery market amongst the BRIC countries with low per capita consumption while offering tremendous growth potential.

Indian confectionery market has shown sluggish growth in confectioneries because of lack of innovation except in case of other outstanding classes such as eclairs and gums. The Indian consumers like to explore the foremost fun and a pleasant product. Which means that the marketers have to regularly initiate candy market with unique and novel shapes, flavours, packs and textures.

In India the northern part constitutes the most important share within the candy market closely followed by the western part. As per reports from R&M, cities such as Mumbai, Delhi/NCR, Chennai, Kolkata, Bengaluru, Hyderabad and Chandigarh feature amongst the leading demand generators for candies in India followed by tier II cities. Candy marketers of today are not only targeting children, but also youngsters. To broaden the scope, several marketers have come up with the idea of side advertising in not only children's books but also in ancient mediums too. For example, on the day of Valentine, brand Parle Kismi partnered with dabbawallas of Mumbai by sending them a reminder to celebrate the day.

1.1 Company Profile

Dharampal Satyapal (DS Group owners of Pulse candy) group was founded in 1929 and was involved in a various sector like food& beverage, hospitality, agro forestry, tobacco, packaging and mouth fresheners. In February 2015, the DS Group, the manufacturer of brands such as Rajanigandha (Pan Masala), Tulsi (Tobacco) and Catch (spices) -

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entered the candy segment with 'Pulse'. In April 2015, the company decided to test market Pulse in just three northern states of Gujarat, Rajasthan and Delhi, as an initiative which saw all the previous records broken in the Indian confectionery segment. As the exercise of test marketing proved successful the DS Group converted the initiative into a fullfledged launch. Today, the Pulse (raw mango) -flavoured HBC with a tangy twist, is an INR 326 crores (4.68 million US$) brand (2016-17) (Refer Exhibit 2). Pulse candy is closely followed by Kopiko, an Indonesian coffee-flavoured brand at around Rs 306 crores (4.39 million US$). The most remarkable achievement was the fact that there was no formal advertising push. The DS Group believed that advertising may not help them drive the sales, it will be just be a kind of reinforcement. Pulse candy is available in five unique flavours such as Raw Mango (Kaccha Aam), Pineapple, Guava, Orange and Litchi. Each flavour has a peculiarity that is alluring which comes from the burst of tanginess, and a mouth full of fun. This unbeatable fervour for Pulse candy was extended to all its brand communications, with a punch line of 'Pran jaaye par Pulse na jaaye'.

Product Conceptualization

Conceptualization of Pulse candy happened way back in 2013, with a dedicated team working on developing the innovative candy for almost two years. During the development phase the company observed that Kaccha aam (raw mango) is a flavour that is preferred by the people across India in some form or the other. It is a flavour that is most popular across all age groups. Raw Mango is normally eaten in India with a mixture of salt and spices to give an additional flavour. They kept on trying to relate these 3 completely different insights and what they created after two years made a new mark in the history of the candy market.

Product Innovation

It has been observed that the experience life cycle of the candy market has remained constant throughout, so the focus had to be on innovation which led to Pulse: the innovative value-added candy.

Unlike any other candy Pulse gives a variety of tastes

a. First- everyone's favorite *Kaccha AamFlavor.*

b. Second – light taste of the powder inside the candy bar.

c. Third - Strong Amchur taste.

d. Fourth - Sweet taste at the end.

Packaging

It has been a common practice among retailers to place candies with lots of other candies. Normally, when a consumer comes, he/she looks at all the bottles of candies and takes decision in less than 30 seconds. Therefor it is becoming important to catch the eye of the customer initially. DS group purposefully mentioned their popular brand Pass-Pass on the top side of the wrapper, so the customer can recognize the brand and develop trust with the new product.

Distribution

The brand, particularly if it's new needs to make an attempt to ascertain itself in order to reach out to many potential consumers with a goal to create awareness and generate repeated trials a brand. The candy market in India faces competition from small unorganised players and is therefore deeply fragmented. Unlike the western countries where candies are bought in lots for consumption, consumption in India remains mood and occasion based. Increasing the penetration and consumption remains a major challenge. Distribution plays a very important role in impulse driven category such as confectionery. "Jo dikhta hai, woh bikta hai," (What is available will only be seen). Therefore, majority of brands try to make it available across India at pan outlets (Refer Exhibit3), kirana stores and modern retail formats. It was not very difficult for DS group to make the product placement in the market as they already had a very strong presence at the retailers through its flagship products like Rajanigandha, a leading brand of pan masala with more than 70% market share. DS Group has been able to leverage its strong distribution to popularize Pulse

candy. Today, plenty of the candies are pumped out per month and are delivered to Pulse fanatics and recreational users using DS Group's strong distribution network.

Pricing

Pricing plays an important role in the candy sector in India. Candies in India are being sold at the lowest denomination of the currency. Innovation and value addition are key to price the products at some premium. Couple of years ago candy market was dominated to the tune of 86% by companies selling candies at 0.50 paise price point and an average grammage weight of anywhere between 2-2.5 grams, today it has started moving away from the INR 0.5 price point with big players such as Mondelez, PVM (Perfetti Van Melee), and Parle launching or re-launching their products at the price point of INR 1. Due to soaring raw material costs and fewer 50 paise coins in used circulation, and importantly the demand for higher retailer margins has forced lot of players in HBC category to increase price to INR 1. The DS Group (with approx. 8,50,000 retail outlets) decided to rationalize the price, increase the weight to almost 4 grams with price point of INR 1 instead of the usual Industry practice. Looking at the success enjoyed by Pulse, other candy players started launching their 'gold versions' at INR 1. Product innovation in the category has helped the category move away from the 50-paise price point, as today; the consumers are ready to pay a premium for product with innovative and new flavours.

The Product Category Strategy

Long term growth and customer satisfaction are created by the company through Innovation in products. Some of the successful business organizations don't leave things to chance. To create a world class product market obsessed companies, channelize their energies on product creation method. Introduction of latest flavours and Innovation are two key growth drivers for Hard Boiled Candy (HBC) category. As per Nielsen India reports, the candy segment has very low entry barriers as a result of which new players enter the market every year; while there are quick exits too. Due to low exit and entry barriers we see innovation happening in formats and flavours within the category, the most recent one being the segment with coffeeflavours. With little advertising spend and lowest possible merchandising, Pulse has been a story of successful product being the ultimate winner. Experts from the Industry say, Pulse Candy, a raw mango HBC with a tangy salt filled centre, is an example for one such innovation.

Product Differentiation (POD)

Normally, when a consumer visits a retail store, he/she asks for a candy without any particular brand preference. Despite presence of popular candy brands like Perfetti Van Melle's -Alpen Liebe, Parle's- Mango Bite, and Mayora's- coffee flavoured Kopiko having significant Indian presence to the tune of INR8,500 crores crore (12.21 million US$) in the Indian candy markets, the category has been lacking excitement and real innovation. Pulse candy's entry in the segment has not only led to a significant transformation within the segment but has also significantly altered the earlier held ideology by unleashing a profitable marketplace for the confectioners to penetrate.

DS Group through its market research has been successful to find considerable gaps and fill it with Pulse candy. As Indians have penchant for mangoes hence this raw mango was, the palpable selection of DS group. It is a very common feature in India for people to eat raw mango along with a few sprinkles of salty masala. Drinking of 'Aam panna (raw mango drink)' or cutting a slice of raw mango sold on the roadside, is incomplete without adding the tang or spices. Thus, Pulse candy was created after widespread sampling exercise with a raw mango-flavour HBC with a tart salty centre. India being a sunny country one must have something to stay the saliva going. That's precisely the reason why candy unit sales are highest in sunny regions. DS Group decided to give brand name 'Pulse' as it ups the pulse racing. Pulse sales zoomed over to INR150 crores (2.15 million US$) by March 2016. Today, Pulse has moved the HBC category from impulse-driven to Pulse-driven. The company did not target a specific segment for Pulse candy as raw mangoes are loved by all age categories across all the geographies in India. Therefore, in a market that primarily focused on kids was flooded with sweet flavoured Pulse candy, with its tangy taste, with an expectation to cut across age groups. Pulse was positioned as anytime, anywhere raw mango candy. After successful launch Pulse is not only being consumed as a mouth freshener of sort after lunch by some people but also as a regular get together candy among college mates. The popularity had set in. DS Group subsequently also launched Guava, Orange, Pineapple and Litchi flavours.

WOM Marketing Strategy

In this world of statistics overload, the future of accomplishing consumers is WOM marketing. Buyers of today, depend much less at the content material created by the brands and extra on tips from colleagues, friends, and the extended circle of relatives. While choosing a product WOM plays an important role. It guarantees about the products mark attention to the customers within no time. Uber and OlaCabs where early birds in India in the taxi segment, who undertook aggressive WOM marketing techniques that saw the consumer himself being recruited as a marketer for the brands. Although such techniques have been around for a while, these brands tweaked it a bit to appeal to the natural Indian inclination for free goodies. The journey of Pulse is another such example of successful WOM marketing strategy in the confectionery category in the HBC segment. Some researchers believe that word-of-mouth recommendations from peers affect ninety-two percent shopping behaviour. The quickest way, as a result, to attain your audience is through people who can influence them. To obtain this you want to mobilize your happiest consumers and convert them to emerge as your brand advocates who becomes the voice of your logo.

DS Group was able to use "WOM' strategy because of their strong network of distributors. They not only asked the retailers to push the product to consumers but also gave them a perfect line to say,

"Sir try this once, it has Amchur powder at the centre of the candy and it tastes good"

The WOM strategy started working and the demand rose to such an extent that the supply was not meeting the growing demand. The company was in position to meet only 60-70% of the demand. In some places like Delhi, consumers were ready to pay extra 50 paisa for a piece.

DS Group not only managed to push the candy through retailers' in store promotions but also through outdoor advertisement in select locations, while its fans were active in the online world. In fact, the catchy phrase on the outdoor advertisement- 'Pulse of India' - was also suggested by the fanatic online brand ambassadors of Pulse. The popularity of the candy has been a snow bowling phenomenon – the more Pulse finds admirers in the internet generation, more mentions it gets on social media. Larger the visibility on social platforms, the larger the cult around it grows, offline and online. This trend set by Pulse sets it apart from the popular candies of earlier times, like Poppins, Mango Bite, or Phantom sweet cigarettes. From its launch in April 2015, trending Hashtags like '#PulseofIndia' to memes like 'my face when I am eating a Pulse Candy' have organically grown on social media platforms like Twitter, Facebook (Refer Exhibit 4,5,6) and Instagram. Nobody had even dreamt of creating such video reviews of the erstwhile brand Parle Poppins in the 1980s. YouTube is flooded with many videos in which Pulse is being earnestly appraised. Mr. Akhil Katyal, an English literature professor at the Shiv Nadar University (Refer Exhibit 7), was so impressed with the masala taste of Pulse he wrote a short ode on it in Hindi. On the opinion based portal

Quora, a subscriber penned a 1,224-word response to the question "Why is the candy Pass Pass Pulse so popular?" The write-up on Pulse was viewed nearly 50,000 times, on attributes like its flavours, pricing and packaging. Social media platform Facebook has dedicated pages on Pulse candy, with thousands of likes, and plenty of memes. Pulse is also popular on Instagram, the photo-sharing platform with several posts.

How did WOM Marketing Innovatively Impacted Pulse Candy?

a. For a product to run in the market, it must be different, cheap and should satisfy customer's need. Pulse was meeting all these criteria with a unique tangy taste of raw mango with Amchur powder at the centre for just Re 1 per candy. People started appreciating the unique taste of Pulse and began influencing others to try it.

b. Smokers turned out to be the main customers as they used to buy Pulse in bulk which had a significant impact on the market size. WOM is uncontrollable as you cannot predict the growth of any product, it can reach to any extent on any side. Fortunately, it was on a highly positive side for Pulse candy.

c. Individuals prefer to listen to their close ones and that's when WOM plays a vital impact on the consumers. Some of the offices started using Pulse as a mouth freshener after lunch or dinner.

Future Opportunities

With the competition firing up, DS Group plans to come up with a Television commercial very soon. They have bagged Scarecrow Communications to lead their advertising campaigns. This increased advertising expenditure is part of their strategy to make Pulse go international by year-end. The major focus point for them is the South East Asian countries which would be the starting point followed by the UAE, US and UK market where there is also a lot of demand. But immediately their focus lies with strengthening the supply chain of the domestic market. The company has opened 6 plants in the last year (taking the total count to 7) to meet the rising demand for the product and to dissuade retailers from selling the product at prices above the MRP (Maximum retail price). Pulse is ultimately a story where we see the product emerging as the ultimate winner without the push given by advertising and merchandising activities. A year has gone by and still no companies have been able to put a similar product on the shelves. Either their masala leaks too quickly or they do not give ample amount of it to provide the right taste. Only Pulse managed to overcome this problem with their intensive research. No wonder the company spent two years developing Pulse.

Conclusion

Progressive consumers of today are not only more educated, but they are also well informed and connected to each other in the market. Due to this phenomenon companies today not only face huge challenges but has also have an opportunity to survive and grow in this dynamic environment. Due to these rapid changes it is being felt everywhere and extensively to focus on innovation. Business Organisations in India need to equip themselves to work with an open concept not only from the conception of an idea to rapid prototyping but also partnering with customers to increase market possibilities. Innovating continuously, companies need to invest in different aspects relating to Product Innovation. India is being counted amongst other emerging markets for conceiving and delivering innovative product by following a value-generating approach.

Questions for Discussion

1. What are the challenges in marketing a low-involvement product such as hard-boiled candy that are often purchased on impulse?
2. Critically analyse DS Groups marketing strategy for Pulse in India.
3. Analyse its marketing communication campaigns for Pulse.
4. What future strategies should Pulse candy adopt to establish its position in other countries outside India?

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Exhibit-1

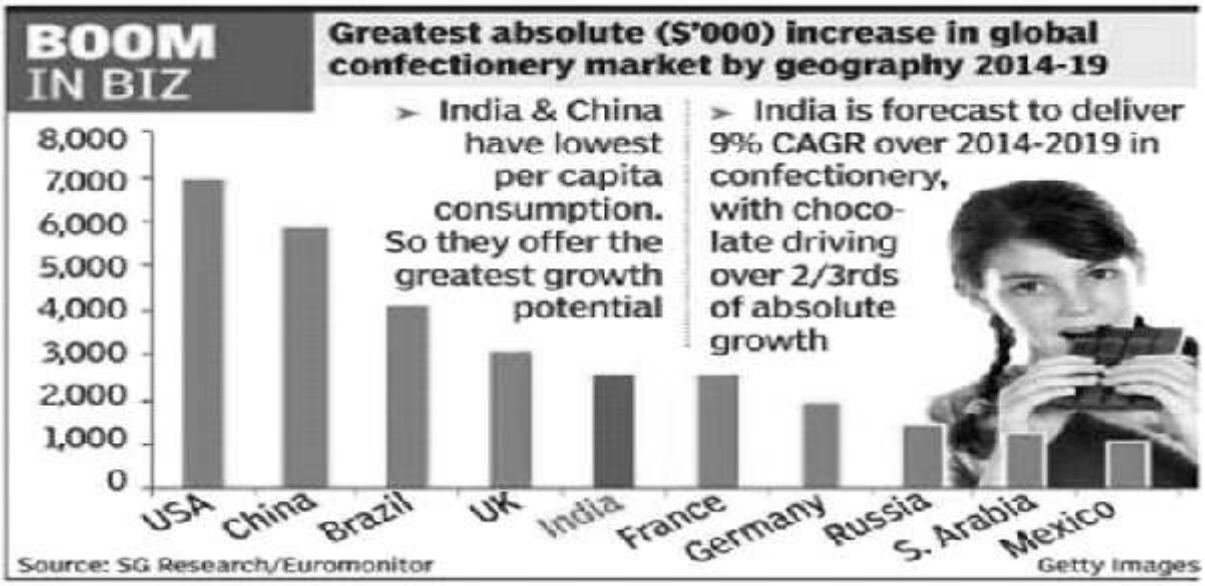


Exhibit-2

Exhibit-3

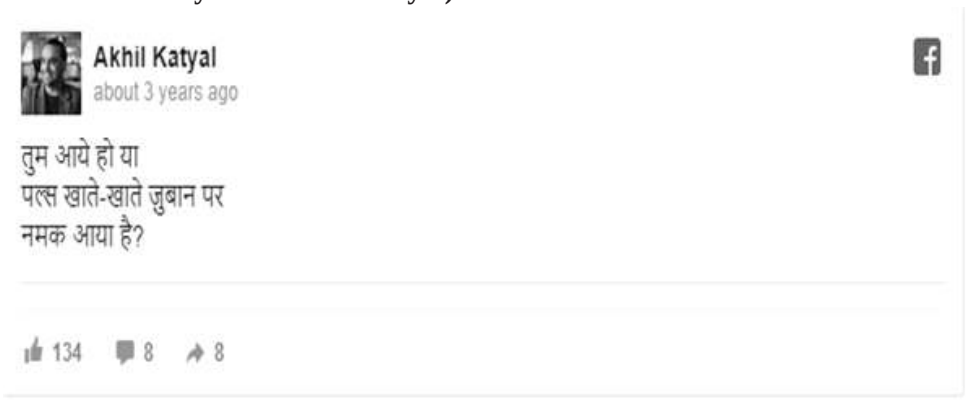
Distribution at Pan Shops

Exhibit - 4 (First TVC)

Exhibit 5 Social Media (Twitter)

Exhibit 6 (Facebook Page)

Exhibit 7 (Hindi Ode written by Prof. Akhil Katyal)



Teaching Note

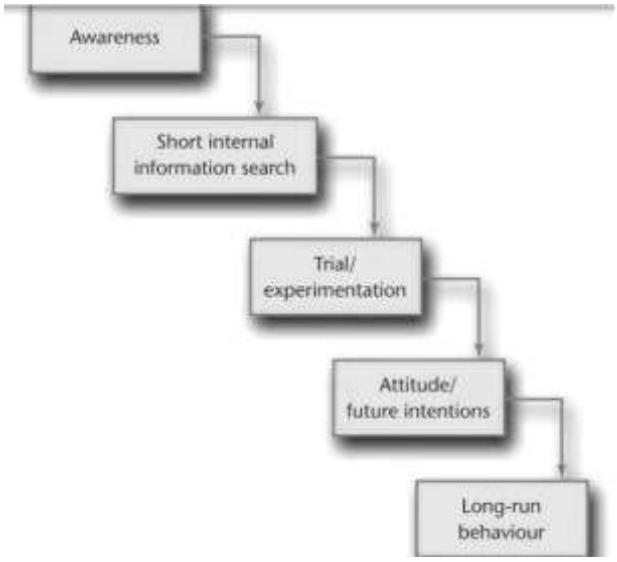
1. What are the challenges in marketing a low-involvement product such as HBC that are often purchased on impulse?

   When it comes to buying FMCG products like Pulse Candy the decision-making process occurs at the point and time of purchase, it is unlikely that the consumer will seek information or advice. Most of the time for FMCG shopping, the consumer habitually picks brands in his/her repertoire from the retail outlet.

   Unlike the west wherever candies are bought in lots of abundance for consumption, India's consumption remains occasion and mood-based. Point of purchase elements such as price, distribution and packaging are extremely important in case of low involvement products like HBC.

   Candies are generally placed with lots of other candies. Generally, when a customer comes, he/she looks at all the bottles of candies and takes decision in less than 30 seconds. HBC is a category with very low consumer loyalty; keeping this in mind, players need to keep reinventing their offerings in order to avoid fatigue and remain top of mind. Hence it is very important to catch the eye of the customer first. Marketers try to show consumers how their products and services add value and help satisfy needs and wants.

   Steps of low involvement decision making process



Adding value through product innovation is one of the best ways for creating customer satisfaction and long-term growth of the company. Innovation and introduction of recent flavours are two major growth drivers for HBC category. For a product to run in the market, it must be different, cheap and should satisfy customer's need. Companies want to convince the consumer that the evaluative criteria they are considering reflect the strengths of their products.

2. Critically analyse DS Groups marketing strategy for Pulse in India?

   India is a hot country where one must have something to stay the saliva going. That's precisely the reason why candy sales area unit highest in tropical areas. HBC segment in India was earlier thought of as impulse-driven purchase wherever customers commonly bought them in exchange of loose cash.

   With that as a milieu DS Group did market research to seek out the necessity gaps and fill it with some candy. Indians love mango hence this raw mango was, the palpable selection. A common consumer behaviour is that people eat raw mango along with a generous sprinkling of salty masala. Whether it's 'Aam panna' or a slice of raw mango sold on the roadside, it is incomplete without the tang/spices. After widespread sampling exercise, a raw mango-flavour hard boiled candy with a tart salty centre, named "Pulse" was created. The positioning of Pulse candy was based on raw mango taste. DS Group has subsequently launched Guava, Orange, Pineapple and Litchi flavours.

   While the DS Group pushed the candy through in-store promotions and an outdoor advertisement at select locations, its fans were active in the online world.

   The quickest way, to attain your audience is through people who can influence them. To obtain this you want to mobilize your happiest consumers and convert them to emerge as your brand advocates who becomes the voice of your logo. WOM marketing strategy in the confectionery category such as Pulse' helped in shopping for selections.

3. Analyse the marketing communication campaigns of Pulse candy?

   India has the largest number of young consumers who are also the decision makers in many homes today, so the brand needed to break the clutter in the communications space within the category. DS Group awarded the mandate for Pulse to Scarecrow Communications. The group believed that advertising is not going to drive sales. It will be reinforcement. Their main objective was to own the innovation Pulse stands for. Pulse spent INR 8 crore on a complete marketing campaign. The advertising and marketing budget for Pulse Candy initially was at 6-7 per cent of its annual turnover. Pulse Candy later released ads in popular national and regional channels and support it with campaigns on digital, BTL and other promotional platforms. Pulse had rolled out its first TV commercial with an ad that stands out! It offered a complete experience starting with a fruity taste and peaking with a tangy surprise in the end. The irresistible taste of Pulse candy extended to the brand communication, with the tag line of 'Pran jaaye par Pulse na jaaye', with humorous examples of how far people can go to save their favourite Candy, Pulse.

   A campaign was also planned on social media. Pulse candy focused on innovative ideas that establishes the brand thought as well as engage with the digital audience. The brand has presence on all social networking platforms including Facebook, Instagram and Twitter.

4. What should be the future strategies of Pulse candy to establish its position in other countries outside India?

   Immediately their focus was on strengthening the supply chain of the domestic market. The company has opened 6 plants in the last year (taking the total count to 7) to meet the rising demand for the product and to dissuade retailers from selling the product at prices above the MRP. The major focus point for them is the South East Asian countries which would be the starting point followed by the UAE, US and UK market where there is also a lot of demand.

Growth and Future of Algorithmic Trading in India

Dr. Vishal Kutchu*

Abstract

The technological advancements have impacted the stock markets as well with emergence of algorithmic trading and high frequency trades. Algorithmic trading is the process of using computers programmed to follow a defined set of instructions (an algorithm) for placing a trade to generate profits at a speed and frequency that is impossible for a human trader. Algorithmic trading started in the developed markets in the mid-1980s and currently accounts for 70% of total trading volumes in the US and other developed markets. India is not far behind with algorithmic trading accounting for almost 46% of trades on NSE and on BSE for nearly 30% of the total trades. This paper attempts to explore the reasons for growth of algorithmic trading. Since the future of algorithmic trading adoption will also depend on how the regulations and government policies shape up, the paper also explores the initiatives taken by SEBI and Stock Exchanges to promote algorithmic trading in India. Although you may not use algorithmic trading, but it is imperative for every finance professional and stock market investor to understand how technology is changing the financial market trading dynamics.

Keywords: Algorithmic trading, High frequency trading, Trading algorithms, Algo trading

Introduction

Financial markets trading has undergone tremendous transformation with advances in technology such as faster and cheaper computers, increased network connectivity among market participants and the most prominent of all the algorithmic trading. Investopedia defines Algorithmic trading as the process of using computers programmed to follow a defined set of instructions (an algorithm) for placing a trade to generate profits at a speed and frequency that is impossible for a human trader.The positives of such financial technology are lower transaction costs, speedy executions of trades and voluminous trades. But be it any technology, it comes with some unintended consequences (Kirilenko and Lo, 2013). Algorithmic trading has made a number of market participants redundant especially jobbers and arbitrageurs (Baliga, 2012). Before Algorithmic trading, it was the Jobbers and Arbitrageurs who used to keep looking at the computer screen observing the flickering numbers with their fingers moving across the keyboard demonstrating amazing display of hand and eye coordination, executing trade orders one by one. Their modus operandi was to identify price differentials between exchanges and instruments and make profits from arbitrage. To be a successful Jobber and Arbitrageur, the key requirements were market instinct coupled with speedy typing ability, the best in the business could do trades in less than three seconds and some in one and half second. But the end of 2007 saw the entry of superfast trading terminals loaded with trading algorithms which could execute millions of trades in split seconds. As more and more institutional players started using algorithmic trading i.e. computers loaded with trading algorithms, the jobbers and arbitrageurs were no match to the power of this technology. Eventually, the price differentials between exchanges and products became non-existentand professions like Jobbers and Arbitrageurs began to slowly fade out. Algorithmic trading became inevitable as profit opportunities started to vanish in a second thus for cingbrokers to update their trading terminals continuously in order to match the speed of their competition. Now, brokerage companies like Zerodha are offering algorithmic trading solutions to their retail clients and now some of the retail trades are also made using algorithms (Menon, 2015)

According to a report from JPMorgan, algorithmic traders are dominating the equity markets leaving the traditional stock pickers way behind as quantitative investing using computer formulas are more efficient in spotting profitable trading opportunities and the machines executes these trades instantaneously for a quick gain. Their report also states that the fundamental discretionary traders account for only 10% of stock trading as most of the buying or selling happens due to changes in trading strategies by the quantitative trader or traders using algorithms

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(Cheng, 2018). Algorithmic trading started in the developed markets in the mid-1980s and currently accounts for 70% of total trading volumes in the US and other developed markets. India is not far behind with almost 46% of trades on NSE and nearly 30% of the total trades on BSE is being done using algorithmic trading platform (Oberoi; Gupta 2018).

In this paper, we review the growth and future of algorithmic trading in India and the regulatory environment that accompanied these developments and we also discuss the pros and cons of algorithmic trading including the proliferation of High Frequency Trading (HFT).

Review of Literature

Frino *et al*, (2017) examined the impact of Algorithmic Trading (AT) on market liquidity in the Italian Stock Exchange. They divided the period of study as Pre-AT period and Post-AT period, i.e. periods before and after implementation of co-location facility (Traders' server is located near to Stock Exchange server). Their study found that firms that experienced highest rise in algorithmic trading from pre to post AT period, exhibit lower bid-ask spreads and greater depth during earnings announcements.

Hendershott *et al*, (2011) studied the causal effect of on market liquidity on New York Stock Exchange. They found that algorithmic trading for large stocks in particular reduces their bid-ask spreads, reduces adverse selection and also reduces trade-related price discovery. Their study finally concludes that AT increases liquidity and improves the informativeness of quotes.

Hendershott and Riordan (2013) examined the role of algorithmic traders in liquidity supply and demand in the 30 Deutscher Aktien Index stocks on the Deutsche Boerse in Jan. 2008. Their study found that Algorithmic traders actively monitor the market liquidity better than human traders. They observed that Algorithmic traders consume liquidity when bid-ask spreads are narrow and supply liquidity when bid-ask spreads widen. So, when bid-ask spreads are narrow, algorithmic traders are less likely to submit new orders, less likely to cancel orders and more likely to initiate trades. They found that Algorithmic traders react in a rapid manner to events and even more so when spreads are wide. They conclude that Algorithmic traders act strategically by monitoring the market for liquidity and for any deviations of price from fundamental value.

Boehmer et al (2018) studied the impact of algorithmic trading(AT) on market quality in 42 equity markets between 2001 and 2011. Similar to other studies they also use exchange co-location facility as an event to study the impact of AT on market quality. They found that on average AT improves liquidity and informational efficiency but increase short-term volatility. Their findings are consistent across all 42 equity markets and they also found that the larger stocks benefit from algorithmic trading than the smaller stocks.

Jones (2013) reviewed both theoretical and empirical research on HFT. He found that the major advantages offered by HFT is increase in liquidity and market quality, however, HFT speed puts other investors at a disadvantage and could impact market quality due to the resulting adverse selection. He observed that HFT allows liquidity suppliers to better adjust their quotes in response to new information and thereby improves liquidity and market quality. With respect to flash crashes like on May 6, 2010 in the USA, he opines that such crashes occur in manual markets as well indicating that the crashes are a generic feature of equity markets and the crashes have always been tackled by regulatory measures like introduction of price limits and trading halts. Therefore, he concludes that many of the regulatory issues with HFT are the same issues that are observed in manual markets.

Aggarwal and Thomas (2014) studied the impact of on stability of market price and liquidity on NSE. In their study, they first identified the date when co-location facilities were introduced on NSE then they select sample of dates in Pre Co-location and Post Co-location periods that have similar macro-economic conditions to ensure comparability. Finally, they choose firms with same characteristics in terms of size, price and returns volatility but have different levels of algorithmic trading. The securities which experienced a huge change in level of algorithmic trading after introduction of co-location facility is the treatment group. And the control group comprises of securities with AT level similar to treatment group securities before co-location but did not exhibit any significant change in AT activity after co-location. They then did a difference-in-difference regression to estimate the change in market quality of the treated relative to control securities, so that any significant difference between the two can be

attributed to algorithmic trading. The results of their study show that higher AT causes better market quality, i.e., lower impact costs, large number of shares available for trade, lower imbalance between number of shares available to buy and sell and a sharp decline in price volatility. But the study doesn't find any impact on the market depth, i.e., monetary available to trade. Their study contradicts the policy makers and regulators criticism that AT causes high probability of extreme drops and reversals over a short period of time. In fact, their study shows that AT lowers intraday liquidity and volatility.

Algorithmic Trading

Algo trades, which is short for algorithmic trades, is a program designed by the trader which executes the order once a specific criteria is met, for instance, if a trader sets a trade criteria like "Buy 50 shares of a stock when its 50-day moving average goes above the 200-day moving average and Sell shares of the stock when its 50-day moving average goes below the 200-day moving average". Once the algorithm is written with these two instructions, the algorithmic trading system automatically executes the order once the trading criteria are met. Therefore, the trader is no longer required to keep a vigil on live prices and graphs or key in the orders manually (Investopedia). Some of the common types of trading algorithms are:

1. **Momentum:** This is a strategy used when a stock price suddenly rises or falls and continues to rise or fall due to herd mentality. A simple trading strategy here would be to buy a stock when the latest price is above the moving average to profit from the rising trend by selling it at a high price later and sell the stock when its latest price is below the moving average to profit from the declining trend by buying it back later at a lower price. So, a trading algorithm is written with instructions to execute either a buy or sell when a trend is noticed.

2. **Mean Reversion:** Stocks follow a trend called mean reversion i.e. their stock prices move away from long-term average price and eventually return to their mean value. So, a trading algorithm is written to identify any stocks trading significantly above or below their moving average and automatically a sell or buy is executed.

3. **Fundamental Valuation:** Stocks will be trading at a discount or premium from their intrinsic value and such stocks are identified and bought or sold accordingly by the trading algorithms.

4. **Seasonality:** Stock markets give positive (negative) returns at certain times of the year and this seasonality is coded into the trading algorithms.

5. **Sentiment Analysis:** Trading algorithms capture the crowd psychology by monitoring Google search trends, blogs/forums and Twitter posts to predict their short-term effect on stock prices and does fast trades for quick benefits.

6. **Technical Analysis:** Technical analysis use charts to examine past activity of stock for changes in its price and volumeto predict its future movement. Trading algorithms execute trading actions based on the results of technical analysis (Deychman, 2014).

Components of Algorithm Trading System

Algorithmic Trading is the process of translating a trading strategy into a computer algorithm or code by back-testing on historical data to see whether the strategy gives good returns (Khandelwal, 2018). As shown in the figure 1, the algorithmic trading system can be divided into three processes:

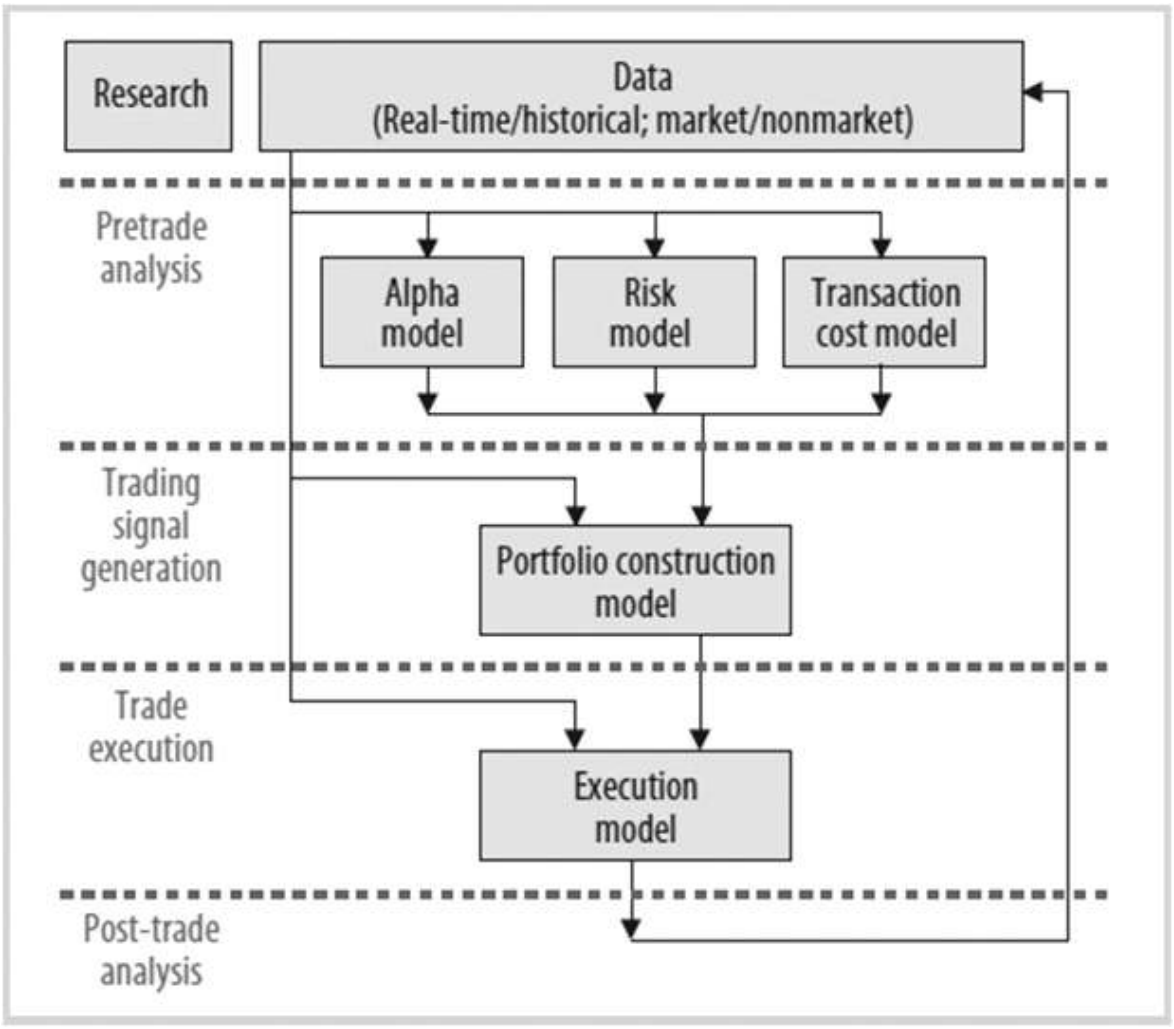
1. **Pre-trade Analysis:** This is the most common use of trading algorithm. It that scans the financial data or news and gives an output that helps to make trading decisions, for instance, the algorithm selects a group of stocks to buy and this information is given as an input to trade signal generation. Pre-trade analysis uses fundamental analysis, technical analysis and quantitative analysis to predict future price movements or volatility. Pre-trade analysis uses three mathematical models namely alpha model which predicts the future movements of securities; risk model which analyses the risks associated with the

securities; and lastly the transaction cost model which calculates costs associated with securities.

2. **Trade Signal Generation:** Trade signal generation consists of a portfolio construction model which constructs the portfolio of securities and their quantities. The pre-trade analysis only offers recommendations to buy or sell whereas trade signal generation is augmented by price and quantity so that it can be translated into actual trade.

3. **Trade Execution:** Algorithmic trading can execute trades and places orders in one or more exchanges. It designs the trading plan, like if the order is too large to execute in a single order, the system will break it down into several orders or execute it in alternative markets (Nuti *et al*, 2011).

Figure : Algorithm Trading System



Source: Nuti *et al*, IEEE Computer Society 2011

Figure 2 Illustrates with an Example as how the Algorithmic Trading System Works

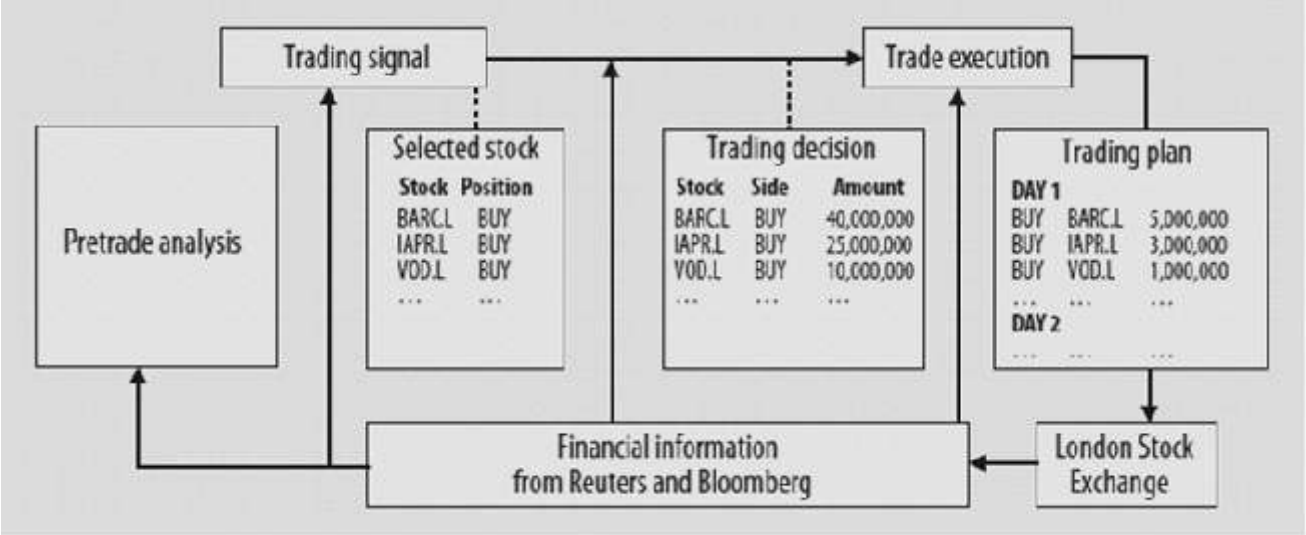
1. The pre-trade analysis can use a simple method to value a company or use a complex and sophisticated algorithm that employ Artificial Intelligence (AI) to scan news or Twitter feeds to predict price volatility in selecting a group of stocks to buy/sell and passes this as an input to trading signal component

2. The trading signal component selects the stocks for constructing a portfolio and determines the weights i.e. quantity of each stock to buy. The trading signal generation comes with a specific price and quantity and can also include risk management recommendations such as stop-loss. For instance, a trade signal is generated through an entry strategy, i.e., when there is an expected profit due to difference between

current price and intrinsic price, if a fundamental analysis system is used.

3. Finally, the trade execution determines the trading plan by selecting the exchanges and associated quantities (Nuti *et al*, 2011).

Figure : Working of Algorithmic Trading System



Source: Nuti *et al*, IEEE Computer Society 2011

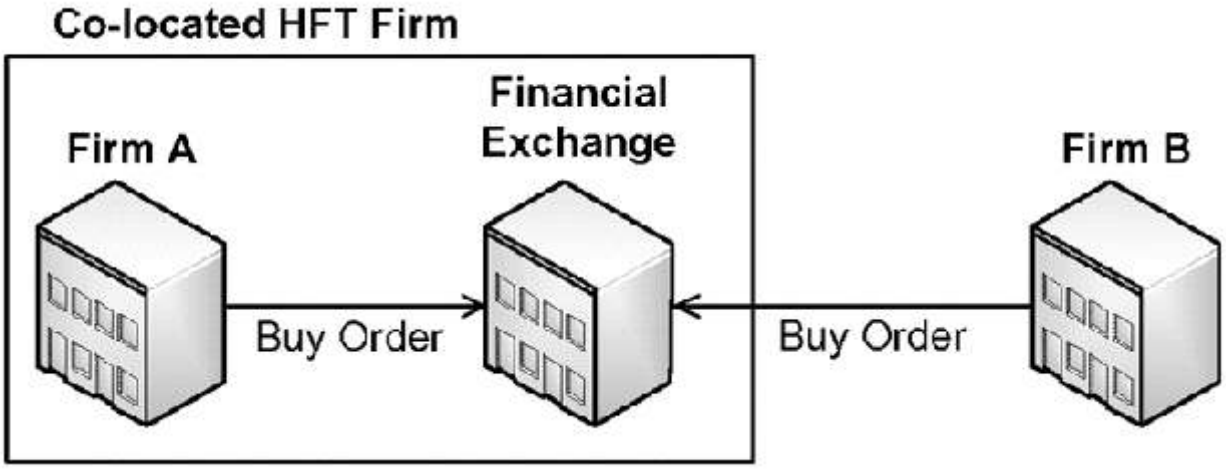
Algorithmic Trading has given way to job profiles such as

- Quant Analyst is a role revolving around the proficiency of quantitative skills with working knowledge of using quant tools such as R, Python, and Matlab. This is a field which is attractive to individuals who are interested in building their own financial models.
- Strategy Developer, as the name suggests, involves coding new strategies or modify existing ones. They are required to code strategies into a trading model developed by a quant analyst. Since, a single strategy doesn't give guaranteed profits forever, this role requires formulation and overhaul of strategies regularly using mathematical and statistical models to eke out profits continuously in the markets (Quantinsti.com)

High Frequency Trading (HFT)

HFT (High-Frequency) Trading – High Frequency Trading is a type of algorithmic trading which involves executing orders in a very short span of time, usually in a split second to generate miniscule profit from each trade by the way of executing many trades overall (Khandelwal, 2018). Therefore, HFT is a computer program used as a trading platform for buying and selling large volume of stocks in a very less time. The HFT platform uses powerful computers which follow the instructions in trading algorithm and analyses the market conditions and in a split second executes huge volume of orders when a particular condition is met. The greater the speed of execution, the higher is the profit gained by the HFT trader. Since, HFT is a kind of algorithmic trading that ekes out profit by quickly capitalizing on market opportunities, therefore bandwidth and location of Servers matters and it is for this reason their servers are co-located at the exchange premises-where exchanges allow traders' servers to be right next to theirs (Rajalakshmi, 2018).India allowed DMA (Direct Market Access) in April 2008, which is nothing but providing an electronic way of interaction with the stock exchanges. Later, stock exchanges allowed co-location, that is allowing some large traders to place their computer servers next to that of stock exchange servers for a fee. The co-location of stock exchange servers and the institutional traders' servers allows faster communication between the two servers, which means traders with co-located servers can trade faster than others obviously putting smaller traders in a disadvantage position (Lal, 2015).

Figure : Co-location of Servers



Source: Lobo, N., Malik, V., Donnally, C., &Jahne, S. (2012). Evaluating the Latency Impact of IPv 6 on a High Frequency Trading System.

Table : List of Players in India involved in HFT

Tower Research (Gurgaon)	Goldman Sachs | India (Bangalore/Mumbai)
Morgan Stanley (Mumbai)	Way2Wealth Illuminati Securities Private Limited (Bangalore/Mumbai)
iRageCapital (Mumbai)	Estee Advisors (Gurgaon)
Quadeye (Gurgaon)	Acceletrade Technologies
Dolat Group (Mumbai)	Edelweiss (Mumbai)
APT (Gurgaon)	Open Futures (Delhi)
WorldQuant LLC	Samssara Capital Technologies

Source: https://www.quantinsti.com/blog/career-developer-algorithmic-trading

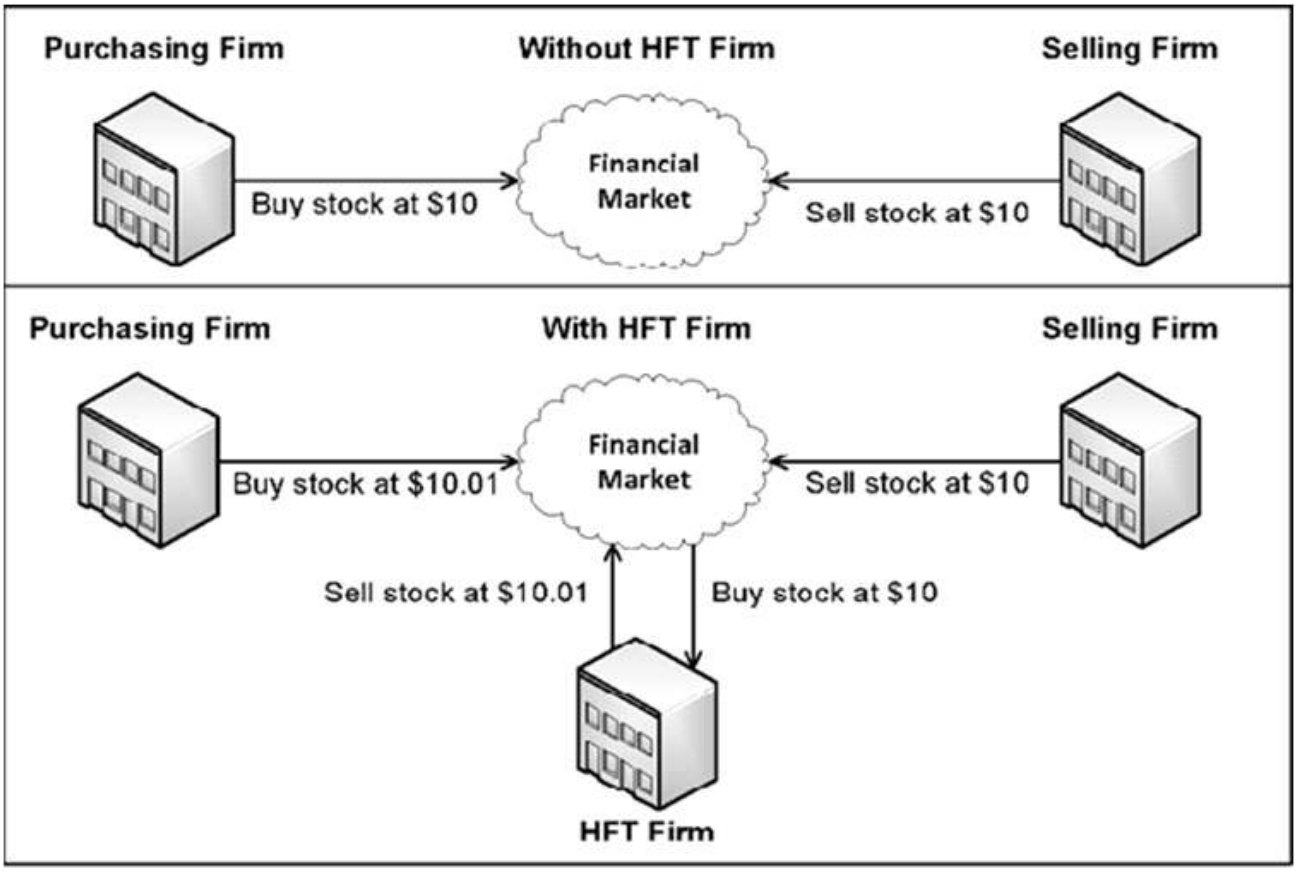
Concerns about Algorithmic Trading

You hear instances like a stock market trader wanting to buy shares of a company but no matter how many times he places a buy order, he sees that the trade goes to a strange trader who always places the order for a tad higher price usually as low as 50 or 60 paisa than his order. And later the individual investor realizes that he is losing his trade not to another shrewd trader but to a computer programmed with a trading algorithm. These computers monitor the stock markets and perform millions of trades in a matter of seconds due to better connectivity and processing speeds and therefore scalp all profit opportunities in split seconds beating a manual human trader. In this way, Algo trading is having an adverse impact on genuine investors. Unlike computers with a trading algorithm, a manual ordinary trader cannot track the market each minute and therefore loses out to algorithmic traders. The algorithmic traders resort to major malpractices like spoofing and quote stuffing, that is, they place orders with no intention of executing them as the orders are cancelled immediately, creating an illusion of demand to get favorable prices (Lal, 2015).

Figure 4 illustrates how high frequency trades (HFT) do scalping - HFT firms due to their high-speed connectivity and co-location facility are the first to see the orders and they immediately capitalize on the opportunity. HFTs are the first to see the buy order at $10 and execute the trade to buy and immediately sell at $10.01 – a high frequency trade within split second. Here is another example – Suppose an Institutional investor wants to

buy 10,000 shares of Infosys and specifies the range of purchase as Rs. 2150 – Rs. 2200 and it's trading desk runs the algorithm where it buys a small lot size of 100 shares at Rs. 2150. As the Institutional investors server is co-located on NSE, the order first appears on NSE. An HFT algorithm co-located at NSE picks up this order at Rs. 2150 and then immediately tries to sell to Institutional investor at Rs. 2250 and obviously the order gets rejected. HFT computer lowers the price to Rs. 2225 and gets rejected again. Then the HFT tries Rs. 2220 and the Institutional Investor buys the order. Now in an instant, HFT will buy up Infosys stock from other exchanges and then sells it back to Institutional investor, all at Rs. 2200. All this happens in a matter of milliseconds because the data runs between exchanges is slower than HFT traders (Iyer, 2015).

Figure : HFT Trading Scenario - Scalping



Source: Lobo, N., Malik, V., Donnally, C., & Jahne, S. (2012). Evaluating the Latency Impact of IPv 6 on a High Frequency Trading System.

Another pertinent issue with HFT is that a bug in the trading algorithm can result in huge losses to investors. HFT can lead to flash crashes, as it happened in 2010 on BSE when the volumes shot up suddenly and this was due to a bug in the trading algorithm of a Delhi stock broker, which resulted in buy and sell orders being repeatedly being executed. A bug in the trading algorithm can cause a ripple effect as other trading algorithm also get triggered causing a hysteric run on stock prices. The major concern with HFT is that a bug in the trading algorithm can result in high volume of trades in seconds causing huge losses to investors. Even a manual error in trading can trigger these HFT algorithms which in turn trigger high volume trades in seconds (Lokeshwarri, 2012; and Rajalakshmi, 2018).

Pros of Algorithmic Trading (Algo trading)

But the supporters of Algo trading argue that, it is the trading strategy whether manual or algorithm that manipulates the markets not the platform. For instance, in October 2012, the flash crash on NSE was due to a manual error and not due to algorithm related orders and moreover, crashes are generic feature of equity markets. Algo traders argue that HFTs biggest contribution is liquidity as it improves trade volumes and brings more money into the market and reduces the bid-ask spreads and thereby contributes to price efficiency. HFTs gives the ability to react to stock

market events very fast and improves the overall efficiency of the stock markets. The supporters further argue that algorithmic trading adds depth to the market and contributes to stock exchanges revenues due to high turnover(Baliga, 2012; Lokeshwarri, 2012 ;andLal, 2015).

Algorithmic trading allows investors to create fixed trading rules which define trade entry and exits, which are automatically executed repeatedly online, thereby optimising speed, efficiency and volume of orders and potentially boosting returns for the investors. Algorithmic trading also minimizes human emotions in trading, which usually result in knee-jerk trading decisions. As trading algorithms are established in advance and they act solely based on the data and rules and therefore are not derailed by irrational thinking or temptations (Roebuck, 2018)

Algorithmic Trading in India – Regulatory Framework

In 2008, SEBI started Direct Market Access (DMA) facility which enabled Institutional clients to gain access to the exchange trading system through brokers' infrastructure but without manual intervention of brokers. This facility helped institutional investors to cut down their costs and order execution time. In other words, using DMA, investment companies (also known as buy side firms) and other private traders utilize the information technology infrastructure of sell side firms such as investment banks to access the market themselves, but control the way a trading transaction is managed rather than passing the order over to the broker's own in-house traders for execution. In 2009, Credit Suisse's started algorithmic trading in Indian equities. Credit Suisse's trading algorithm strategy was to divide trading volumes up over time and trade at volume weighted average price of a stock. In May 2010, NSE enabled FIX (Foreign Information Exchange) protocol to increase the transaction speed for foreign investors using DMA. This move by NSE meant that a fund manager sitting outside India could buy or sell shares by DMA facility, i.e., through broker's trading system but without any manual intervention from the broker (Gupta, 2018).

The success of most algorithmic trading strategies depends on the speed of execution, therefore bandwidth and location of Servers matters. HFT is a kind of algorithmic trading which involves high volume of shares being bought or sold automatically at a very high speed i.e. within split-seconds to make quick gains resulting from market opportunities. It is the algorithm that spots the trading opportunity and HFT trades exploit that opportunity. This is the reason that institutional traders eye co-location at the exchange premises-where exchanges allow traders' servers to be right next to theirs. In June 2010, NSE offered 54 co-location server racks on lease to broking firms to increase the speed in trading. Foreign broking firms like Deutsche Bank, Citi, Morgan Stanley, Goldman Sachs, and MF Global availed this facility followed by Indian firms like Motilal Oswal Securities, JM Financial and Edelweiss Capital and Local brokerages like Globe Capital, SMC, Global Vision, East India and iRage Capital (Gupta,2018). With SEBI and Stock Exchanges initiatives over the years, India provides a suitable environment for HFT traders with supporting factors like liquidity, smart order routing systems, co-location facilities and sophisticated technology at both the major stock exchanges (Gupta, 2018; and Rajalakshmi, 2018).

To allow even the small and medium sized members, who find it tough to avail a co-location facility due to their limitations in terms of cost, expertise, maintenance and troubleshooting, SEBI has issued guidelines to stock exchanges to provide 'Managed Co-location Services'. This facility will allot a space/rack in co-location facility to eligible vendors to receive market data which can be disseminated to Vendor's client members and allow their clients to place orders from such facility, thereby creating a level playing field (SEBI Circular, 2018).

The main driver behind this change was expected benefits like greater transparency, increased liquidity, lower impact costs for large orders, better audit trails and better use of hedging and arbitrage opportunities. Since then exchanges started improving their offerings in the automated trading domain; financial technology companies started offering automated trading platforms and SEBI continued to regulate the markets. Both NSE and BSE worked towards providing an appropriate environment for algorithmic trading to grow. As more number of institutional clients started using DMA, the brokerage commissions began to wane and as a result, players in the brokerage industry such as Mastertrust, Zerodha, and others introduced automated software(Application Program Interface) for high frequency trading (Gupta, 2018).

Algorithmic trades help large institutional traders to find any trading opportunities allows them to execute their trades quickly and efficiently. So, algorithmic trading adds liquidity to the market but on other side Algo trades have often resulted wild swings and flash crashes in the market. When markets or stocks hit key milestones, such as say a 200-day moving average or 52-week high/low, algorithmic trades may trigger a large volume of trades that magnify the trend. Therefore, India does have stringent regulations in place for algorithmic trades. The exchanges where algorithmic trades are used, need to get their programs approved from the watchdog - SEBI, before they are put to use. Now, Stock exchanges allot a unique identifier to each approved algorithm and mandate that each order is tagged with the unique identifier so that surveillance and audit trail becomes easy. To control volatile price swings, SEBI levies a penalty on algorithmic orders that placed more than 0.75 % away from the last traded price (Rajalakshmi, 2018).

SEBI notifies regulations and dos-don'ts for algorithmic trading, for instance for HFT algorithm the stock exchanges and regulators specify number of orders that can placed per second, maximum order value and maximum trade quantity on a particular trading day so as to keep stock exchanges safe. As there is a growing demand of HFT and Algorithmic trading, the stock exchanges conduct training programs for their members to educate them and to develop their members' skill sets in this technology driven field (Gupta, 2018).

In terms of adoption of algorithmic trading, the Indian market has already crossed the halfway mark of the US and European market levels in last decade. Lower cost of technology, cheaper access to computing power and availability of skilled resources are helping to fast-track this transition. Since the future of algorithmic trading adoption will depend on how the regulations and government policies shape up, SEBI has been quite prudent with the regulations in this domain. SEBI guidelines on algorithm trading have played a positive role in helping its adoption. From the regulation point of view, the first experiences with the technology have been encouraging. The Indian market has not seen many flash crashes compared with similar instances in the developed markets. There are also reports that SEBI might come up with guidelines for use of algorithmic trading by retail traders, which shall help further understanding and acceptance of the domain at a larger scale. Algorithmic trading can be beneficial for small-time investors, as it increases liquidity in the market and thereby simplifies the entry and exit process. Increasing depth of algorithmic trading would be good for capital markets as it will remove price inefficiencies in traded securities (Oberoi, 2018).

Conclusion

The technological advancements have impacted the stock markets with the emergence of algorithmic trading and high frequency trades. It has become imperative for traders and arbitrageurs to trade efficiently and quickly and algorithmic trading is the solution. Even the market regulators are strengthening the regulatory framework for implementation of algorithmic trading Although you may not use algorithmic trading, but it has become imperative for every stock market participant to understand how technology is changing the financial market trading dynamics. Algorithmic trading follows a defined set of instructions based on parameters like price, quantity, timing, volumes and any other mathematical models and based on the algorithm the computers can generate high frequency trades to generate profits which otherwise are manually impossible. Algorithms are very versatile and can perform research and analysis as well as execute trades. As more and more financial market professionals gain expertise in financial modelling, technical indicators and derivatives, algorithmic trading will grow rapidly as the computers do better and faster execution of large orders than if done manually (Oberoi, 2018).

In developed countries almost 70% of the trades are algorithmic trades and in fact programmed algorithms generate technical trades. Algo trading can also be used for fundamental investing with longer investment horizons. Algo trading can be used by both institutional and professional traders as well as individual retail investors for execution of trades but it is more popular among the large institutional traders. Hedge funds, option traders, strategists, pro traders, arbitragers, jobbers, scalper are major users of algorithmic trading since the skill and technology needed for algorithmic trading is complex and expensive. The key skill needed to succeed in this domain is an understanding of statistics and programming besides, of course, knowledge of the financial markets. The success rate of algorithmic trade depends on the logic or parameters set in the rule of algorithms. It's not a default system, it's only a platform where people can code their logics as per their understanding and according to a back-tested data base (Oberoi, 2018).

The success and acceptance of algorithmic trading is due to its feasibility, rapid pace of execution of trades and its ability to remove human error and emotions in execution of trading strategies. The algorithmic trading is also being accepted because the likelihood of success of trading strategies has statistical backing. SEBI allows algorithmic trading in all segments i.e. equities, derivatives and commodities. At present, algorithmic trades comprise about 50% of the trades in the F&O segment and around 30% of total trades in India. SEBI has regulations put in place with respect to minimum order levels, audit trail, co-location facilities and penalties for high order-to-trade ratios and mandates testing of new algorithms before they go live (Lal, 2015; and Oberoi, 2018).

Algorithmic trading has improved market efficiency by lowering costs, reducing human error and increasing productivity. The twin forces of competition and innovation has led the inevitable drive towards faster, cheaper and better ways of trading as it is the only way to be profitable (Kirilenko and Lo, 2013). Algorithmic trading has brought about efficiency in the markets and the future is for high frequency intelligent trading (Menon, 2015).In the future, it is expected that the algorithmic trading will move deeper into machine learning techniques and will be able to handle real time interpretation and integration of data from many sources.

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Designing the Strategies for Preparing Talent for Change: A Special Focus on Automation, Digital Security and Demographics

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Abstract

Businesses are evolving at a faster pace with time and the organizations are responding through redesigning their structures and responsibilities to match the uncertainties in the business environment. Increased focus on automation, widening demographic bracket of the workforce and ever essential need of digital security has prompted businesses to be prepared to perform better. Developing agile organizations to respond to automation, digital security and demographic diversity require them to acquire, develop and retain the "right" talent, which is the ultimate challenge to almost every HR professional. The key learning from the existing literature highlights the fact that unless and until the opportunities and challenges from the environment are understood thoroughly, defining a strategic path to prepare talent cannot be laid. Following this, is the need to make the talent be aware of the fundamental need to be prepared for the change and inculcate learning enthusiasm amongst the workforce. This being the fundamental challenge for the HR personnel, the current article aims to understand the opportunities and challenges emerging out of businesses and suggest strategies for preparing talent to effectively remain in the competition. The scope of the article is limited to focussing on three major challenges affecting businesses today -- Automation, Digital Security and Demographic Diversity. The study shall conduct an extensive review of existing relevant literature to propose a framework to understand the impact of these changes and design strategies to prepare talent for these changes at Individual level, organizational level and at National level. The framework shall further be analysed to draw the requisite moderations in the HR functions in order to adapt to the business environment. The framework will also propose a clear need analysis at the individual, organizational and national level for organizations to utilize it with organization specific moderations.

Keywords: Talent Management, Automation, Digital Security, Demographic diversity, HR, Business environment, Change management

Introduction

Businesses are evolving at a faster pace with time and the organizations are responding through redesigning their structures and responsibilities to match the uncertainties in the business environment. To do so, employees should have clear understanding about the changes in the workplace This can be achieved by the organizations when they can involve their employees in the change process.

Increased focus on automation, widening demographic bracket of the workforce and ever essential need of digital security has prompted businesses to be prepared to perform better. Developing agile organizations to respond to the changes in the business environment require them to acquire, develop and retain the "right" talent and prepare them to change, which is the ultimate challenge to almost every HR professional. The fact that we considered in our literature is that unless and until the opportunities and challenges from the environment are understood thoroughly, defining a strategic path to prepare talent cannot be laid.

With every organization trying to acquire potential employees, retaining talent also is one of the major challenges that the organizations are facing today. Bhatnagar (2007) highlighted the need for HR to focus on improving the employee engagement scores in the organization which can affect the retention score positively. In the advent of continuous change, the need to make the talent be aware of the fundamental need to be prepared for the change and inculcate learning enthusiasm amongst the workforce, is at an all time high.

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Also, with younger workforce entering the corporate space with different motivational needs, it is pertinent for the HR to understand and design the requisite strategies to retain workforce. In order to achieve that, there are challenges posed by the business environment and the current article attempts to understand the same.

Objective and Scope

The current article attempts to understand the challenges and opportunities for the major stakeholders of business. The study attempts to develop a framework that can showcase the opportunities and challenges that arises out of the business environment and suggest talent development strategies that can be absorbed by the organization. The framework shall focus predominantly on changes such as automation, demographic diversity and digital security among a lot more.

The paper attempts to also suggest the requisite strategies to be adopted by the business organization to design a deliver appropriate HR process and practices that can be leveraged by the organizations. The suggestive framework shall help HR professionals to identify the focal points to remain competitive in the market

In order to achieve the objectives of the study, an in depth review of relevant literature is conducted through google scholar, search. proquest.com etc. The article presents a framework that is designed out of the exploratory analysis of relevant research content collected through new articles, research articles, books and other publications. The major limitations of the research is the framework being a proposal and yet to be testes with real time data from the organization.

Literature Review

To achieve objectives of the study, the literature search was conducted using keywords such as talent management, change management, Automation, business trends, diversity, digital security in business etc. Out of the various articles found, the appropriate articles were selected for the study. The section that follows a brief overview of the review of literature about the opportunities and challenges at different levels that impacts business.

In their study on "Managing change in hard times" Manning and Tony (2012) shared their opinion that, in hard times, preparing talent for the dynamic business environment depends on the organizational leadership and long term business strategy. Strategies can be laid down on how clear the vision of the management is. Strategies differ based on the clarity of leadership team and can make a lot of difference .Sometime, Management may have the clear vision but no proper resources. So, to make the workforce prepared for the change, initially the top leaders and management should have a vision and enough resources to reach the vision.

Lent and Robert(2018) in their article, "Future of work in Digital world" highlighted that the world of work is fundamentally going to transfer, with the recent developments in technology like automation, robotics etc. In order to meet client's expectations and to increase company reputation in the market, the article suggests that the management clearly defines what kind of talent is required or not required for them. It is important to be prepared for the uncertainties and complex changes, for which companies should proactively design strategies to prepare talent internally and at the same time, if those changes are affecting adversely, the external support from the government or federations are taken to handle such issues.

When many organizations are giving importance to create a diversified workforce, there are many challenges to manage them in an effective way and to bring out the best results. A study on "Transforming HRM systems to cop with diversity" By Martin *et.al.,* (2014) highlighted that inclusiveness, collectiveness and appreciating individual differences can bring a lot of strategic advantage to the business. To do so, a lot of patterns should be understood by the HR practitioners on a regular basis to achieve the common goals. In another research study on "Next Generation talent management: Insights on how workforce trends are changing the face of talent management" by Tucker, *et.al.,* (2005) explained that organization will experience multitude of challenges that arise out of changes in the business environment. But the hard truth is that, not many organizations are planned for the change and for a few companies it is even more difficult to face the change may be because of lack of proactiveness, minimal investment on the people development, believing that the change cannot impact them. But there are few companies who started their combat strategies just by concentrating on one or two trends of change. The best way to face the change trends is to have a holistic approach in dealing with it.

Gilley, Thompson and Jerry(2012) in their study on "Leaders and Change: Attend to the Uniqueness of individuals" stated that the behaviors of managers and the other leaders will have direct influence on the employee's actions either to cope up with the change or to prevent it. Change transformation can be taken place only when it is driven by competent people who can understand the process of change and all other aspects that can impact in the transmission phase. Management can handle the resistance through motivation, benefits and mainly explaining the need and importance for change. With the individual more focused on self-development is also necessary to create an individual action plan for the affective change management and communication to the employees about it in detail.

"Updating the skills and adaptability for the future workforce is the key priority for meeting the workplace requirements in the modern business environment." Is given by Levin (2015) in his literature "The Importance of Adaptability for the 21st Century". He also pointed out that, the adaptability among people can be achieved by creating a balance between education system and industry. Because many studies prove that the greatest obstacle for the future workforce is based on the foundation laid by the educational system.

Assante and Tobey (2011), in their article on "Enhancing the Cybersecurity workforce" stated that designing the policies and string systems in place can help the business to prevent or protect themselves from the cyber-attacks or information breaches for which they should focus on the human element of the organization. Intensive training should be organized for the employees to understand the importance of the cybersecurity and how harm the attacks can impact themselves and the organization. So, that the need to update will arise among the employees. This makes them to learn and implement the policies and systems that are introduced.

Upon a brief understanding of the literature, it is evident that change in the current state of business in inevitable and in important for the organizations to responding positively for the same. Further to this, it is also understood that the increasing diverse nature of workforce, automation and digital security are the major factors that have to be focuses upon to leverage talent and competent workforce.

Understanding the Change

Nature of the work and the nature of people involved became the subjects of debate in the recent times. Some consider themselves as a pioneer of new era of wok, while some others believe that job security is now an illusionary concept. The reason behind these debatable statements is "Change". The major change areas considered for the study - automation, digital security and demographic diversity are reviewed in detail in the sections further.

Automation

The most important change across the organizations is Automation, a process where the operational tasks are performed with less or no human intervention. Many believe that with automation many jobs will be obsolete, and many people will have to lose their jobs. There are also few researchers, who believe that there will more job creation in the economy by automation than before. But the biggest question here is, that whether the workforce is ready for this change? Most of the organizations aren't able to answer this . There are few more questions from the research scholars and the industrialists, which explain us the state of the workforce in dealing with "Automation."

- Employees are ready to work with machines?
- If employees are replaced by machines, what kind of jobs they can get later and when?
- If current employees are sacked, to replace with well equipped talent then how to find them?
- Is it possible to upskill the existing workforce?
- What about the productivity of the employees in the transmission phase?

The answer to all these questions, can be find in the process of identifying the gap and preparing talent for change.

Here are few situations that explains the way that automation is replacing human.

McDonalds introduced an automated system named “create your taste kiosk” which takes the orders from the customers, without any human intervention. By introducing this - system, 2 jobs in each store become redundant. Imagine the number of stores McDonalds have in US and the number of jobs it cut down through automation.

Table-1: Opportunities of Automation

Individual Level	Elevate the Job	Chuang, S., & Carroll, M. G. (2018)
Organizational Level	Improved Productivity	Mandal, P., Howell, A., & Sohal, A. S. (1998). Walker, S. (2014). McMahon, T. (2012).
	Less vigilance	Johansson, J., Abrahamsson, L., Kåreborn, B. B., Fällholm, Y., Grane, C., & Wykowska, A. (2017).
	Lean Structures and policies	Panwar, A., Nepal, B., Jain, R., Rathore, A. P. S., & Lyons, A. (2017).
National Level	New Jobs are created	Sorgner, A. (2017).
	Improves the income levels	Murphey, D. D. (2016).
	Infrastructure Development	White, D. C. (2010).

- A robot named Hadrian X is used by many contractors in construction work by replacing humans. This robot can lay 1,000 standard bricks in one hour, which would take one or two days for two workers to perform.

However, it is obvious that, it is not easy to capitalize on the opportunities, there are the challenges for adapting to automation at the individual, organizational; and national level in presented in the Table - 2 identified through the review of literature.

Table 2: Challenges in Automation		
Individual Level	Skill Gap	Annunziata, M., and Bourgeois, H. (2018).
	Replacement	Loi, M. (2015).
	Change in Jobs	Sorgner, A. (2017).
Organizational Level	workplace maintenance (Man-Machine)	Karuppan, C. M. (1995)
	Transactional Challenges	Hodgson, J. D. (1963).
	Increase in training cost	Murphey, D. D. (2016).
National Level	Risk of Unemployment	Blum, A. A. (1966). Hodgson, J. D. (1963).
	Pressure on economy	Smith, J. L. (2018).
	Risk on the people safety	Dhillon, B. S., Fashandi, A. R. M., and Liu, K. L. (2002) Holder, M. (2018).

The opportunities that comes with Automation often outweigh the challenges it brings. But every case is different, and every case needs deep consideration to ensure that we can get the best of it. Moreover, the way management can design the workplace to fit both Machine- Man plays a crucial role in the success of automation.

A) Demographic Diversity

Diversity is a well-defined concept in the workplace from the last decade, but the pace of change in the diversity in the workplace is growing year on year. Companies with high level of diversity are able to create a better employer brand and even able to earn better financial results than other companies. Moreover, understanding, accepting and respecting the people for what they are is the basic thing that is required among all the people.

To leverage on the benefits of workplace diversity, the workplace culture is being transformed towards acceptance and inclusion. With the multi-dimensional diversity parameters of India and the rate at which the young workforce in India is growing. It is essential for organization to build diversity management strategies.

With over 45% of workforce in the ever developing IT &ITES industry being women and which is increasing at an annual rate of 5.3% on year. Developing organizational strategies to internalize this change become crucial. (Meena, 2015). According to the report from central statistical office 5.7 mn youth (15-29 years) are going to be added in indian population and around 50% of them are entering the workforce. This leads organization to having together and creating an inclusive platform is a necessity.

Although it is not one of the major selection criteria in top MNCs, organizations are also ranked for inclusivity based on their workforce number. Google, one of the most trusted brand for employment, in highlighted for its poor diversity ratio with only 18% being women and just 2% being black.

Analyzing the opportunities is identified from the literature at the individual, organizational and national level in Table - 3.

Table 3: Opportunities of Demographic Diversity

Individual Level	Equal opportunities for all class of individuals	Burgess, J., French, E., and Strachan, G. (2009).
Organizational Level	Employer Brand	Avery, D. R., and McKay, P. F. (2006) Jauhari, H., and Singh, S. (2013).
	Wide range of Talent	Harley, P. (2010).
	Productivity improvement	Hassan, R., Marimuthu, M., and Johl, S. K. (2015). Richard, O. C., and Nancy, B. J. (2001).
National Level	Opportunity for the workforce, without any discrimination	Syed, J., and Kramar, R. (2009). Wade, C. L. (2004).
	Creates a supportive global economy growth	Lattimer, R. L. (2003). Tisdell, C. (1999).

When we look at the opportunities that comes with having demographic diversity in the workplace, there will be even challenges in maintaining a demographic workplace at individual, organizational and national level. It is presented in the Table - 4 identified through the review of literature.

Table- 4: Challenges in Demographic Diversity		
Individual Level	Aging Workforce	Dumay, J., and Rooney, J. (2011). Vasconcelos, A. F. (2015).
	Communication	Kaminsky, L. (2006).
	Resistance to Change	Hofhuis, J., van der Zee, K.,I., and Otten, S. (2015). Kaminsky, L. (2006).
Organizational Level	Communication	Bhardwaj, S., Sharma, V., and Deepshikha. (2017).
	Cross culture issues	Sukanya, R. (2015). Stahl, G., Miska, C., Hyun-Jung, L., and Luque, S. D. (2017).
	Increase in training sessions and their costs	Gilliard, J. P. (2008).
National Level	Educating the young workforce at large	Vandana Saini (2015)
	Demographic burden (Keeping young people unemployed)	Kaptan, S. S., D., and Jagtap, V. K. (2016).

Dealing with workplace diversity is a concept beyond an opportunity or challenge, because it is a reality. Many of the studies portrays that the diversity trumps ability, because all of us are smarter and powerful than any one of us. Organizations that can recognize and understand this to the earliest can develop an environment that can create a better supportive and inclusive workplace which can yield better results in the business.

A) Digital Security

There is no business today that is not affected by the threats of digital security and it is no surprise to say that around one trillion dollars would be spent by organizations to combat cyber-attacks by 2021. with data analytics increasingly advancing in business, security of data is the need of the hour. Over time, it is also observed that digital security has become an important organizational goal. With HR being the guardian of a lot of employee's personal data and the legal aspects of business, information security management has become an important task for HR to focus on.

Digging into information related to the link between HR and digital security, the following facts are found

- 54% of the users download unsafe apps or content.
- 56% of the users have unauthorized access to company data and systems.
- 77% of the organizations that faces the cyber-attacks are not having any digital security policies.
- Most of the organizations build teams for investigation rather than prevention of breaches.
- Only 39% of the organizations are really having the tools and well equipped resources (Includes Talent) that are necessary to analyse and understand external threats.
- The major reasons for the employees to be a part of the digital breaches are Privilege abuse, Data mishandling, Unapproved hardware and software usage, email misuse and illicit content downloading.
- 60% of the cyber-attacks that are registered in 2017 from various organizations, are caused by employees. Out of which, 30% is due to human error or negligence.

Table 5: Opportunities of Digital Security

Individual Level	Personal Info, research and work related information can be protected	Harrison, and Jürjens, J. (2017).
	Psychological Risk will be reduced.	Frangopoulos, E. D., Eloff, M. M., and Venter, L. M. (2013).
Organizational Level	Organization knowledge will be preserved and protected	Manhart, M., and Thalmann, S. (2015). Jennex, M. E., and Zyngier, S. (2007)
Improved productivity		Wibowo, and Batra, M. M. (2010). Mayer, P., Gerber, N., McDermott, R., Volkamer, and Vogt, J. (2017)
Increases Customers trust		Xiao, L., Guo, Z., D'Ambra, J., and Fu, B. (2016) Choong, P., Hutton, E., Richardson, and Rinaldo, V. (2017).
National Level	Encourages the SMEs in country	Harris, M. A., and Patten, K. P. (2014). Green, G., Liu, L., and Qi, B. (2009).
	Reduces the cybercrime rate.	Levi, M., and Matthew, L. W. (2013).
	In par with global business systems.	Wibowo, K., and Batra, M. M. (2010).

- Most of the cyber-attacks are registered in government offices, where the human error is the biggest cause.

Hence it is important to realize the link between HR and Digital security which is so far the most neglected area in HR. The brief illustrations of the opportunities available in the business environment related to digital security is presented in Table - 5.

For attaining 100% digital security in the workplace, just by utilising the opportunities is not enough. Management should also understand the challenges involved in adapting the digital security in the workplace. The same is highlighted in the Table - 6 which are identified through the review of literature.

Table-6: Challenges in Digital Security

Individual Level	There will be always a Human Error, that creates a problem.	Al-Mukahal, and Alshare, K. (2015). Parsons, K., McCormac, A., Pattinson, M., Butavicius, and Jerram, C. (2014).
	Difficult for many to continuously update.	Veiga, and Eloff, J. H. P. (2007).
Organizational Level	Unpredictability and Lack of Control	Ramasubramani, M ., and Ragothaman, C. B. (2015).
	Training for all set of people in the organization	Chmura, J. (2017).
	A single breakdown or hacking can affect the entire business	Wibowo, K., and Batra, M. M. (2010).
	Budget and cost impact	Karanja, E. (2017).
National Level	Threat from terrorists and Hackers.	Chaturvedi, M., Narain Singh, A., Prasad Gupta, M., and Bhattacharya, J. (2014).
	Affecting all the stake Holders	Arreymbi, J. (2007).

As it was attempted to search for the relevant literature, it was realized that literature relating HR and Digital Security is fairly less and hence the current article may contribute significantly to fill the gap. Having realized the role of employees in increasing the risk of cyber security, it is pertinent to define role of HR more precisely in managing digital security.

Preparing Talent for Change

The global economies, the international markets and the continuous technological advancements have transformed the Indian manufacturing economy to service economy, and thus, the focus shifted from product to process, from quantity to quality, and more importantly from product orientation to people orientation leading to cut throat

competition requiring highly competent workforce to achieve organizational effectiveness by aligning them with the organizational strategy.

With high end technology sophistication, there is an increased need to acquire, develop and retain competency workforce. Also, it becomes obvious to cater to the workforce expectations of operational autonomy, job satisfaction and productive engagement. Managing this workforce is a challenge to the management. With quality processes taken care of by the practices like Total Quality Management (TQM), the focus is now shifted to employees' job satisfaction, commitment and passion towards the organization. With the advent of automation, diversity and digital security challenges, it has become more important to leverage on people management and build the competency human capital.

Preparing such competent employees is evidently not just the responsibility of the employer, in view of such a dynamic and volatile environment. Businesses today are only after competency workforce and the responsibility, hence, is also shifted to the individual level and national level to prepare the future workforce.

Companies Who are Pioneers in Preparing Talent for Change

- Johnson and Johnson established employee resource groups, dynamic websites and diversity university to understand the benefits of working collaboratively and defined a direction for the workforce.
- Marriott's hostels are recognized as the best places to work for LGBT equality and they always a benchmark policy for diversity and inclusion.
- Along with various diversity development practices, Accenture hosts a companywide celebration of international day of persons with disabilities, by providing flexible hours of work, additional training and assistive technology.
- Amazon Introduced online courses and assistance to their employees as well as to the young generation for promoting information security and other machine learning courses.
- Employees at Google are provided with continues and intensive training on information and digital security starting from the orientation time. It ensures that the employees remember the security code of conduct at all times in their work

  Tech Mahindra Launched an Artificial Intelligence based system named Telex, to upskill and reskill the talent for preparing to face the changes.

Apart from the corporates, Governments and national federations of various countries are coming forward to upskill the existing talent in the industry and also train the young generation who are about to join the workforce.

In case of Indian government, it initiates various training programs like STAR(Standard Training and Reward) Scheme, Vocational Training etc. At the same time, NASSCOM provides technical upskilling programs for the people by offering courses like “Foundation skills in IT” , “New Age IT”, Workforce Developments, etc.

Strategies to Prepare Talent for Change

The current article proposes a talent management framework addressing the three parameters considered for the purpose of this study- automation, demographic diversity and digital security, at the individual, organizational and national levels.

The proposed framework is expected to support the HR professionals to not just understand the issues better but also frame implementation strategies to capitalize from the opportunities. The designed frame work of strategies suggested in Table - 7, are developed based on our understanding and thorough study from literature and the industry.

Table-7: Change Strategies

	Individual	Organizational	National
Automation	To identify a need for individuals to learn and update Upgrading from simpler to complex stage of learning. Planning for the self-development and strategies to execute. Should be ready to take new job roles Must Develop learning attitude	Changing the structure of organization and its policies To forecast in advance and prepare in time. Focusing on new leadership that can balance Man-Machine Identifying the talent, retaining and reskilling them to sail through the transitions Maintain transparency in the system Culture of respect to the highly skilled workforce	Designing new workplace laws. Able to support the industry and employees in the transition period. Encouraging national federations both from the management and unions side to support the change with all resources available. Redesign the higher education curriculum
Demographic Diversity	Respect individual differences. Should be able to honour and respect the individual's demographics. Should speak out and report their contribution or the abuse and problems they faced. Reverse Mentoring. Understand the need for diversity.	Balancing the proportion of diversity in the workplace Hold people accountable for their actions. Form teams, with wide diversity Importance to diversity in all process and functions. Encourage knowledge sharing. Providing better opportunities for women and transgenders. Prohibiting bias in every process and hierarchy.	Recognize organizations, that encourage diversity Mandatory norms can be brought in few industries Can bring more sections into the lime light to showcase them to the industry. Encouraging the education systems to train the young generation on diversity .
Digital Security	Updating the profile Ids and passwords from time to time. Restricting the use of unauthorized access and content Being aware and alert Always having a backup of data Restricted sharing of information.	Implementing strong digital security policies Regular check on identifiable threats. Investing on preventive action teams. Digital security awareness and training to individuals at all levels. Establishing in Monitoring teams Incentives for encouraging digital security and preventing breaches.	Enhancing the powers and responsibilities of the cyber department Establishing relations between Government, academic and industrial bodies Preparing automation in digital security skills.

When the advancement in the technology have changed the way, people live in their daily life, especially in workplace, there is a need for the individuals, organizations and the nation as a whole to update to automation. So, in order to make the change transmission regarding automation successful in the workplace, first HR have to identifying the need for individuals to learn and update, which should be supported by the organization's preparedness, flexibility and government's structural changes in laws and systems.

When the need for the organization and a nation as a whole arise to maintain the inclusive diversity in the workplace, the major strategies that can help to maintain best diversified workplaces are to first develop the culture of respecting and understanding each other. Later, the freedom and transparency of communication in the organization makes such culture strong enough. At national level encouraging better education systems and organizations with diversity and making them as benchmarks can make the change transmission productive.

When maintaining strong digital security policies in the organization can improve productivity and reduces the risk of cyber attacks and breach of data, organizations can carefully plan is implementation with the strategies like intensive training for the employees on the importance of digital security and how it can be implemented in day to day work life. A strong collaboration between organizations, educational systems and industry can lead to better results in implementing this change process.

Conclusion

To sustain over the high tide of business competition, organizations should value their human resources as a strategic differentiation in the market. Talent management strategies, however, cannot sustain when designed in isolation. It is important that an integrated change process is initiated and executed at the individual, organizational and national level so as to leverage on the benefits and overcome the challenges in time.

With the advent of automation, increasing demographic diversity and the ever changing threats to digital security, the ability to develop leaders who can effectively face tomorrow's global business challenges is critical for organizational success. The proposed talent management framework in the current study focusses on the key focus areas and appropriate strategies that can support organizations to be prepared and sustain the fierce competition and business challenges which over time, can translate the commitment to implement the framework into a strong talent base and an efficient leadership pipeline that shows a demonstrable impact on business results.

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Training in Intra-Language Variants of English: Implications for International Business

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Abstract

Globalization has stretched the horizons of business and trade relations between countries has been ever-expanding. Given the common usage of English as an international language, different types of English are being spoken world over. There is a wide spectrum of English usage ranging from native speakers in the English-speaking world, through to countries where English is widely used but not the mother tongue, to those countries where English is very much foreign and often spoken with great difficulty. These intra-language variations can play a critical role in business interaction. The general assumption that if people can speak English business can proceed effectively, is far from reality. While some deviations from “standard" English do not distort messages, others may create misunderstandings and ruin a smooth business relationship. Business communication can be complicated by cultural and linguistic barriers. To unlock their hidden potential, employees need to feel comfortable while interacting with people in multinational organizations. This paper attempts to explore different types of English based on the cultures and considers the need to train the workforce in the English required by the company in which they seek to be hired.

Keywords: Business Communication, Globalization, Intra-language, Multinational, Training

Introduction - FDI

English is an international language and is used for business across the world. According to research, the number of people having some ability in English may cross 2 billion by 2050.This is so because English is considered as the 'lingua franca' of the business across continents. English being the international language, all the countries have been adopting it irrespective of their first language. As trade between countries flourishes, English language merges with the local language and we have new varieties of English have emerged like Hinglish (Spoken in India) Singlish (Singapore), Chinese English, Japanese English etc. Intra-language and inter-language variants of English language play a significant role in international business activities. Hence the bland assumption that if people can speak English and make themselves understood, business can then proceed effectively is a long way from reality. Globalization has exposed the business world to multicultural workforce and global market. International business communication depends mainly on the business transactions between the countries involved. It is essential to understand the different variants of the English language and its usage along with the culture of the country with which trade is carried on. The focus of the paper is linguistic differences in countries, where English is not the first language and how this impacts on attitudes, perceptions and behavior related to business.

Statement of the Problem

We live and work in a diverse society. A company you work for in India may have its headquarters in the USA. Similarly, a company from the US may be owned by a company from Germany or Asia. PepsiCo, for example, is headquartered in Purchase, New York and operates international divisions in more than 200 countries. Similarly, during the interviews with industry professionals, the researcher has come to know that a bulk drug manufacturing company in Hyderabad, India has clients in China and Brazil. Most of the communication is through telephone and video chat in English language. But since the accents are different, most of the communication gets hampered and they depend on the minutes of meetings to understand what exactly passed on between both the parties. A software industry from India has client company in Germany. The IT professionals involved in the project need to struggle hard to cater to the client's requirements. There is a communication breakdown many a time due to unintelligible English spoken on both sides. This makes the client lose his cool many times, sometimes, to the extent that the

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project of losing the project. An international consulting company, with its headquarters in the US, recruits people based on their exposure to the American English accent. Even upon recruitment, the new recruits have to undergo training American accent in their 'Language Gym.' In such cases, the role of English language for internal communication of globally operating firms, its use in external relationships such as sales negotiations and distributor meetings is very important. Hence, employees should be exposed to intra-language variants of the English language.

Sørensen (2005) defines a common corporate language as "an administrative managerial tool" which is derived from the need of an international board of directors and top management in an MNC to run global operations. It is seen to provide a common ground for internal communication between organizational units that are often embedded in different language environments. Basically, the common corporate language is intended to increase efficiency by overcoming misunderstandings, reducing costs, avoiding time-consuming translations and creating a sense of belonging and cohesion within the firm (Marschan-Piekkari *et al.*, 1999a; Sørensen, 2005). But in international business situations we find multinational, multi lingual and multicultural work places. Various groups of personnel have their own professional language stemming from respective communities of practice that are brought to the workplace. Consider, first, the multilingual reality within the MNC in countries like India. Management might tend to use local languages when dealing with their employees, customers and suppliers and English with the clients. Organizational members whose professional role requires cross-border sharing of information will exhibit varied levels of language competence.

Currently, the number of people who use English as a communication tool (approximately 1.25 billion to 1.85 billion) far exceeds the number of native English speakers (approximately 380 million).Many English-speaking business people are unaware of the very substantial grammatical and sociolinguistic variation in the English spoken in different countries. People of the English speaking countries cannot assume that different nationalities use English expressions the same way as they do. For example, the 'OK' gesture used by the Americans signifies Zero or worthless in France and is regarded as obscene in some other countries. Most native speakers of English don't speak any language other than English. They are not aware of the different intra-language variants like Indian English, Chinese English or that spoken in other countries of European continent. This can affect communication and business. A time has come when the native speakers of English need to be aware of local varieties because even they are aiming at improving their trade relations with growing Asian economies like India, China, Singapore, Korea etc. It is necessary to understand differences in accent, stress, vocabulary and paralinguistic features of the English language spoken in the countries with which they are associated for business purposes.

Objectives

The study focuses on the different inter and intra language variants of English and the cultural influences on the English language and how they impact international business scenario. It also stresses the need to train the future and the existing workforce in the company specific English language skills.

Methodology/ Approach

This conceptual paper is based on secondary data, literature review and some live examples and personal interviews with industry professionals.

Literature Review

Several studies (DeShields, Kara, and Kaynak, 1996; Scott, Green, and Rosewarne, 1997, 1998, 2001; Scott, Green, Rosewarne, and Neal 1999; and Scott, Rosewarne, and Green, 2001) indicated that research about business related perceptions of English-language accents could help businesspersons gain the maximum benefits of the English language as a competitive tool in domestic and international marketplaces. Rosewarne (1985, 1990), who studied the English-language accent perceptions of students and teachers of English-as-a-foreign-or-second-language in the United Kingdom, and Scott, Green, and Rosewarne (1997, 1998, 2001), Scott, Green, Rosewarne, and Neal (1999), and Scott, Rosewarne, and Green (2001), who studied English language accent perceptions of prospective

and practicing business persons in the United States, the Pacific Rim, the United Kingdom, and Malaysia, also found that business-related research about perceptions of English-language accents would help to fill major gaps in business and linguistics literatures.

DeShields, Kara, and Kaynak (1996) included customers and salespeople in multicultural business settings in their study, and found relationships between salespeople's accents and purchase decisions.

Perceptive business persons and providers of business-related language services would like to know which English-language accent(s) might give them a competitive advantage over speakers of other English-language accents (Deshields, Kara, and Kaynak, 1996). As demonstrated in the pioneering sociolinguistic studies of Giles (1970, 1971a, 1971b, 1972), the attributes of an accent as perceived by study participants include judgments of the personal efficiency, effectiveness, and attractiveness of speakers of the accent being studied.

In a study of Greek and American conversations, Tannen (1984) found that the Americans pause longer and interrupt less than Greeks. Speakers who pause longer may appear uninterested, unresponsive or bored to speakers with shorter pauses between turns while speakers with longer pauses may find their interlocutor rude and obtrusive. Thus the association of positive or negative traits with an accent may be said to determine its competitiveness in social and work contexts.

The research of Schlep pengrell and Royster (1990) indicated the importance of training in usage, particularly in expressing English concepts that business people already know. Yet, the findings made it all too clear that the teaching situation is often far from satisfactory. Fundamental criteria such as business English content, relevant goals, appropriate classroom activities, professional instructors and sequenced instruction were frequently not met.

A Czech linguist having lived in Japan for many years and now teaching Japanese overseas once remarked: "If Japanese, in comparison with other nationalities, face difficulties in their communication with foreigners, that is not because of the lack of English grammar which includes pronunciation and vocabulary, but due to the lack of communication competency irrelevant to the grammar" (Neustupny, 1982). In this day of internationalization and in an information-oriented society, communication competency is truly required for Japanese managers overseas.

A recent paper by Sahgal (1991) showed that 68 percent of Indians surveyed preferred Indian English to British English. The native speakers of English need to be aware of these changes and understand that theirs is not the only English to be followed across the globe.

As pointed out by Maier (1992, p. 190), "… even with a flawless control of English grammar, a writer who does not have well-developed sociolinguistic competence runs the risk of offending the reader by violating unwritten rules of social interaction".

Several multinational corporations (MNCs) have adopted English as their common corporate language to facilitate "in-house" communication between headquarters and foreign subsidiaries as they enter new markets (Feely, 2003; Marschan-Piekkari et al., 1999a; Nickerson, 2000). Yet, the mere introduction of English as the corporate language does not automatically lead to its adoption, nordoesitmakeit "shared" through out the organization. As Nickerson (2005) points out, "The communication event is often considerably more complex than the label of English as lingua franca would suggest". She explains that in multinational settings, communication of ten takes place between speakers whose fluency in English varies and who may also use one or more other languages alongside English (Barner-Rasmussen, 2003; Marschan-Piekkari *et al.*, 1999b; Nickerson, 2000; Poncini, 2003; Sørensen, 2005). Charles (1998) introduces the term "multilingual reality" to describe a typical European business context. Internal communication processes in MNCs are typified by linguistic diversity, and English is perhaps not as widely shared throughout the organization as assumed by top management in the first place (Marschan-Piekkari *et al.*, 1999b). These observations have implications for practitioners, especially in the area of corporate communications. The multilingual ambience of MNCs have to be acknowledged, or else communication may be inefficient or counterproductive.

MacArthur (1994, p. 241)provides the following examples. In northern India, educated, professional

people mix English and Hindi, in the Philippines, English and Tagalog and along the Texas-Mexicanborder, Spanish and English, known as Tex-Mex and border lingo. Such hybrids tend to be used increasingly.

Kachru (1985,92) classifies English speaking countries into three types. The inner circle consists of countries like UK, USA, Australia, South Africa where English is the native language. There are differences in dialects but people can understand each other without distortion of meaning. Then there are outer circle countries like Nigeria, India, Singapore etc., where English is used as an official language for educational, social and administrative purposes. Finally expanded circle countries like Korea, Japan, China, Vietnam where people treat English as an international language and are learning it in order to sustain in the international business arena. We have countries like Germany which is in EU and hence very close to the English language but still does not have English as official language. So there is a vast difference in the way English is spoken in all these countries.

Need for Training

A research was conducted about the skills required by British managers which showed that speaking international English is not adequate and that knowledge of local language variants are a necessity. There is a need to understand different problems faced by executives at different levels. Take for example, a senior Vice President working in Toronto who needs to be as fluent in English as he is in French, a risk assessment analyst from India working in Europe who finds trading managers focus on his Indian accent rather than listen to his instructions, a Japanese technical expert working in US so worried about his English that he rarely interacts with others. All these situations depict the problem of knowing English language but not being able to communicate due to lack of exposure to local variants of the language. Hence, companies need to give their employees training in the local variants of English as it improves an employee's ability to negotiate business transactions in English. Also, business terminology and its collocations should be clearly understood. An example of this is the easily misunderstood word delivery, which can mean loading on a ship, shipping out the door of a factory, or delivery to a customer. The meaning of words used in international business contracts must be standardized.

It is often seen that employees of a nationality often group together and don't make an effort to make use of the diversity that exists in the workplace. It is advisable to get enrolled in the diversity training programs offered by the organization. At Herman Miller, a Michigan-based company that manufactures office furniture, monthly kiosk displays in the lunch room display art, videos and information about the home countries of various employees. When Spanish-speaking employees took English as a Second Language (ESL) classes, English speakers took Spanish as a Second Language (SSL). The two groups got to know each other and continued meeting after the training also. Such examples can be replicated in all MNC contexts.

On a more general level, the focus should be on individual strategies for handling ambiguity derived from linguistic diversity. E-Learning is a convenient trend in learning an intra-English variant. Trainees can be exposed to chunks of Listening exercises so that they can get a hands-on experience of the language. Listen and repeat exercises will take care of the pronunciation part. In addition, short training programs in accent will help them. Since we already know the language focus can be on areas which need practice like vocabulary and accent. We need to use simple vocabulary, avoid jargon and idiomatic expressions in English.

There was a time in India when most of the MNCs trained their workforce in American accent owing to IT related business activities between the two countries. As years passed by, most of the youngsters, have become very comfortable in US work environment. American movies also played a major role in this.

Companies like Deloitte India make it compulsory for applicants to clear the Versant round for recruitment. Versant™ tests are completely automated tests of spoken and written languages. Using the patented Ordinate® speech processing technology and Knowledge Analysis Technologies™ text engine, Versant tests can be taken on a telephone or a computer and scores are available online within minutes. Hence B Schools need to train their students in Versant if they opt for placement in companies like Deloitte.

Conclusion

The business-world needs to become far more aware of the effect language can have on business dealings. Anglo-Saxon countries should accept the significance of the types of English that are being spoken in the emerging economic powers like Singapore, UAE, China, India etc. They need to be aware that native speaker varieties are no longer being considered as the only "correct" way of speaking English. Along with the cross-cultural training, country-specific English Language accent training yield fruitful results in business.

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