

Editorial

Dear Readers,

This edition of International Journal of Research in Business is devoted to the annual International Conference on Research in Business (ICRB) held on 16 February 2020. Its content consists of 15 selected papers those had been presented in the conference. Remaining of the selected papers are under process to be published in coming December edition.

A five year journey with this journal has been a great learning experience. It is so heartening to receive, flick through and fathom the papers and come across many distinctive research works standing their ground in any international meeting. This edition of journal is coming out with CITE Factor, DRJI and ESJI. The application for RJI, Sherpa Romeo and Scopus is under process.

I appreciate the editorial board for their influence and interest and sharing ideas and knowledge with the team. I appreciate the contributors for their immense work and sharing.

We are striving to make this journal more useful, focused, and thorough to better fit the expectations of the domain and academia. Your feedback and suggestions are highly solicited.

Arun Kumar
Editor-in-Chief
IJRBS

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A Conceptual Framework of CEO Characteristics

Shalini Singh

Research Scholar

School of Management and Labour Studies

Tata Institute of Social Sciences

Mumbai, Maharashtra, India.

Abstract

CEO has always been an important part of an organization. Studies have explored the CEO in different settings. Researchers have started focusing on different characteristics of the CEO to know more about their importance in the globalized world. Every company wants to hire the best CEO so that the company can survive in the long term as the CEO is the main part of an organization. This is a literature review paper that reviews the published articles related to “CEO” in the last 15 years. “A” grade journal with the keywords “CEO” and “CEO characteristics” has been used for selecting research articles. Papers have been taken out with the help of “Web of Sciences” and were categorized into various themes for analysis. They have mainly focused on agency, stewardship, resource-based and upper echelons theory along with other theories. The researcher proposes a framework based on what has already been studied in this area and suggests a proposition for future scholars in this field. Findings suggest that the CEO characteristics can be studied in terms of antecedents, consequences, and moderators which helps in getting to know how the concept operates in the real world. Future researchers can use this framework to check its practicality across different organizations.

Keywords

CEO, CEO characteristics, Agency theory, Stewardship theory, Resource-based theory, Upper echelons theory.

1. Introduction

There has always been a quest to understand how organizations work. It's always been fascinating to explore the factors which influence the people sitting at the top ladder of an organization to produce a significant output and compete in the market. The CEO has been one such person on whom research scholars are exploring deeper and deeper from many

perspectives. There are many theories related to CEOs that explore different conditions helpful in the making of decisions. Upper Echelons theory is one such theory that emphasizes observable factors as the indicators of managerial characteristics that helps in taking up strategic choices related to organization which subsequently results in a performance of the organization (Hambrick & Mason, 1984). Agency theory has two terms, owners and managers. Owners are the face of the company while managers execute the tasks of the company and are concerned with the interests of shareholders. They have to take all the decisions and are thus, vested with the managerial role. The theory states that both have separate control over resources and there would be a loss if they exercise direct control (Jensen and Meckling, 1976; Donaldson & Davis, 1991). In cases where there are separate roles for the CEO and board of directors, it is said that the latter is kept as a monitoring mechanism to ensure that shareholder's demands are fulfilled. The resource-based theory states that apart from seeking resources outside the organization/firm, there is a need to know about the resources available within oneself. Paper has explained this concept by using SWOT framework and applying on cases from the real world. SWOT framework not only provides information about the availability of resources in the market but also what is the strength of the organization and how both can be integrated (Barney, 1995). Stewardship theory explains that the firm tends to maximize its profit when both positions of the “Board of Chair” and “CEO” are held by the same person. Results from the study indicated that Returns on Equity was greater in the condition of when the same person holds both positions (Donaldson & Davis, 1991).

Researches have been widely done in the field related to CEO involving different variables. Characteristics of the CEO has been extensively studied concerning different organizational variables relating to both within and outside of an organization. It was found that there is no such paper that has holistically reviewed CEO characteristics. Framework on CEO characteristics has been formed based on antecedents, precedents, and moderators which would help in the review of all related variables those have been studied to date. It can help future researchers to investigate in those areas that need to be studied based on the practicality of framework and in succession related policy planning.

2. Objectives of the Study

1. To review the papers related to antecedents, consequences and moderators of CEO characteristics.
2. To structure framework based on the concepts related to CEO characteristics.

3. Research Methodology/Database

Sample: Research papers of 15 years from 2004-2020 have been included in the literature review. 'A' grade journals have been selected from the Web of Sciences using the ABDC list of journals. Papers are taken out with keywords such as "CEO" and "CEO characteristics" and are selected from the relevant journals of the list. They must be related to the antecedents, precedents, and moderators of CEO characteristics.

Method: Selected research articles from journals were studied in terms of antecedents, precedents, and moderators. Concepts categorized as antecedents were related to individual characteristics of CEO while precedents were related to organization level characteristics. Individual and organization-level characteristics were further broadly categorized into themes containing concepts related to CEO characteristics. A direct relationship was found between antecedents and precedents. Moderators were labeled as 'personal' and 'organizational' factors facilitating the relationship between variables.

4. Scope of the Study

This study has been initiated to provide a holistic framework that covers all variables studied under CEO characteristics which has been categorized as antecedents and precedents. Antecedents in the study relate to CEO characteristics at personal level, i.e. related to the CEO's aspects. On the other hand, precedents relate to CEO characteristics at the organizational level, i.e. related to the CEO's work-based aspects. A direct relationship between antecedents and precedents provides an insight into how the CEO's individual characteristics help in the fulfilment of organization/work-related demands which are categorized as CEO's organizational characteristics.

‘A’ grade journals have been selected related to CEO or CEO characteristics to help researchers in providing them a framework that is related to the current scenario of the practical world. ABDC list of journals has been used for study as it covers all prominent journals that have been providing research papers in different areas.

Research papers were mainly based on four theories related to CEO's - Agency theory, Stewardship theory, Resource-based and Upper echelons theory. These theories have focused on the different aspects that need to be studied together to provide a framework that includes concepts related to CEO, thus helping in a holistic perspective on CEO characteristics. To solve inadequacies in the practical world related to organizations, it is necessary to appoint those CEOs who would be able to effectively tackle new challenges and thus, have characteristics to work in any kind of novel situations.

5. Antecedents of CEO Characteristics

Gender diversity: There has been a gradual increase of women in the organizations at the positions of CEOs. They can effectively handle the challenges and demands efficiently. Studies have indicated that the women tend to be more successful as CEOs in male-dominated orientation when male predecessors help them by including more women while hiring and selection process. Attributes such as predecessor influences, successor characteristics, contextual conditions, and firm performance were taken into account. It was also found out that women CEOs were successful based on the “handing over legacy”, “partnering the legacy”, and “turning around the legacy” (Dwivedi, Joshi & Misangyi, 2018). Female directors, separate CEO and chairman positions are important factors in the engagement in CSR activities. Gender diversity also helps in more engagement in provider choices related to CSR (Lao, Lin & Zhang, 2016). Some studies have concluded that females and males can be complementary to each other while in other studies, results demonstrated that women CEOs are more able to effectively practice equity issues in comparison to business practices. Results showed positive but not significant relationships exist for gender differences and diversity for business practices and diversity initiatives (Glass & Cook, 2017). Region-specific studies can help in finding out the gaps which can be explored further. In one such study, the presence

of women on the board is negatively related to the Environmental, Social and Governance (ESG) disclosure for Latin American companies (Husted, & Sousa-Filho, 2018).

CEO duality: CEO duality refers to the separate CEO and Chairperson in the organization. Many organizations have different posts but it can also be found to be handled by the same person. It is found that CEO duality is negatively related to Organizational Performance while ownership concentration moderates the relationship which has been studied with the help of Tobin Q (Singh, Tabassum, Darwish & Batsakis, 2017). Region-specific results have also shown a negative relationship for Latin American companies where CEO duality is negatively related to the Environmental, Social and Governance (ESG) disclosure (Husted, & Sousa-Filho, 2018). In a study, it is found that negative relationship between CEO hubris and firm's financial performance will be weaker in case of separated executive and chair positions (Park, Kim, Chang, Lee, & Sung, 2015).

Narcissism: Narcissism is one of the personality aspects which has been widely studied. Some results reflect that Narcissistic CEOs tend to be less engaged in CSR activities if there is high involvement of board-interlocked firms and vice-versa. On the other hand, if board-interlocked firms have a lower level of involvement than the firm of CEO then there is a negative relationship between CEO hubris and CSR activities (Tang, Mack & Chen, 2018). People having narcissistic tendencies are self-centred and have self-loving nature. This concept has been explored in diverse areas. Narcissistic CEOs are more often sued and take longer to settle in comparison to less narcissistic CEOs. These CEOs tend to misinterpret risk assessments and are less willing to settle lawsuits as the risk of being sued increases while non-narcissistic CEOs are more likely to settle due to fear of losing lawsuits (O'Reilly, Doerr, & Chatman, 2018).

CEO narcissism is positively related to CSR and CSR activities which are related to society (Al-Shammari, Rasheed, & Al-Shammari, 2019). Another study suggests the positive effect of Leader narcissism on a firm's outward foreign direct investment. Also, State ownership and Political connections moderate the strength of the positive relationship (Fung, Qiao, Yau, & Zeng, 2019).

CEO hubris: The study indicates a positive relationship between CEO hubris and the adoption of environmental innovation. Also, Organizational slack (excess resources when the minimum is needed) and environmental uncertainty moderates this positive relationship (Arena, Michelon, & Trojanowski, 2017). In a region-specific study, it is found that CEO hubris has a negative relationship with the firm's financial performance in Korea (Park, Kim, Chang, Lee, & Sung, 2015).

Cognitive complexity: Longitudinal study on CEO of Puma explored cognitive complexities and initiatives on sustainability. Six cognitive lenses which include Business, Cultural diversity, Africa, Norm-breaching, Philosophy and Spirituality, Environmental consciousness were found out. This research is done with the motive of understanding how individuals and their interactions are affected by an organization's strategies and performance (Gröschl, Gabaldón, & Hahn, 2017).

CEO flexibility: The adaptive expertise of executives includes the recognition and skill dimensions in construal flexibility. Construal flexibility refers to adjusting one's perception, judgement and behaviour according to the environmental demands or situation. Openness to experience, conscientiousness and epistemic motivation (motivation based on the environmental situations) develops the recognition dimension underlying construal flexibility (Steinbach, Gamache, & Johnson, 2018).

CEO self-evaluation: CEO core self-evaluation has a positive relationship with firm human capital, social capital and organizational capital. Also, firm human capital and organizational capital mediates the relationship between CEO core self-evaluation and firm dynamic capabilities (Bendig, Strese, Flatten, da Costa, & Brettel, 2017).

Regulatory focus: Positive relationship was found between CEO's promotion and firm's advertising and R&D intensity in comparison to prevention focus (Kashmiri, Gala & Nicole, 2019).

Political orientation: Attitudes and thought processes of people are governed by their schema which is reflected in their behaviour through actions. It has been found that CEOs with liberal-leaning political orientation tend to receive more performance-based pay in their initial compensation scheme in comparison to their conservative counterparts. Liberal CEOs tend to follow their external risk preferences which are

encouraged by board members for risk tolerance behaviour. Board members modify packages from CEO to CEO and match it with their risk tolerance behaviour (Graffin, Hubbard, Christensen, & Lee, 2019). Studies indicate that CEO liberalism ensures a fair distribution of resource allocation in the firm. Organizational liberalism increases the effect of CEO liberalism on the fair distribution of resources. CEO equity-based pay and organizational liberalism moderates the relationship such that in case of greater the degree of moderators more positive association (Gupta, Briscoe, & Hambrick, 2017).

Entrepreneurial and learning orientation: Entrepreneurial (strategic) and learning (market, technological and social aspects) orientations were found to be positively related to international growth for SMEs (D'Angelo, & Presutti, 2018). Generalist experience would have a negative association with firm performance in the beginning years of work which becomes weaker with longer tenure (Li, & Patel, 2018).

Birth order: The study suggests that the CEO's birth order positively associates with Strategic risk-taking behaviour. Also, this association is positively moderated by the age gap between CEO and closest born sibling and having a sibling in an executive position in the same firm (Campbell, Jeong, & Graffin, 2018).

Tenure: CEO tenure has a negative association with CSR performance. A negative relationship is stronger in the case of independent directors and for CEOs with a longer duration of employment period than for those with shorter duration of employment period (Chen, Zhou, & Zhu, 2018).

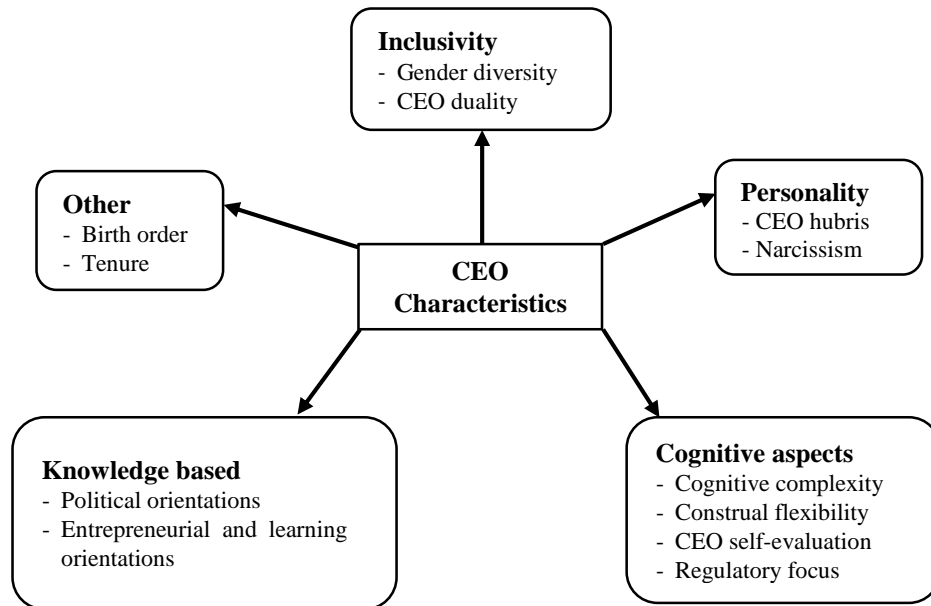


Figure 1: Antecedents of CEO Characteristics

6. Precedents Consequences of CEO Characteristics

6.1 Internal Activities

Equity issues and business practices: Study shows that women CEOs are more able to effectively practice equity issues in comparison to business practices (Glass & Cook, 2017).

Dynamic capabilities: Firm human capital and Organizational capital positively mediates the relationship between CEO core self-evaluation and Firm dynamic capabilities (Bendig, Strese, Flatten, da Costa, & Brettel, 2017).

Resource allocation in the firm: CEO liberalism ensures fair distribution of resource allocation in the firm (Gupta, Briscoe, & Hambrick, 2017).

6.2 External Activities

CSR activities: Positive relationship was found out between CEO ability and firm CSR performance (Yuan, Tian, Lu, & Yu, 2017). CEO power has negative association with the level of CSR disclosure (Muttakin, Khan, & Mihret, 2016).

Organizational performance: There is a positive relationship between CEO duality and firm performance. It was observed that the relationship between CEO duality and firm performance becomes negative over time (Mutlu, Van Essen, Peng, Saleh, & Duran, 2018). A negative relationship is found out between hiring female CEOs and firm performance (Nekhili, Chakroun, & Chtioui, 2016). There would be a weaker negative relationship between CEO hubris and a firm's financial performance for the high level of outsider director representation in a board (Park, Kim, Chang, Lee, & Sung, 2015).

Sustainable activities: The study indicates positive relationship between CEO hubris and adoption of environmental innovation (Arena, Michelin, & Trojanowski, 2017).

Foreign Direct Investment (FDI): There is a positive effect of Leader narcissism on firm's outward foreign direct investment (Fung, Qiao, Yau, & Zeng, 2019).

Meeting environmental demands: CEO birth order positively associates with strategic risk-taking behaviour (Campbell, Jeong, & Graffin, 2018). Construal flexibility helps an individual to integrate personal demands with that to environmental demands with the help of construal shifts. Construal shifts refer to the different ways of interpreting the environment which involves the use of different methods consisting of highly complex to simpler ones. The integration of organizational needs with the environmental demands helps in different stages of the acquisition process by way of analyzing the needs of an organization with the market competition (Steinbach, Gamache, & Johnson, 2018).

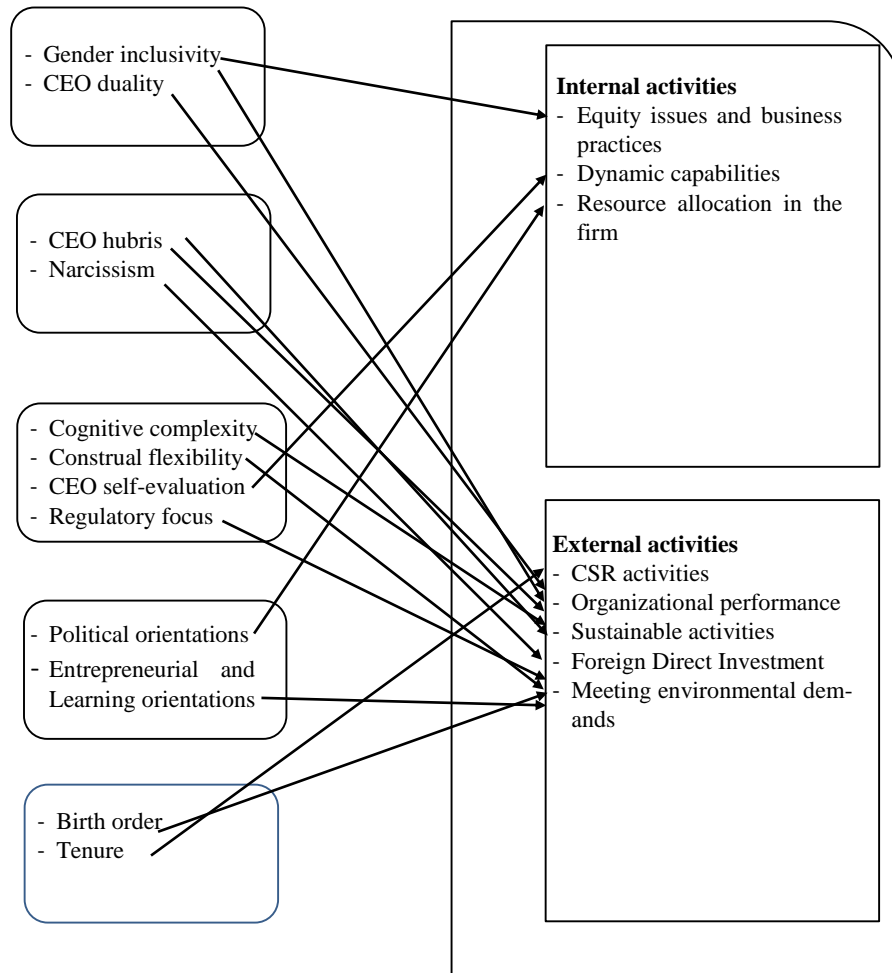


Figure 2: Relationship between Antecedents and Precedents/Consequences of CEO Characteristics

7. Moderators

7.1 Personal Factors: Personal factors are related to the individual being. They play an important role in shaping an individual's decision-making process.

Prior knowledge experiences: Earlier knowledge related to entrepreneurship and industry managerial experiences moderates the relationship of Entrepreneurial and Learning orientations with international growth for Small and Medium Enterprises (SMEs) (D'Angelo, & Presutti, 2018).

Temporal focus: CEO's past focus would moderate the negative relationship between negative media reactions to acquisition announcements and acquisition spending such as that the relationship will be stronger in case of high past focus in comparison to low past focus. The CEO's future focus would also moderate in a way that the relationship would be weaker for CEOs with a higher level of future focus in comparison to those with a lower level of future focus (Gamache, & McNamara, 2018).

Power: CEO power moderates the relationship of CEO's level of promotion focus with the firm's R&D intensity and incidence of marketing controversies such that stronger the moderation, stronger the relationship (Kashmiri, Gala & Nicole, 2019).

7.2 Organizational Factors: These factors are related to the environment an individual is working in and is expected to fulfil the demands which requires a significant level of ability.

Ownership concentration: Ownership concentration negatively moderates the relationship for Board independence and CEO duality with Organizational Performance (Singh, Tabassum, Darwish, & Batsakis, 2017).

Board interlocked firm: There is a high level of involvement of board interlocked firms as Narcissistic CEOs are less involved in CSR activities. On the other hand, when there is a lower level of involvement of board interlocked firms then CEO hubris has a negative relationship with CSR activities (Tang, Mack, & Chen, 2018).

Organizational attributes: Attributes such as predecessor influences, successor characteristics, contextual conditions, and firm performance helped women CEOs to be successful for male-dominated orientation (Dwivedi, Joshi & Misangyi, 2018). Also, organizational liberalism increases the effect of CEO liberalism in the fair distribution of resources. It moderates in such a way that greater the degree of the moderator, greater would the positive association between CEO liberalism and fair distribution of resources (Gupta, Briscoe, & Hambrick, 2017).

Organizational slack and Environmental uncertainty:

Organizational slack (excess resources when minimum is needed) and Environmental uncertainty moderates the positive relationship between CEO hubris and the adoption of environmental innovation (Arena, Michelin, & Trojanowski, 2017). Also, environmental dynamism moderates the relationship of CEO's level of promotion focus in comparison to prevention focus with marketing controversies in a way such that stronger the environmental dynamism, stronger the firm operates (Kashmiri, Gala & Nicole, 2019).

Knowledge based capital: Firm human capital and Organizational capital mediates the relationship between CEO's core self-evaluation and firm's dynamic capabilities (Bendig, Strese, Flatten, da Costa, & Brettel, 2017).

Employment period: Independent directors and CEOs having longer employment period have stronger negative relationship to CSR activities in comparison to shorter employment period (Chen, Zhou, & Zhu, 2018).

State ownership and Political connections: State ownership and Political connections moderate the strength of the relationship between leader narcissism and outward foreign direct investment. There is positive relationship between leader narcissism and outward foreign direct investment (Fung, Qiao, Yau, & Zeng, 2019). There is a negative relationship between state ownership and firm performance which becomes positive over time (Mutlu, Van Essen, Peng, Saleh, & Duran, 2018).

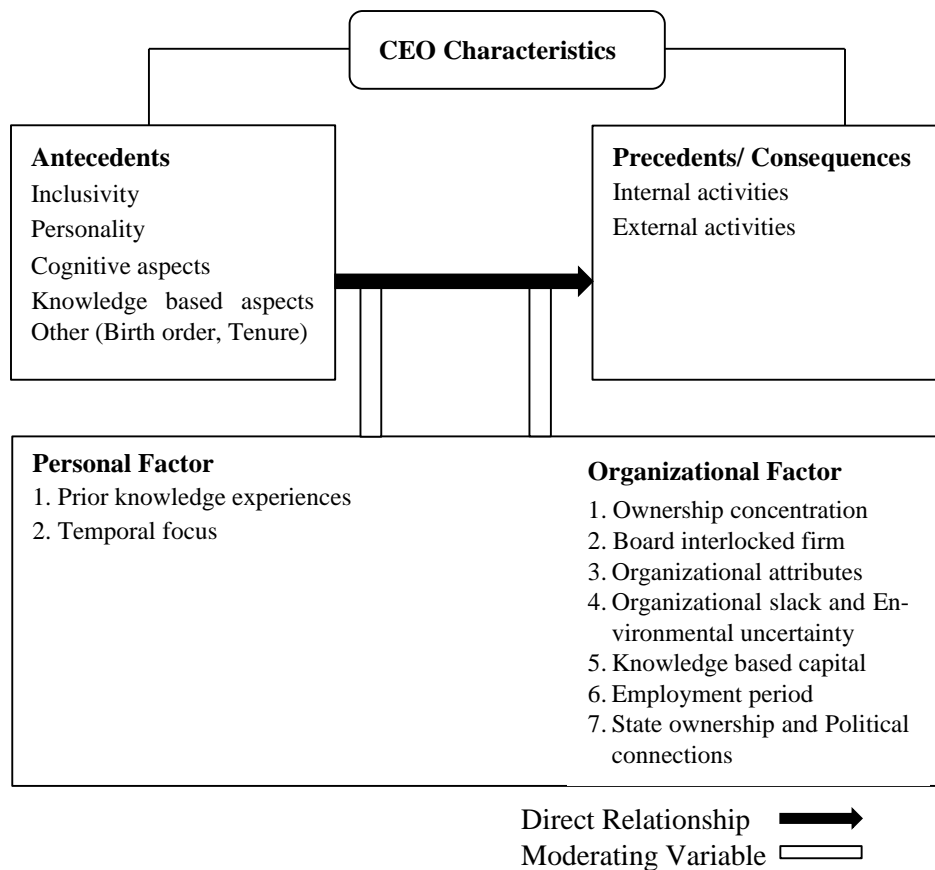


Figure 3: Framework of Antecedents, Precedents and Moderators of CEO Characteristics

8. Finding & Suggestions

The framework has been formulated based on themes drawn from papers. Antecedents of CEO characteristics have been grouped in broad themes of Inclusivity, Personality, Cognitive aspects, Knowledge-based aspects, Birth order, and Tenure. Inclusivity includes Gender diversity and CEO duality; Personality includes Narcissism and Hubris; Cognitive aspects include Cognitive complexity, Construal Flexibility, Self-evaluation, and Regulatory focus; Knowledge-based aspects include Entrepreneurial & learning orientations, Generalist experiences, and Political orientations. Antecedents explain different factors which influence the CEO in decision making. While precedents/consequences are divided into

internal and external activities. Internal activities include Equity issues and business practices, Dynamic capabilities, Resource allocation in the firm while external activities include CSR activities, Organizational performance, Environment innovation, Foreign Direct Investment, and Strategic risk-taking behaviour. The relationship between antecedents and consequences is moderated by personal and organizational factors. The proposed framework explains the relationship between antecedents and consequences of CEO characteristics. There is a direct relationship between the antecedent factors with that of precedent outcomes. This relationship is moderated by personal and organizational factors. Different studies in the literature between the proposed duration have studied specific CEO characteristics with firm outcomes. None of the studies has tried to study to prepare a related framework. There are frameworks which can be studied according to specific sector explaining the relationship between different factors accordingly (Ahmed & d'Astous, 2008; Goode & Harris, 2007; Hitt, Tihanyi & Connelly, 2006). Data have been collected with the help of the different stock database, datasets and reports (Arena, Michelin & Trojanowski, 2017; Chen, Zhou, & Zhu, 2018; Fung, Qiao, Yau & Zeng, 2019; Katmon et al, 2017; Liao, Lin & Zhang, 2016; Li & Patel, 2018; Singh, Ramón-Llorens, García-Meca, Pucheta-Martínez, 2018; Tabassum, Darwish, & Batsakis, 2017), Fortune 500 companies (Al-Shammari, Rasheed, Al-Shammari, 2019; Glass & Cook, 2017; Gupta, Briscoe & Hambrick, 2017), S& P 1500 (Dwivedi, Joshi & Misangyi, 2018; Gamache & McNamara, 2018; Graffin, Hubbard, Christensen & Lee, 2019; Tang, Mack & Chen, 2018), survey and archival data (Bending et al, 2017; D'Angelo & Presutti, 2018; O' Relly, Doerr, & Chatman, 2018), case study (Gröschl, Gabaldon & Hahn, 2017).

Papers have used competing agency theory, stewardship theory, resource-based view theory, upper echelons theory widely. Apart from these theories, other theories are widely used to study specific aspects. In Glass & Cook (2017), social role theory, similarity attraction theory, and diversity theory are used to address gender differences, diversity and homophily theory in the case of women CEOs. Gender has also been studied with the help of fuzzy set approach to build a model for women leadership. Narcissism has been studied with the help of HEXACO

personality theory (O'Reilly, Doerr, & Chatman, 2018). To explain construal flexibility in terms of openness to experience, conscientiousness, epistemic motivation and skill dimension, construal level theory has been employed to study executives and managers (Steinbach, Gamache, & Johnson, 2018).

Future researchers need to apply this framework across different industries and sectors to check its practical use. Studies can include data collected through primary sources to study micro perspectives, different institutions, and different dimensions that need to be studied such as ethnicity, religious practices (Glass & Cook, 2017). Different software can be used to analyze text and interviews to study CEO characteristics (Al-Shammari, Rasheed & Al-Shammari, 2019), and media influences (Gamache & McNamara, 2018). Variables such as narcissism which are personality dimensions can be studied across levels within organizations in terms of horizontal and vertical distribution (O'Reilly, Doerr & Chatman, 2018), and cross-culture (Fung, Qiao, Yau & Zeng, 2019). Longitudinal studies need to be done to study CEO hubris (Arena, Michelon, & Trojanowski, 2017). More studies related to CEOs need to be studied to focus on how they can contribute more effectively to the dynamic nature of an organization.

9. Limitations

Paper has only included 'A' grade journals which may leave out other factors that might not have been covered in these journal articles. The Web of Sciences has only been taken as a resource to select papers. Other sources also need to be included in order to have a precise framework.

10. Conclusions

There are numerous factors which play an important role in the implementation of changes at the organization level and are influenced by factors related to CEO and organization.

11. References

1. Al-Shammari, M., Rasheed, A., & Al-Shammari, H. A. (2019). CEO narcissism and corporate social responsibility: Does CEO narcissism affect CSR focus? *Journal of Business Research*, 104, 106- 117. Doi: 10.1016/j.jbusres.2019.07.005

2. Arena, C., Michelon, G., & Trojanowski, G. (2017). Big Egos Can Be Green: A Study of CEO Hubris and Environmental Innovation. *British Journal of Management*, 29(2), 316- 336. Doi: 10.1111/1467-8551.12250
3. Barney, J. B. (1995). Looking inside for competitive advantage. *Academy of Management Perspectives*, 9(4), 49- 61. Doi: 10.2307/4165288
4. Bendig, D., Strese, S., Flatten, T. C., da Costa, M. E. S., & Brettel, M. (2017). On micro- foundations of dynamic capabilities: A multi-level perspective based on CEO personality and knowledge- based capital. *Long Range Planning*. Doi: 10.1016/j.lrp.2017.08.002
5. Campbell, R. J., Jeong, S.-H., & Graffin, S. (2018). Born to Take Risk? The Effect of CEO Birth Order on Strategic Risk Taking. *Academy of Management Proceedings*, 2018(1), 10318. Doi: 10.5465/ambpp.2018.186
6. Chen, W. (Tina), Zhou, G. (Stephen), & Zhu, X. (Kevin). (2018). CEO tenure and corporate social responsibility performance. *Journal of Business Research*. Doi: 10.1016/j.jbusres.2018.08.018
7. Donaldson, L., & Davis, J. H. (1991). Stewardship Theory or Agency Theory: CEO Governance and Shareholder Returns. *Australian Journal of Management*, 16(1), 49–64. Doi: 10.1177/031289629101600103
8. D' Angelo, A., & Presutti, M. (2018). SMEs international growth: The moderating role of experience on entrepreneurial and learning orientation. *International Business Review*. Doi: 10.1016/j.ibusrev.2018.12.006
9. Dwivedi, P., Joshi, A., & Misangyi, V. F. (2018). Gender-inclusive Gatekeeping: How (Mostly Male) Predecessors Influence the Success of Female CEOs. *Academy of Management Journal*, 61(2), 379- 404. Doi: 10.5465/amj.2015.1238
10. Fung, H.-G., Qiao, P., Yau, J., & Zeng, Y. (2019). Leader narcissism and outward foreign direct investment: Evidence from Chinese firms. *International Business Review*, 101632. Doi: 10.1016/j.ibusrev.2019.101632
11. Gamache, D. L., & McNamara, G. (2018). Responding to bad press: How CEO temporal focus influences the sensitivity to negative media coverage of acquisition. *Academy of Management Journal*. Doi: 10.5465/amj.2017.0526

12. Glass, C., & Cook, A. (2017). Do women leaders promote positive change? Analyzing the effect of gender on business practices and diversity initiatives. *Human Resource Management*, 57(4), 823–837. Doi: 10.1002/hrm.21838
13. Graffin, S.D; Hubbard, T.D; Christensen, D.M & Lee, E.Y (2019) The Influence of CEO Risk Tolerance on Initial Pay Packages. *Strategic Management Journal*. Doi: 10.1002/smj.3112
14. Gröschl, S., Gabaldón, P., & Hahn, T. (2017). The Co-evolution of Leaders' Cognitive Complexity and Corporate Sustainability: The Case of the CEO of Puma. *Journal of Business Ethics*. Doi: 10.1007/s10551-017-3508-4
15. Gupta, A., Briscoe, F., & Hambrick, D. (2017). Evenhandedness in Resource Allocation: Its Relationship with CEO Ideology, Organizational Discretion, and Firm Performance. *Academy of Management Journal*. Doi: 10.5465/amj.2016.1155
16. Hambrick, D. C., & Mason, P. A. (1984). Upper Echelons: The Organization as a Reflection of Its Top Managers. *The Academy of Management Review*, 9(2), 193. Doi: 10.2307/258434
17. Husted, B. W., & Sousa-Filho, J. M. de. (2018). Board structure and environmental, social, and governance disclosure in Latin America. *Journal of Business Research*. Doi: 10.1016/j.jbusres.2018.01.017
18. Kashmiri, S., Gala, P., & Nicol, C. D. (2019). Seeking pleasure or avoiding pain: Influence of CEO regulatory focus on firms' advertising, R&D, and marketing controversies. *Journal of Business Research*, 105, 227–242. Doi: 10.1016/j.jbusres.2019.08.022
19. Katmon, N., Mohamad, Z. Z., Norwani, N. M., & Farooque, O. A. (2017). Comprehensive Board Diversity and Quality of Corporate Social Responsibility Disclosure: Evidence from an Emerging Market. *Journal of Business Ethics*. Doi: 10.1007/s10551-017-3672-6
20. Li, M., & Patel, P. C. (2018). Jack of all, master of all? CEO generalist experience and firm performance. *The Leadership Quarterly*. Doi: 10.1016/j.leaqua.2018.08.006
21. Liao, L., Lin, T., & Zhang, Y. (2016). Corporate Board and Corporate Social Responsibility Assurance: Evidence from China. *Journal of Business Ethics*, 150(1), 211–2. Doi: 10.1007/s10551-016-3176-9

22. Muttakin, M. B., Khan, A., & Mihret, D. G. (2016). The Effect of Board Capital and CEO Power on Corporate Social Responsibility Disclosures. *Journal of Business Ethics*, 150(1), 41– 56. Doi: 10.1007/s10551-016-3105-y
23. Mutlu, C. C., Van Essen, M., Peng, M. W., Saleh, S. F., & Duran, P. (2018). Corporate Governance in China: A Meta- Analysis. *Journal of Management Studies*. Doi: 10.1111/joms.12331
24. Nekhili, M., Chakroun, H., & Chtioui, T. (2016). Women’s Leadership and Firm Performance: Family Versus Nonfamily Firms. *Journal of Business Ethics*. Doi: 10.1007/s10551-016-3340-2
25. O’Reilly, C. A., Doerr, B., & Chatman, J. A. (2018). “See You in Court”: How CEO narcissism increases firms’ vulnerability to lawsuits. *The Leadership Quarterly*, 29(3), 365–378. Doi: 10.1016/j.leaqua.2017.08.001
26. Park, J.-H., Kim, C., Chang, Y. K., Lee, D.-H., & Sung, Y.-D. (2015). CEO Hubris and Firm Performance: Exploring the Moderating Roles of CEO Power and Board Vigilance. *Journal of Business Ethics*, 147(4), 919–933. Doi: 10.1007/s10551-015-2997-2
27. Singh, S., Tabassum, N., Darwish, T. K., & Batsakis, G. (2017). Corporate Governance and Tobin’s Q as a Measure of Organizational Performance. *British Journal of Management*, 29(1), 171- 190. Doi: 10.1111/1467-8551.12237
28. Steinbach, A., Gamache, D. L., & Johnson, R. E. (2018). Don’t Get It Misconstrued: Construal Level Shifts and Flexibility In The Upper Echelons. *Academy of Management Review*. Doi: 10.5465/amr.2017.0273
29. Tang, Y., Mack, D. Z., & Chen, G. (2018). The differential effects of CEO narcissism and hubris on corporate social responsibility. *Strategic Management Journal*, 39(5), 1370–1387. Doi: 10.1002/smj.2761
30. Yuan, Y., Tian, G., Lu, L. Y., & Yu, Y. (2017). CEO Ability and Corporate Social Responsibility. *Journal of Business Ethics*. Doi: 10.1007/s10551-017-3622-3

Awareness about Rural Entrepreneurship among Youths in Rural Areas: with Special Reference to Saragur Taluk

M. S. Sanmathi

Assistant Professor
Department of Commerce
Government First Grade College
Saragur, Mysore, Karnataka, India.

Shruthi J

Assistant Professor
Department of Commerce
Government First Grade College
Saragur, Mysore, Karnataka, India.

Abstract

India, being one of the fast-developing countries in the world needs to focus on the creation of employment for its people. The country cannot just rely on creating employment but the country should also focus on enterprise and growth of entrepreneurship. For this, the country needs to focus its strategy towards encouraging the youth of the country from all corners. Thus, India being a young country with the world's largest youth population, the needs of the future can only be met with increased productivity. At this point of time, it is essential to intensify the entrepreneurial activities among our youth and a special focus needs to be given to those who come from the rural background, considering the limitations that they face in reality. This paper intends to find out the problems faced by the rural youth in becoming an entrepreneur and give suggestions to increase their interest towards the same. The main focus of this paper is on the undergraduate students of the region, who are mostly first-generation learners from their families.

Keywords

Enterprise, Rural, Entrepreneurship, Youth, Awareness and Employment.

1. Introduction

The increasing population of the country coupled with the scarcity of resources has made the country inevitable in terms of creating job opportunities. But the job cannot be created for everyone in the country. Hence, all are making efforts in improving and developing skills in order to ensure skilled based self-employment. The urge for employment is highest in the rural areas because of some of the following uncontrollable reasons namely:

- Surplus agricultural labour
- Closure/ on the verge of the closure of traditional village industries
- Migration of rural youth to the urban areas in search of employment leading to pressure on urban infrastructure and amenities.

To tackle the above mentioned situations in the country, there is a need for developing the entrepreneurial spirit in the rural youths, so that they can enhance their skill for the betterment of their lives in the rural areas itself rather than moving to the urban areas in search of employment which only gives them a meager livelihood. Hence, entrepreneurship at the rural side is the best option.

Saragur Taluk: One of the prominent towns in Heggadadevanakote (HD Kote) Taluk of Mysore District, Karnataka. Saragur which is about 55 kms from Mysore city was declared a Taluk on 2nd January 2018. Saragur is considered to be the developed regions in the HD Kote Taluk. Kabini Reservoir Project exists close to Sargur Taluk which is considered to be one of the reasons for its development. Saragur town has a population of 11,425 as per the 2011 census. A place by itself is surrounded by serene nature. It is a place with three dams, forests, rivers, and streams. In the earlier days, it was known by the name of “Santhe Saraguru” (Santhe means market in the kannada language). Hence, the place has the potential for developing enterprise.

2. Statement of the Problem

Then what does this rural entrepreneurship mean? Entrepreneurship at the village level which takes place in a variety of fields of endeavor such as business, industry, and agriculture that helps in the overall economic development. So in other words, rural entrepreneurship is the willingness of a villager in organizing the resources available for carrying out the economic activity with the help of available and suitable technology for a sustainable living.

But this entrepreneurship at the rural level is not easy since very few of the people in the rural areas know about this or the awareness level in terms of converting the available resources at the rural areas into an economic resource is very low. Hence, this study is undertaken to study the awareness level of rural youth about rural entrepreneurship.

3. Review of Literature

- (Jayadatta, 2017) opines that entrepreneurship in rural areas is important for balanced economic development in the country. The researcher studies the various issues and challenges in rural entrepreneurship and also suggests few measures to overcome the same. The researcher states that the government through different organisations like IFCI, SIDBI, etc. can take up steps like creating finance cells, training prospective entrepreneurs, etc. at the micro-level.
- (Patel & Chavda, 2013) believes that rural entrepreneurship is essential to reduce the disparity between the rural and urban areas. Rural entrepreneurship is the only mode to stop the migration of rural masses to urban areas. Though there are several positive effects of rural entrepreneurship, there are several challenges also faced by rural entrepreneurs like family problems, technological issues, and financial challenges. The research article explains in detail the various problems faced by rural entrepreneurs in India.
- (Saxena, 2012) is of the opinion that rural entrepreneurship is the key input for economic development in the country. The problems in rural areas can be overcome by developing rural entrepreneurship and thereby resulting in the development of villages. The researcher stresses on integrated rural development programmes. Efficient regulated markets and consistent support from the government is essential in the growth of rural entrepreneurship.

4. Research Gap

Several researches have been conducted on a macro perspective with the whole nation as the area of study. However, in this study, the researchers have taken a micro perspective to acutely understand the problems faced by prospective rural entrepreneurs. The study is aimed at finding the awareness level of rural youths on entrepreneurship, thus paving the way for kick-starting some entrepreneurial activities in the rural areas and making the said areas self-sufficient and developed as well.

5. Objectives of the Study

- To know the awareness level of youth regarding rural entrepreneurship.
- To find the skills the rural youths have to convert the available resources into an economic resource.
- To know the youths' awareness about the schemes and facilities available for developing their entrepreneurial skills.
- To know the youths' awareness about the funding agencies for encouraging entrepreneurship.
- To find out the potential entrepreneurial opportunities in the region.

6. Research Methodology

The period selected for the study is from the month of December 2018 to March 2019. A sample of 50 undergraduate students of commerce stream is undertaken through convenient random sampling. Data is collected through unstructured interview method and observation method. The data collected is both primary and secondary data.

7. Profile of the Respondents

- They belong to the families with annual income less than 1 lakh.
- The major part of their income is from the primary sector i.e., agriculture.
- They are the first generation learners in the family.
- They have limited access to the non-vernacular language and limited computer skill.

8. Findings of the Study

- The youths are not very much entrepreneurial by nature even though the place has a history of being in the entrepreneurial spirit.
- The youths are not aware of the various schemes like MUDRA scheme of the government in developing enterprises.
- The youths are not aware of the funding agencies which help in enterprise development.
- The youth are risk averse considering the financial condition of their families.
- The fear of failure has stopped the youth from taking up potentially profitable businesses.

- The youths are very much interested in agriculture related and agri-based activity.
- The place also has a lot of potential for agriculture and related activities because of its demographic factor of being situated in a well fertile belt with abundant water resource and forest.
- The place has a potential scope for eco-tourism.
- One could find tribal settlements in the parts of the Saragur region, hence has potential for value addition to the forest produce.
- The region is known for cotton and tobacco cultivation. Value addition to these products can help them gain profits.
- The region is also popular for floriculture, hence could be developed to suit the present needs.
- The region also popular for vegetable cultivation, thus high potential for organic farming.
- The region is also known for ginger cultivation. The ginger grown in the region is exported to the neighbouring state Kerala for medicinal industries.

9. Suggestions

- The youths of the region need proper awareness and training sessions by the concerned authorities from the state administration with the help of the educational institutions and civil societies regarding the entrepreneurial potential of the region.
- The funding agencies of the state can organize fairs for creating awareness among youth.
- The funding agencies can help them in analyzing the type of enterprise a person can take up in the region.
- People living in tribal areas can be used for getting the forests' produce, and the youths of the region can involve themselves in its value addition and marketing activities.
- Eco-tourism can be undertaken with the Forest Department of the state. Forest department can make innovative ways of attracting the tourist to the place with reasonable restrictions in order to protect the existing eco-system.

- A MoU with retailers can be entered into, for selling fresh vegetables of the region to the nearby places, thus the concept of “farm to home” can be achieved.
- Rather than exporting the raw ginger to the neighboring state, the ginger can be utilized in the region itself. For this, the youths can be trained in utilizing the produce for which it is being exported to other places.
- The youths can also be trained in handicrafts which can bring additional profits when eco-tourism is taken up.
- The conventional education should also include skill-based training which can improve the confidence among youth to take up self-employment.

10. Conclusion

India, being a diverse country with diverse activities to rely upon, hence has a potential for entrepreneurship. With planned efforts, India can become a superpower by all means and stand as a role model for all developing countries in the world. Tapping the rural resource will definitely help the country to grow to greater heights and can become a front runner in the race of development. Also, it can become a sustainable economy by tapping the rural resources since we have greater responsibility and respect towards rural areas as our country comprises largely of the rural regions.

11. References

1. A K Gill, B.K. Shahu, R N Patela. (2014). Rural Entrepreneurship in India: Challenge and Problems. *International Journal of Multidisciplinary Research and Development*. 1(7), Retrieved from <http://www.allsubjectjournal.com/vol1/issue7/PartC/47.1.html>
2. D K Sinha. Entrepreneurial Opportunities for developing Agri-Preneurship. *Your Article Library*. Retrieved from <https://www.yourarticlelibrary.com/entrepreneurship/entrepreneurial-opportunities-for-developing-agri-preneurship/41109> Accessed as on November 22, 2019

3. Jayadatta. (2017, September). Major Challenges and Problems of Rural Entrepreneurship in India. *IOSR Journal of Business and Management*, 19(9), 35-44. Retrieved from <http://www.iosrjournals.org/iosr-jbm/papers/Vol19-issue9/Version-2/D1909023544.pdf> accessed as on November 22, 2019.
4. Lavanya, S. M., Hemalatha, S., & Indumathi, V. M. (2014, October). *Perspectives of Rural Entrepreneurship in India*. *Journal of Management Research*, 3(1). Retrieved from 2019, from <http://www.eecmbajournal.in/issue3/Article6.pdf>. Accessed as on November 22, 2019e
5. Patel Brijesh & Chavda Kriti. (July 2013). 'Rural Entrepreneurship in India: Challenge and Problems'. *International Journal of Advance Research in Computer Science and Management Studies*. Volume 1, Issue 2, Retrieved from <http://ijarcsms.com/docs/paper/volume1/issue2/V1I2-0003.pdf> Accessed as on November 22, 2019
6. Patel, B., & Chavda, K. (2013, July). Rural Entrepreneurship in India: Challenge and Problems. *International Journal of Advance Research in Computer Science and Management Studies*, 1(2), 28-37.
7. Saxena, S. (2012, July-Aug). Problems faced by Rural Entrepreneurs and Remedies to Solve It. *IOSR Journal of Business and Management*, 3(1), 23-29.
8. The Role and Importance of Rural Entrepreneurship in India. *Wadhvani Foundation*. Retrieved from Retrieved from <https://wiki.wfglobal.org/the-role-and-importance-of-rural-entrepreneurship-in-india/> Accessed as on November 22, 2019
9. *UKEssays* (December 5, 2016) Opportunities and Challenges for Rural Entrepreneurship In India Economics Essay. Retrieved from <https://www.ukessays.com/essays/economics/opportunities-and-challenges-for-rural-entrepreneurship-in-india-economics-essay.php> Accessed as on November 22, 2019

10. Vijay Kumar Sarabu. (June 2016). Rural Development in India through Entrepreneurship: An Overview of the Problems and Challenges. *Research Gate*. Retrieved from https://www.researchgate.net/publication/304113361_Rural_Development_in_India_through_Entrepreneurship_An_Overview_of_the_Problems_and_Challenges Accessed as on November 22, 2019

Predicting Intra-Game Outcomes with Neural Networks: A Paradigm for Business Strategy

Gautam B. Singh

Professor
Department of Computer
Science & Engineering
Oakland University
Rochester, Michigan, USA.

Kabir Singh

Software Engineering
Ford Motor Company
Wayne State University
Detroit, Michigan, USA

Abstract

The goal of this project is to extend neural networks and multilayer perceptrons, commonly used for classification problems, for predicting a continuous value. The specific application we address in this paper is to predict the number of yards a running back will gain in a given play situation or configuration captured with 29 variables. The data utilized comes from past plays of the National Football League. While the application domain considered is game playing, the modeling techniques discussed can be adapted for decision making in developing business strategy with a focus on predicting individual events to enable decision making to reach an overarching goal.

Keywords

Football, Business strategy, Artificial neural network. Machine learning, Feature analysis.

1. Introduction

This project concerns with plays conducted during games of American Football in the National Football League (NFL). The NFL is the premier league for American Football in the world.

American Football is a sport played by two teams with 11 players on a 100-yard field of play. At the end of either side of the field is the “end zone” which is 10 yards long, making the total play area 120 yards long. The team that controls the ball is on the offense. The goal for the offense on a given play is to advance the ball by either running (rushing) or throwing (passing) the ball. The quarter back is responsible for passing

the ball while the running back is responsible for running or rushing on any given play.

The offense scores seven points for getting the football into the opposing teams endzone, and scores three points by kicking a field goal. The goal of the defense is to stop the offense from advancing the ball, and to ultimately get their team on offense. The offense must gain at least 10 yards with four downs, or loose possession of the ball to the other side.

On any given team, approximately one third of all offensive plays called will be rushing plays. So, it is important for a team to decide when to rush the football. A predictive algorithm that can take the game conditions into consideration and predict the yardage that will be gained by rushing will thus be of immense value to a game in strategically deciding their play and maximize the overall chances of winning the game. Such a predictive model must take into consideration several factors as discussed below which broadly capture the strengths of a given team, the conditions of a game, and a specific parameterization of a given play.

The differentiation of the proposed model is that it is a process centred model applicable for maximizing the overall performance and success of business. As in the game of American Football, each decision such as bids, asset acquisition, pricing and marketing allocation can be similarly modeled as a play. The overall objective is to make the business succeed just like it is to win a football game. Integrating machine learning into each business decision can help us achieve this goal by developing a winning strategy at each step of the way.

2. Problem

The goal of this project will be to analyze a dataset containing information about a number of rushing plays and to build a model that will predict, on a given play, how many yards a rusher will gain.

There are several applications this information will be relevant. It will help augment current domain knowledge to decide when it is more advantageous to rush or pass. It would give the coaching staff on NFL teams better insight into the different attributes that impact a running back's performance on a given play and how they can be optimized to potentially enhance his performance. This model would also be relevant to NFL broadcasters so that live play-by-play commentators have an additional point of context for action on the field.

3. Dataset Overview

The data from this competition is from the NFL Big Data Bowl hosted on Kaggle from NFL Next Gen Stats. It contains information from 23171 rushing plays that are from 512 games.

This dataset contains 49 different attributes to be analyzed. These attributes can be roughly divided into three categories: player data, game data, and play data. Player Data refers to data that is associated with a given NFL player.

Shown in Fig. 1 are the set of attributes captured for each game. This Game Data is data that stays constant throughout a given NFL game.

Variable Name	Description	Data Type
GameId	Unique game identifier	Nominal
Team	Home or away	Ordinal
Season	Year of the Season	Interval
HomeTeamAbbr	Home Team Abbreviation	Nominal
VisitorTeamAbbr	Visitor Team Abbreviation	Nominal
Week	Week of Season	Interval
Stadium	Stadium where game is played	Nominal
Location	City where game is played	Nominal
StadiumType	Description of environment	Nominal
Turf	Field Surface	Nominal
GameWeather	Game Weather	Nominal
Temperature	Temperature	Interval
Humidity	Humidity	Interval
WindSpeed	Wind Speed	Ratio
WindDirection	Wind Direction	Nominal

Figure 1: Features Captured for a Game

There are four different types of data shown in the table. Two data types for non-numeric data are Ordinal and Nominal. And the two data types for numeric data are the Ratio and Interval data types. Nominal data is a group of non-parametric variables where there is no order defined between the values of the variables. The Ordinal data on the other hand is group of non-parametric values for which some sort of order does exist. Thus, the difference between the nominal and ordinal variables is that ordinal variables can be placed into some kind of order by their position.

Numerical data belongs to two different classes – Interval and Ratio. An interval data is a type of Ordinal data where the difference between two values is meaningful. Examples of interval variables include a student’s SAT scores, or week number in a year, person’s credit scores. A ratio variable in addition to being an interval data also has a clear definition of zero. When a ratio variable equals 0.0, its significant of non-existence. Some examples of ratio variables include an object’s weight, length, medicine dose amount. The connotation of the phrase ratio is that while working with ratio variables, the ratio of two values will have an associated interpretation.

For the Game Data shown in Fig. 1, the temperature, humidity, and the week number when the game is being played are all interval variables while the wind-speed is the only ratio variable used.

Next shown in Fig. 2 is the set of features captured for a given play. The Play Data changes on every play. It is designed to capture features that are dynamic and reflect the specifics that determine the manner in which that specific play will best be handled. Several ratio variable types are used as features for the Play Data. This data captures several details related to how much time is left in the play, which quarter is being played, what stage of the offensive possession the game is being played (i.e. how many downs), the number of defenders near the line of scrimmage, how much distance is needed to be traveled, and the like.

Variable Name	Description	Data Type
Play Id	Unique play identifier	Nominal
Yard Line	Line of scrimmage	Ratio
Quarter	Game Quarter	Ratio
Game Clock	Time on the clock	Ratio
Possession Team	Team with Possession	Nominal
Down	Down of play (1-4)	Interval
Field Position	Side of field of current play	Nominal
Home Score Before Play	Score of home team before play	Interval
NflId Rusher	NFL Id of Rusher	Nominal
Offense Formation	Offense formation	Nominal
Offense Personnel	Offensive team grouping	Nominal
Defenders In The Box	# of Defenders near line of scrimmage	Ratio
Defense Personnel	Defense Formation	Nominal
Play Direction	Direction of play	Nominal
Time Handoff	UTC time of the handoff	Ratio

Variable Name	Description	Data Type
Time Snap	UTC time of snap	Ratio
Yards	Yards gained on play	Ratio
Distance	Yards needed for a first down	Ratio
Visitor Score Before Play	Score of visitor before play	Interval

Figure 2: Features Captured for a Specific Rushing Play

We also have features that capture information about a Player as shown in Fig. 3. These features capture information about a specific player, including their position, speed, acceleration, as well as their height and weight. Some of the information like the position of the player and their orientation is also captured.

Variable Name	Description	Data Type
X	Player position along x axis	Ratio
Y	Player position along y axis	Ratio
S	Speed	Ratio
A	Acceleration	Ratio
Dis	Distance traveled	Ratio
Orientation	Orientation of player	Ratio
Dir	Angle of player motion	Ratio
NflId	NFL ID	Nominal
Display Name	Name of player	Nominal
Jersey Number	Jersey Number	Nominal
Player Height	Height of player	Ratio
Player Weight	Weight of Player	Ratio
Player Birth Date	DOB of Player	Ratio
Player College Name	College of player	Nominal
Position	Player position	Nominal

Figure 3: Features Captured for a Specific Player

Thus, there are three classes of data that are interacting with each other that will be analyzed to get to the final result (Player, Game, and Play Data). Every play is associated with 1 game and every game is associated with multiple plays (approximately 40). Every play is associated with 22 players (11 offensive players and 11 defensive players). This means in the dataset there will be 22 rows of data for every play.

4. Preprocessing

Yard line: This refers to the line of scrimmage where the players are starting the play from. By itself, this is not a very useful metric. If an offensive play begins from the one-yard line, the offensive team could either be one yard away from scoring or be 99 yards away from scoring. This fact can be derived based on the “HomeField” and “PlayDirection” attributes, and while it is possible that a Neural Network can derive the rule based on those attributes independently, it would make the process more robust if this was an attribute that we fed to a model. So, we derived an attribute “YardsToTD” based on the attributes “YardLine”, “HomeField”, and “PlayDirection.” The value of “PlayDirection” was first converted to an integer (0 or 1) assigning right to 1 if the home team is on offense.

Snap and Handoff: To enhance the meaning of some the variables, modifications will applied. This dataset includes the precise UTC time of Snap (time when play starts) and time of Handoff (when the running back is given the ball). Rather than including these two times separately, we included the difference between the two times, i.e. how much time elapsed before the quarterback handed the ball to the running back as a latent variable for training the model.

Turf: The turf attribute refers to the surface on which the game is played. There are several details about the turf that were included in the dataset. Intuitively however, the fundamental difference that makes most impact on a play is categorize the turfs into artificial or natural. Since there are relatively few unique values it was possible to create this mapping of the turf into artificial or natural.

Wind direction: The attribute “WindDirection” Attribute has a significant number of missing values. Additionally, among the values it does have, a number of them appear to be a relatively verbose description, requiring NLP techniques to parse. Hence, this attribute was disregarded. The attribute “GameWeather” was also disregarded for similar reasons.

Wind speed: The windspeed data needs to be cleaned before dealing with any missing values. If the value is a number, then that number can be used. Otherwise, “MPH” or “mph” was removed from the value. Additionally, there are attribute values that list a range, so we can take the average of those values. Missing values for wind speed were filled with the mode of this attribute, which was 5.

5. Results

Machine learning using neural network is an example of supervised learning, and specifically a type of inductive supervised learning. Artificial Neural Networks (ANN) architecture is inspired by the architecture of brains where the intelligence is created by collective stimulation and highly interconnected neurons. A neuron is like a gate which collects stimulation from a number of other neurons and “fires” when a weighted collected strengths of its inputs exceeds a threshold. The result of the firing of a neuron is transmitted as an axon potential and becomes the inputs for a number of other neurons. ANNs are trained through examples by a process known as back-propagation where the weights responsible for a wrong decision are reduced by small increments. Similarly, the weights responsible for a correct decision are incrementally increased. These increments are often referred to as the learning rate in this penalty and reward based training process.

5.1 Neural Network Architecture

As previously discussed, the fundamental building block of an ANN is a neuron. An ANN is ultimately a collection of interconnected neurons. One of the problems in Machine Learning is to determine the appropriate architecture of a neural network that is suitable for solving a specific problem. As discussed below, the components of the ANN architecture include the specifications of a neuron, the number of hidden layers, and the number of neurons in each of the hidden layers.

Neuron: A neuron is the fundamental building block of an Artificial Neural Network (ANN). A single input neuron, shown in Fig. 4 is the fundamental building block for neural networks. A neuron perform three functional operations. The figure uses the architecture to describe the i^{th} neuron. First, it multiplies each component of a p-dimensional input vector (x) with a corresponding weight in a

weight vector (w_i). Second, the weighted sum is added to a bias (b_i) to produce the net activation value (n_i). Third, the net activation value is transformed using a differentiable transfer function (f_i) to produce the final output of the neuron (a_i). Thus the processing by a neuron is summarized by the following equation Eq. 1.

$$a_i = f_i\left(\sum_{j=1}^p x_j * w_{i,j} + b_i\right) \quad (1)$$

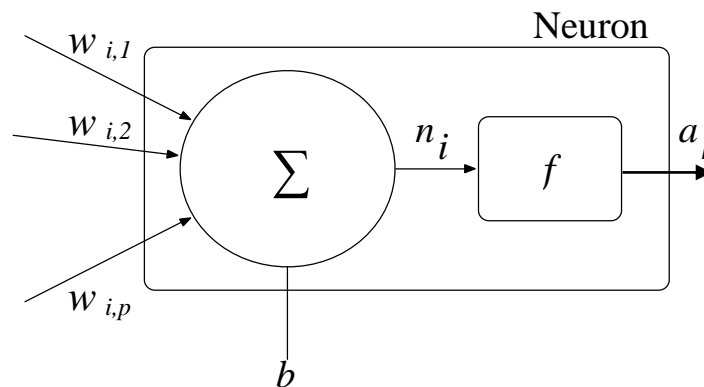


Figure 4: A Neuron – Building Block of Artificial Neural Networks

There are also many types of transfer functions utilized with the linear and sigmoid transfer functions being the ones most commonly utilized. The linear transfer functions are often used as the final stage of a multi-layer network since there is no limit on the values produced by the network. In contrast to the linear transfer function, the sigmoid ($1/(1 + e^{-n})$) transfer function produces an output in the range 0 to 1. This type of transfer function is mostly used in the hidden layers of a network as discussed below.

Note that the subscript i is used to designate the i^{th} neuron. A similar functional processing is performed by all neurons in the network. The weights (w_i) and bias (b_i) are both adjustable parameters of a neuron with the training process of the neural networks being such that these parameters are adjusted to achieve a desired behavior.

Hidden Layers: In a multilayer neural network, the processing functions of the neural network is cascades through a series of hidden layers. From a standpoint of terminology, all layers with the exception of output layer, are called the hidden layers. The ANN shown in Fig. 5 thus comprises of two hidden layers.

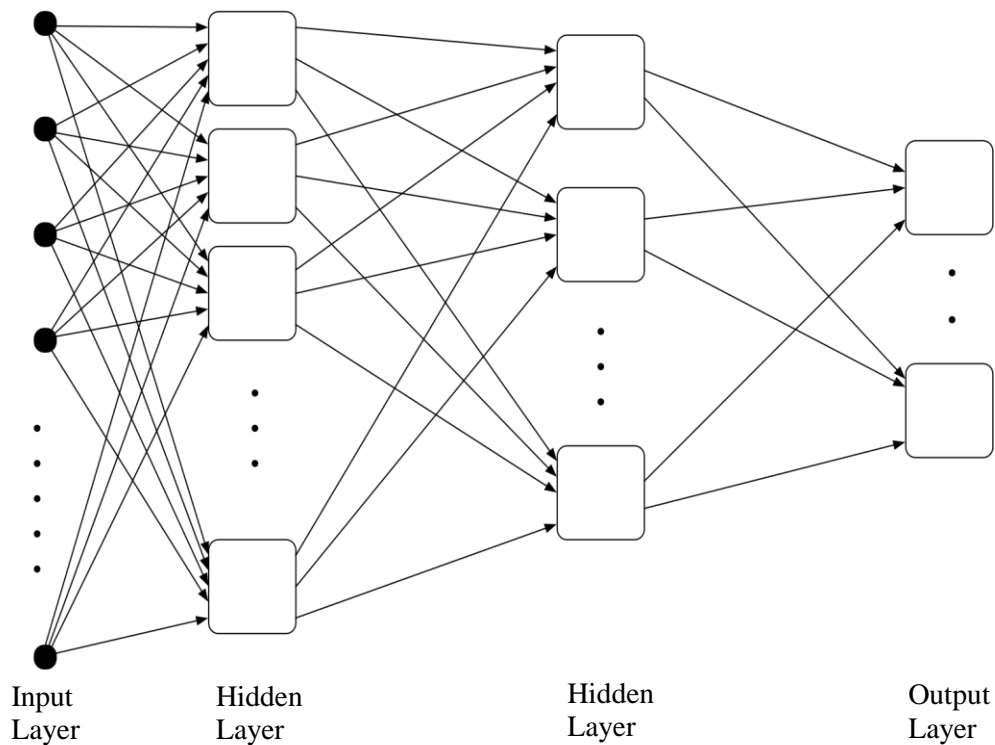


Figure 5: A Feed-forward Neural Network with Two Hidden Layers

The number of neurons in the first hidden layer does not necessary have to equal the number of dimensions p to the input vector. Some authors refer to the first hidden layer as an input layer.

Each layer of the network allows for complex modeling of functions to produce a complex clustering of data. Generally, all layers in a specific layer of the network utilize similar transfer functions and biases.

ANN Architecture: In our model, we have utilized an ANN with one hidden layer and one output layer. The hidden layer utilizes a sigmoid transfer function and the output layer utilizes a linear transfer function. The hidden layer has three neurons, and the output layer has a single neuron. The ANN architecture is shown in Fig. 6.

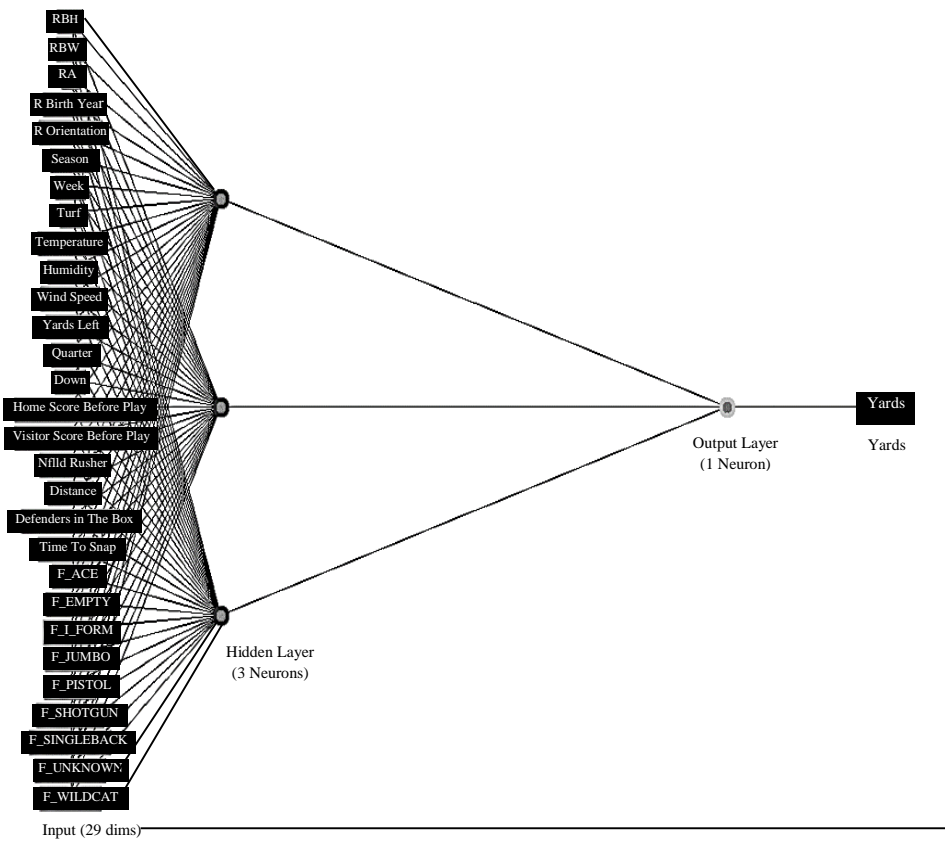


Figure 6: ANN utilized for Predicting Yardage based on a 29-dimensional feature vector to predict yardage for a particular in-game outcome. The network utilized comprises of a single hidden layer with three neurons (with sigmoid transfer function), and a single output layer (with linear transfer function).

5.2 Testing

We utilized the Weka machine learning workbench to build and evaluate the neural network model in this study. One of determining factors for using Weka was its provision for Python API, a popular language being used in Data Science Applications including the Business Analytics and Econometrics.

The process of testing entailed using 90 percent of randomly selected samples for training the model, and using the model to test the accuracy on the remaining samples. For the purposes of evaluating the performance, a margin of error was assigned. Thus, if the margin of error is set to μ , and the predicted value is of yardage gained is \hat{y} , then the predicted yardage will be deemed to be correct if the $|y - \hat{y}| \leq \mu$, where y is the true yardage from the dataset.

Fig. 7 shows a graph of the accuracy of predicted values as a function of the permitted error in the margin of accuracy.

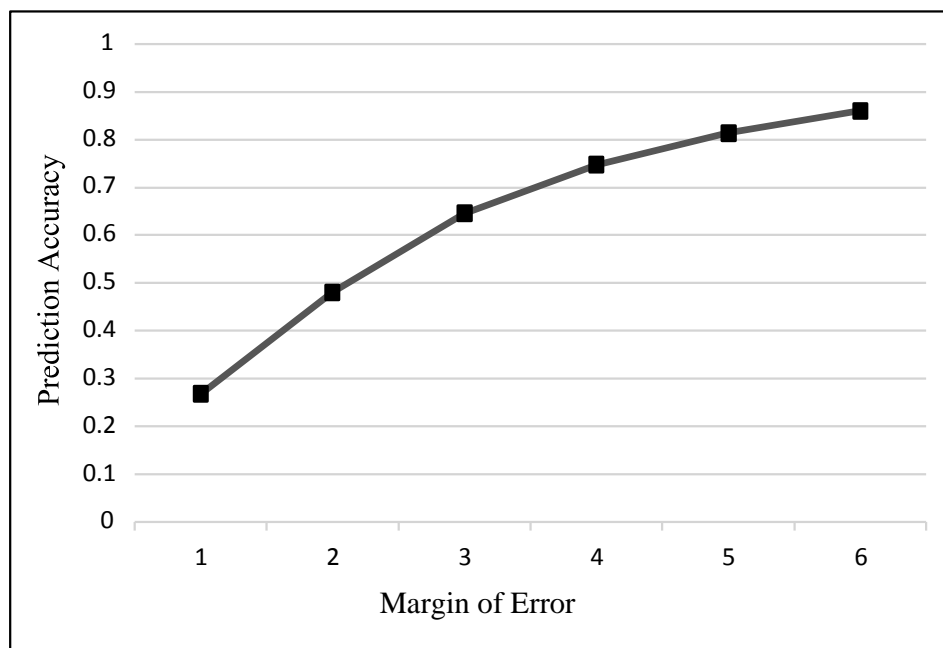


Figure 7: Accuracy of Predicted Yardage as function of Margin of Error.

The dataset was further analyzed to determine the effect of the availability of training samples on the accuracy of prediction. Since the ANN is a type of machine learning model that learns the patterns in data, the training will naturally be inadequate when there is insufficient data to learn from. This is precisely what we observed as shown in Fig. 8.

The histogram in Fig. 8 depicts the frequency of dataset that provides the values of features for a specific yardage. As we see, there is sufficient data available for the cases where the yardage gained is 0 to 5 yards. In contrast, there are not many cases where the runner lost yardage or gained more than 10 yards.

Depicted in Fig. 8 is the error in predicting the yardage for each of the dataset frequency category.

As is quite apparent from this correlation study, the non-availability of data in certain categories prevents the ANN from learning the patterns in the dataset that are specific to that situation leading to negative yard gained or when the yards gained is larger than 6.

This brings into focus the core limitation of inductive learning paradigm and also makes a case for long term data management plan for business seeking to utilize data analytics into strategic decision making process. The model will perform well in those situations which it has encountered in the past. Similarly, the model will continue to be refined with time as more situations are encountered and additional data is added to the database for continual model refinement.

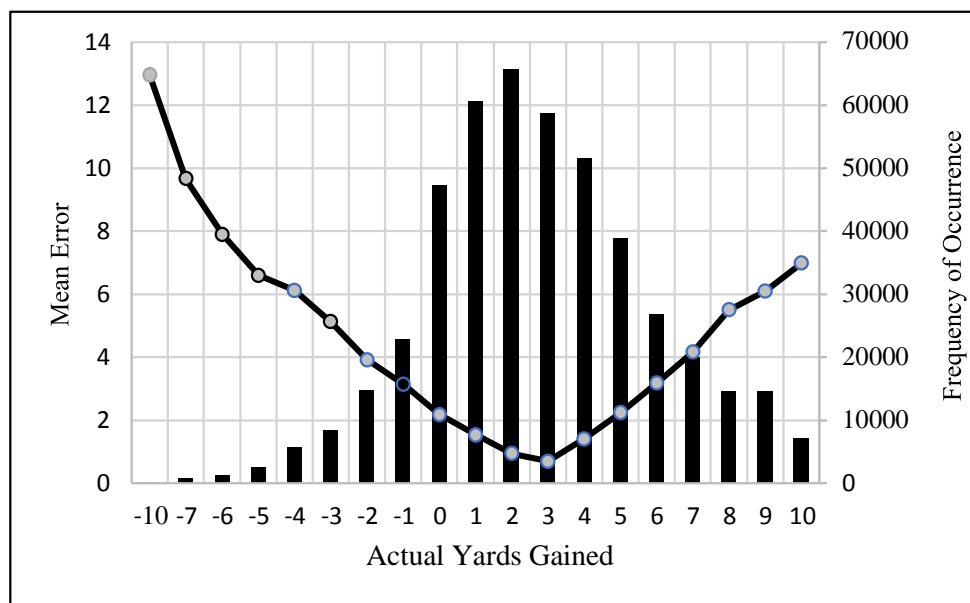


Figure 8: Average Error in Yardage as a Function of Frequency of Training Data.

6. Model Adaptation for Business Strategy

The techniques described in this paper have a wider applications. Specifically, the model discussed in this paper focuses on a continual utilization of a model for strategy determination while the play is going on. Thus, the coach for the game can assess the situation on the field and make a determination using the ANN model to dynamically make decisions to maximize yards gained and thus enhance the overall expectations of winning the game.

A similar strategy is applicable to the development of a business strategy that uses machine learning to make business decisions on a continual basis to improve the overall success of enhancing profits and returns to the stockholders. Machine learning approaches have been used in business settings for specific situations like predicting credit-worthiness, likelihood of bankruptcy, and rating bonds. While these are successful use-cases of machine learning paradigm, the approach discussed in this paper proposes a paradigm for using machine learning for in developing a short term business strategy, like intra-game yard gains, for reaching an overarching goal, like winning the game or running a profitable business.

Similar to using a model for determining the optimal play to make in a given setting, a business can similarly model its strategic decision making using a set of parameters that may affect this managerial decision making. As the specifics for strategic determinations will be unique to each industry, one of the first tasks for a business will be to analyze the features to use for the purposes of training a learning model and from a repository of past decisions and a associating a numerical rating with each of these decisions.

Upon completion of such a repository of past decisions, the business can present a new business situation to a computational model and seek guidance from the computational model to make a decision that maximizes the likelihood of a successful outcome.

7. Conclusions

This paper provided an overview of a process for intelligently modeling a situation, such as a specific conformation in the game of American football, and predicting the outcome of the situation by using knowledge of the outcomes from similar situations encountered in the past. The process of formulating the problem by identifying the factors that impact the situation, developing a learning model, and testing the accuracy of that model were discussed. While the specific situation in this study relates to predicting how many yards are expected to be gained in a given configuration, the paradigm is extensible to situations encountered in a business such as predicting sales, production output, or market share of a new product. While the results are promising, future research is needed to answer questions of predicting with uncertainty, such as accurately predicting outcomes in situations when there is limited or inadequate knowledge to learn from.

8. References

1. American Football. (n.d.). https://en.wikipedia.org/wiki/American_football. (Accessed: 2019-12-20)
2. Asuncion, A., & Newman, D. (n.d.). UCI Machine Learning Repository. <https://archive.ics.uci.edu/ml/index.php>.
3. Holmes, G., Donkin, A., & Witten, I. H. (1994). Weka: A Machine Learning Workbench.
4. Kaefer, F., Heilman, C. M., & Ramenofsky, S. D. (2005). A neural network application to consumer classification to improve the timing of direct marketing activities. *Computers & Operations Research*, 32(10), 2595–2615.
5. Kröse, B., Krose, B., van der Smagt, P., & Smagt, P. (1993). *An introduction to neural networks*.
6. Li, J., Cheng, J.-h., Shi, J.-y., & Huang, F. (2012). Brief introduction of back propagation (bp) neural network algorithm and its improvement. In *Advances in computer science and information engineering* (pp. 553–558). Springer.
7. *The National Football League*. (n.d.). <https://www.nfl.com/>. (Accessed: 2019-12-22)
8. *NFL Big Data Bowl*. (n.d.). Retrieved from <https://www.kaggle.com/c/nfl-big-data-bowl-2020/data>
9. *The NFL Rule Book*. (n.d.). <https://operations.nfl.com/the-rules/2019-nfl-rulebook/>. (Accessed: 2019-12-20)
10. Pedregosa, F., Varoquaux, G., Gramfort, A., Michel, V., Thirion, B., Grisel, O., others (2011). Scikit-learn: Machine learning in python. *Journal of Machine Learning Research*, 12(Oct), 2825–2830.
11. Pendharkar, P. C. (2005). A threshold-varying artificial neural network approach for classification and its application to bankruptcy prediction problem. *Computers & Operations Research*, 32(10), 2561–2582.

12. Surkan, A. J., & Singleton, J. C. (1990). Neural networks for bond rating improved by multiple hidden layers. In 1990 *IJCNN International Joint Conference on Neural Networks* (pp. 157–162).
13. Tan, P.-N., Steinbach, M., & Kumar, V. (2006). *Data mining introduction*. Bei Jing: The people post and Telecommunications Press.

The Impact of Advertising Expenditure on Firm Value: Analyzing Past Studies

Puneet Kaur Dhingra

Assistant Professor

Mata Sundri College for Women

Delhi University

New Delhi, Delhi, India.

Rameet Kaur Sawhney

Assistant Professor

Mata Sundri College for Women

Delhi University

New Delhi, Delhi, India.

Abstract

This paper delves to congregate the views of extant literature in the field of advertising expenditure relevance. The paper emphasizes on the relevance of advertising expenditure with respect to firm's overall value and not just profitability or sales, emanating shift to utilization of valuation models in measuring the effect of advertisement expense on a firm. The current practice which is dominantly followed by accountants all over the world is to treat advertising expenditure as an expense for the current period. But there has been growing substantiation that advertising expenditure is just not bears the tag of a current period expense but can be regarded as a long-term investment in brand equity development.

1. Introduction

A goal of the firm may be defined as a target against which a firm's operating performance can be calculated. The object specifies what the decision maker wants to accomplish. In majority cases, the objective is specified in terms of maximizing same function or variable (size, value, profit, social welfare, etc.) or minimizing same function or variable (risk, cost, etc.).

Traditionally maximization of the profit was considered as the most implied objective, but it suffered from severe short comings. Due to narrow view point of this objective, it amplified the gap between the viewpoint of the management and shareholder.

Ignorance of the shareholder's interest led to a shift from focus of firms from profit maximization to maximization of shareholder's wealth. Maximization of the shareholder's value implies that any firm should operate with the basic motive to magnify shareholder's investment returns. This concept is called Shareholders Value Analysis (SVA) and

has emerged as the new premise for judging any managerial activity or decision. Thus, all activities of the firms, various department like human resource, operations, or marketing must be justified with respect to SVA. Marketing get a new direction and perspective with this shift of firm's objective from profit maximization to shareholders value maximization. Traditional practice of concentrating on profit maximization always focused on earning of short firm profit at the cost of intangible resources of the firm which suppressed the scope of marketing looking at the flip side now, managers concentrate on achieving long term objectives thus, making committed investments which will reap profits in the future term of the business.

Spending on marketing activities will now be required to justify the value appreciation it brings to shareholders investments. This will be a little challenging as marketing effects business in tangible and intangible forms.

2. Tangible and Intangible Assets

Simon et. al. (1993) bifurcated firm value into tangible and intangible aspects profits and sales are ready examples of tangible aspects of firm of value and impacts of marketing instruments on these tangible aspects have been validated in the short run by Lodish (1995) and in the long-term by Nijs (2001) and Simester (2009).

But in the concurrent scenario, intangible aspects reflect a large share of the firm value, as described by Sougiannis and Chan (2001) the role of brand equity in their research. Many researches point out that intangible aspects such as customer satisfaction, might be better indicator of long term financial performance than traditional accounting aspects Ittner and Larcker (1998) also suggested that they can supplement financial outcomes in internal accounting of individuals firms.

Intangible aspects which argument firm value can be divided into following classifications:

1. Market specific factors like conditions that result into imperfect competitions.
2. Firm specific factors like patents, research and development and know how expenditures.
3. Brand Equity.

Many researches have well documented the effect of market specific factors and firm value like Kamdin (1999), Chhaochharia and Grinstein (2001).

For firm specific factors, Pauwels (2004) empirically tested the positive impact of innovation on firm value sincerely Erickson and Jacobson (1992) examined the impact of discretionary expenditures like advertising and R&D, and stated that it significantly effected firm value. And brand equity is the outcome of the above two factors.

3. Advertising Expenditure

Out of the above discussed firm specific factors, the amount of corporate investment in advertising has been substantial and is excessively growing because of its direct link with the commercialization of value chain. It's an essential tool in harvesting the aggregate value of innovation and R&D, due to its imperative role in sales and marketing of every product. The extant theories on advertising are numerous and diverse. Different people have studied advertising from different perspective. Marketing people are concerned about the importance of advertising in the augmenting sales or share size of whole market. Finance people link advertising with the profitability of the business. Economists are interested in researching upon the effect of advertisement expense on market competition, concentration, consumption and prices, while policy makers focus on the social repercussions of advertising. There is an ongoing argument as to what are the benefits and cost related with advertising, expenditure, whether advertising is informative & persuasive or just a wasteful change on the earnings of the firm. Another controversy surrounds the accounting treatment of advertisement expense whether to club it as an expenditure or to value it is an intangible asset of the business.

Numerous authors have done different researchers via various approached to gather knowledge about the exact nature of advertising expenditure and its effect on shareholder's value. Some researchers like Abraham and Lodish (1990), Weiss (1969), Graham (2000), Sougiannis (1994) have measured advertising expenditure with respect to its influence on profitability of the business. While Duffy (1999), Yiannaka (2002), Palda (1965), and Abdel Khalik (1975) investigated its effect on sales generation ability of the firm. These were earlier studies, recently

researchers have started adopting Valuation Models. These models facilitates establishment of relationships between existing market value of the business and intangible aspects of business like R&D expenditure and advertising expense.

The major aim of this term paper is to explore all the extant literature of researchers that established relationship between advertising, expenditure and firm's capacity to generate sales, earn profit and augment market value.

4. Accounting Treatment of Advertisement Expense

The accounting treatment regarding advertising expenditure has always been controversial. Numerous researchers in the extant literature were in support of the notion that advertising has some asset value attached to this eminent researchers whose studies backed this notion were Hirshey and Spencer (1992), Morck and Yeung (1991), Hirshey (1985), Lustgarten and Thomadakis (1987) and Chauvin and Hirshey (1993). However, there are always two sides of every coin and this existing literature also entails researchers which strongly go against the asset value argument and reinforce that the benefits derived from advertising expenditure are limited to the period during which the outflow was made. This dilemma exists due to difficulties associated with accurately determining the cost attached with advertising activities and also identifying the rewards earned in the future periods.

Since profits of the current period can be determined more easily than anticipating future profits, hence management finds its convenient to write off the expenditure attached to advertisements in the current year accounts only, also uncertainty attached with earning of future profits also makes it risky to carry over the amortization of advertising spending in the forthcoming accounting years. Investor's point of view was indicated by Han and Manry (2004) in the research stating that investors also follow this notion that economic benefits driving from the firm's advertising expenditure expire in the same year in which it is incurred. The above notions finds its premise from the arising tax benefits and conservatism.

Flipping to the contrasting side of the dilemma, many authors have present literature which supports that advertising expenditure is a strategic investment, which must be capitalized and its amortization should happen over future periods along with the current one. (Hirshey, 1982; White & Miles, 1996; Weygandt and Hershey, 1985).

In their support Barth and Kasznik (1999) in their research indicated that, investment in R&D and advertising should be labeled as intangible assets in firms balance sheet, as developed technology and values created by brand name are essential catalyst in improving firm's profitability in the future course of operations.

5. Research Gap

It has become imperative for every firm to make some advertising expenditure due to rising competition in the market place, increasing customer attention and awareness easy availability of close substitutes and high product differentiation.

Still blindly making huge expenditure on advertising is not justified till its effect on various aspects of the firm value is justified. This makes it necessary to examine the interdependency between advertising cost and firm growth.

6. Objective of the Study

Our objective here is to do comprehensive exploration research on the effect of advertising spending on various aspects of firm value through analyzing the present-day existing literature consisting of empirical researches conducted by numerous researchers on the same.

This will help us in getting a clearer and a panoptic picture of diverse linkages of advertising expenditure with firm value components, along with the ground logics behind them.

7. Advertising and Sales

Major proportion of literature review on the study of advertising is based on the presumption of advertisement spending and sales relationship as the initial point of analysis. However, this presumption makes sense and hold true but it lacks at one angle. The association between advertisement spending and sales is not just straight forward or unidimensional but multi-dimensional. It is not only advertising which impacts sales but sales

also impact advertising; e.g. in proportion to sales only advertising budgets are set by the companies. Thus, there exist a simultaneity cause and effect association between advertisement spending and sales which further adds complication in the study of relationship between advertising and sales.

Hollander (1949) provided some initial evidence in his study of an ethical drug, on advertising's effects on sales for the carry over impact of advertising on sales. His observation was followed by few more researchers, Dean in 1951, Jastram in 1955, Vidale and Wolfe in 1957 which raised the lagged impact of advertising on sales. In the year 1964-1965 Kristian Palda provided a comprehensive evidence of carry-over effect of advertisement expense and provided a unique analysis of the impact of advertising on sales. The analysis was done through number of models based on multivariate regression. He concluded that advertising expenditure is a non-tangible asset which is too related to amortization, and 95 percent of the advertisement expense on an average is subject to amortization within the period of 7 years. Following the similar footsteps, few more researchers like Abdel-Khalik (1975), Peles (1970, 1971), Lambin (1969) and Simon (1969) gave the similar evidence of impact of sales on advertising.

In 1969, Clarke reviewed the studies based on econometrics with objective to understand and determine the period of cumulative advertising impact on sales. In his study, he classified and categorized about 69 studies into various categories, based on the criterion of data collection intervals adopted by these studies. In 1976, he concluded that the long duration intervals which are obtained from annual models are due to data interval bias. For a period less than 1 year, results are less prone to data interval bias and the duration of cumulative advertising impact on firm's sales is around 3 to 15 months. In 1974, Bloch in his study remarked that "despite of the conclusions and findings of the study which represented that advertising has lagged impact on sales, normal practice in accounting is to account advertising expenditure as current while calculating the net profit which results in understatement of net worth of the firm and misstatement of reported profits."

Table 1: Advertising and Firm Sales

Author	Year	Results
Palda	1964	Advertising expenditure is a non-tangible asset which is too related to amortization
Simon	1969	Concluded that effect of advertising on sales of liquor is dispersed over a long time span
Lambin	1969	Almost 50 percent of total advertising is carried over from one accounting period to another
Peles	1971	Presence of future advertising effects in cigarettes and beer but this result was not the same in Automobile industry
Abdel-Khalik	1975	Found prevalent evidence for future advertising effects in drugs, food and cosmetics but this result was not the same in tobacco and soap industry

8. Advertising and Firm Entry

Studies of advertising which viewed advertising as market power argues that consumer tastes and preferences are to a great extent influenced by advertising, and advertising leads to an addition of value to the differentiation of the product. This impacts in increased level of loyalty of consumers, and sometimes leads towards situations where customer ignore the availability of substitutes. This mechanism provides an opportunity for firms to preserve their positions by spending big amount on advertising.

Further heavy investment on advertising leads to high profitability which further strength the firm's capacity on investing in advertising, and thus creating barriers for new players in the industry. Establishment of such barriers leads to many consequences. New firms will be compel to spend a matching level of expenditure on advertising in comparison to existing firms, thus they will invest huge amount without reaching to economies of scale. Secondly, firms which enjoy loyal customers can manipulate market by restricting their output and thus can charge high prices.

On the contrary to this, studies which were based on "advertising as information", support the notion that role of advertising is informative and thus, facilitates competition rather than creating barriers to entry.

According to such studies advertising plays a pivotal role in providing information to the public regarding availability of different products at various prices. Thus, it promotes the price sensitive behavior of the customers, and customers buys only that product which provides best value for the price they pay. In 1992, Sudarsanam in his study concluded that advertising as informative tool loosen the loyalty ties of the customers and thus leads to reduction of existing firm's market power. Further in 1987, Schroeter provided an empirical evidence advertising leads to higher level of competition among the sellers in the market. In 1995, Ducoffe founded that there is positive correlation between advertisement spending and the value it creates.

Table 2: Advertising and Firm Entry

Author	Year	Results
Schroeter	1987	Advertising as informative tool loosen the loyalty ties of the customers and thus leads to reduction of existing firm's market power
Sudarshan	1992	Advertising leads to higher level of competition among the sellers in the market
Ducoffe	1995	Positive correlation between advertising in formativeness and the value it creates

9. Advertising and Profitability

The ongoing debate of impact of advertising on competition and creation of barriers is implicitly based on the concept of advertising expenditure's economic durability. Studies which favor creation of barriers by advertising expenditure, are based on short lived view of advertising and treat advertising expenditure as current expenditure, and thus believe that firm earns real profits due to product differentiation. On the contrary, studies which conclude that treating advertising as current expenditure reduces profits, also leads to the omission of advertising intangible asset in balance sheet.

In 1967, Comanor and Wilson carried out a study based on forty-one consumer products to relate profitability with various levels of advertising expenditure. They reported a positive impact of advertising on profit rates. They concluded that advertising leads to product differentiation which furthers results in creation of barriers to new firm entries. Following similar line, in 1999, Paton and Williams provided

evidence on relationship between firm value and advertising. Their study was based on cross section data which was collected through survey of 325 advertising managers of UK based firms. They concluded that advertising is correlated to profit rates for only firm which deals in consumer goods industry.

All these studies focused only on altering profit percentages for different advertising expenditure. However, they ignored other factors which are expenses, although they reap benefits for following years as well, for example research and development investment and training cost. Several studies including Core (2003), Green (1996) and Chauvin and Hirschey (1994) proposed that these other factors also yield profits.

It is quite interesting to notice that research study using data of industry reflects a strong and positive correlation between profitability and advertising whereas studies based on firm's data shows no such association between profitability and advertising. This difference in result might arise due to probable problem of data aggregation.

Lastly, the concern relating to the direction of impact or causation between advertisement expenditure and profitability. Advertising intensity model developed based on a single equation has been criticized due to the potential endogeneity of profitability and other variables. As per Wellis and Rogers (1998), ordinary least squares estimates will give biased results if profit is endogenously related with advertising intensity. Comanor and Wilsom in 1974 and Rosenbaum in 1993 made attempts to control endogeneity with the help of simultaneous estimation. In 1989, Schmalensee projected that in studies based on cross sectional industry, effective tools for endogenous variables are non-existent. In 1991, Notta and Oustapassidis argued that when instrumental variables are used steady estimates could be obtained. Major contribution was made by Notta et. al. (2001), which opined that a formal Hausman–Wu test can successfully indicate the usage of instrumental variable technique for satisfactory estimating the parameters of a given sample.

Table 3: Advertising and Firm Profitability

Author	Year	Results
Comanor and Wilson	1967	Found a positive relation between advertising and firm's profit, indicative of firm's market performance as well as its market power
Weiss	1969	Presence of non-significant relation between advertising and firm's profitability, if amortization of ads happen over their realistic time span
Bloch	1974	Accounting errors result in advertising being treated as an expense, instead of being used as an explanation for the resultant market power arising from product differentiation, thus undermining advertising intensity
Pitelis	1991	Empirically proved positive effect of advertising on firm's profitability
Erickson and Jacobson	1992	Found no solid evidence as to the effect of R&D expenditures or advertising on firm's ability to generate super normal profits
Sougiannis	1994	Reported a strong link between advertising, R&D expenditures, earnings and capital stock
Lev and Sougiannis	1996	Found an association between advertising expenditure and increase in net operating income
Patron and Williams	1999	Concluded a correlation between earnings and advertising for firms operating in Consumer goods industry
Notta and Oustapassidis	2001	Reported that only TV advertising results in increase in profits, for Greek firms in food manufacturing sector

10. Advertising and Market Value

In order to avoid probable problems associated with the studies on relationship of advertising on sales and profitability, researchers (especially in USA) have experimented with a more direct approach over advertising based on market values of the firms. It is normally observed

that study on advertising and profits gives biased results due to the use of unadjusted accounting profits. Thus in order to access relationship between economic variables and advertising better alternative is to use market value of firms. In 1985, Hirschey in his study concluded that “a compelling virtue of an approach based on the market value of the firm is that such an approach minimizes the effect of accounting bias”.

In 1984, Hirschey and Wichern in their study argued that both types of data-accounting and market are an ideal variables of profitability and therefore he advised that comparison of both types of data can be highly recommended. Their study found significant role for leverage, research and development intensity, industry growth and television advertising a profitability determinants. In 1978, Ben-Zion was the first one who used stock market data in order to measure long term impact of spending on advertising and promotion on the market values of the companies. On the contrary in 1992, Erickson and Jacobson concluded that spending on advertising acts as a signal to the market in general that the firm has surplus funds for such activities. In 1998, a study by Srivastava provided a frameworks on channels by which advertising can create market based assets, low cost services to customers, stabilized cash flows and thus generating synergy within the organization and thus helps in improving the productivity and building competitive strength.

In 2002, Keller in his study showed that advertising builds brand loyalty which further leads to financial value due to increased cash flows because of customer loyalty and increased efficiency in marketing. In 2005, a study by Singh evidenced a positively significant association between market value added (MVA) and advertising expenditure. Thus, representing that firms having high advertising expense has greater market value added (MVA).

In 2001, Tsai found that firms facing uncertainty in markets, resort towards investing more in research and development projects rather than on advertising expenditure. In 2004, Han and Manry concluded that there exist a negative association between stock price and expenditure on advertising. These results suggest that investors are of the view point that expenditure on advertising act like other expenses and tend to expire during the current duration.

Table 5: Advertising and Firm Value

Author	Year	Results
Ben-Zion	1978	Concluded that advertising and R&D expenses which are treated as an expenditure should be as investment expenditures instead
Hirshey	1982	Market value is significantly affected by R&D and advertising expenditures
Ericson and Jacobson	1992	Reported that increase in market value is not significantly affected by either advertising or R&D expenditures
Tsai	2001	Firms operating under uncertain circumstances tend to resort to R&D expenditure rather than spending on advertising
Han and Manry	2004	Akin to other expenses, benefits derived from spending on advertising expire during the same accounting period during which the spending took place
Singh	2005	Found a positive correlation between advertising spends and firm's market value

11. Conclusion

There is general emphasis on a recent shift to the utilization of valuation models in probing the essence of advertising expenditure. As market value comprehensively captures the profitability effects in both scenarios, the present and future periods, valuation models serve as a better mode in analysing the intangible aspect of advertising splurge. It has been found that majority of evidence on value relevance aspect of advertising derives from the US, where historically there has been preeminent disclosure regarding advertising expenditure.

12. References

1. Abdel-Khalik, A. R. (1975). Advertising effectiveness and accounting policy. *The Accounting Review*, 50(4), 657-670.
2. Aboody, D., Barth, M. E., & Kasznik, R. (1999). Revaluations of fixed assets and future firm performance: Evidence from the UK. *Journal of Accounting and Economics*, 26(1-3), 149-178.

3. Abraham, M. M., & Lodish, L. M. (1990). Getting the most out of advertising and promotion. *Harvard Business Review*, 68(3), 50-1.
4. Barth, M. E., & Kasznik, R. (1999). Share repurchases and intangible assets. *Journal of Accounting and Economics*, 28(2), 211-241.
5. Benzion, U. (1978). Investment aspect of nonproduction expenditures-empirical-test. *Journal of Economics and Business*, 30(3), 224-229.
6. Chan, L. K., Lakonishok, J., & Sougiannis, T. (2001). The stock market valuation of research and development expenditures. *The Journal of Finance*, 56(6), 2431-2456.
7. Chauvin, K. W., & Hirschey, M. (1993). Advertising, R&D expenditures and the market value of the firm. *Financial management*, 128-140.
8. Chauvin, K. W., & Hirschey, M. (1994). Goodwill, profitability, and the market value of the firm. *Journal of Accounting and Public Policy*, 13(2), 159-180.
9. Chhaochharia, V., & Grinstein, Y. (2007). Corporate governance and firm value: The impact of the 2002 governance rules. *the Journal of Finance*, 62(4), 1789-1825.
10. Clarke, D. G. (1976). Econometric measurement of the duration of advertising effect on sales. *Journal of Marketing Research*, 345-357.
11. Comanor, W. S. (1967). Market structure, product differentiation, and industrial research. *The Quarterly Journal of Economics*, 81(4), 639-657.
12. Comanor, W. S., & Wilson, T. A. (1974). Advertising and market power (No. 144). Harvard University Press.
13. Core, J. E., Guay, W. R., & Van Buskirk, A. (2003). Market valuations in the new economy: An investigation of what has changed. *Journal of Accounting and Economics*, 34(1-3), 43-67.
14. Dean, J. (1951). How much to spend on advertising. *Harvard Business Review*, 29(1), 65-74.
15. Ducoffe, R. H. (1995). How consumers assess the value of advertising. *Journal of Current Issues & Research in Advertising*, 17(1), 1-18.

16. Duffy, M. (1999). The influence of advertising on the pattern of food consumption in the UK. *International Journal of Advertising*, 18(2), 131-168.
17. Erickson, G., & Jacobson, R. (1992). Gaining comparative advantage through discretionary expenditures: The returns to R&D and advertising. *Management Science*, 38(9), 1264-1279.
18. Graham Jr, R. C., & Frankenberger, K. D. (2000). The contribution of changes in advertising expenditures to earnings and market values. *Journal of Business Research*, 50(2), 149-155.
19. Green, J. P., Stark, A. W., & Thomas, H. M. (1996). UK evidence on the market valuation of research and development expenditures. *Journal of Business Finance & Accounting*, 23(2), 191-216.
20. Han, B. H., & Manry, D. (2004). The value-relevance of R&D and advertising expenditures: Evidence from Korea. *The International Journal of Accounting*, 39(2), 155-173.
21. Hirschey, M. (1982). Intangible capital aspects of advertising and R & D expenditures. *The Journal of industrial economics*, 375-390.
22. Hirschey, M. (1985). Market structure and market value. *Journal of Business*, 89-98.
23. Hirschey, M., & Spencer, R. S. (1992). Size effects in the market valuation of fundamental factors. *Financial Analysts Journal*, 48(2), 91-95.
24. Hirschey, M., & Weygandt, J. J. (1985). Amortization policy for advertising and research and development expenditures. *Journal of Accounting Research*, 326-335.
25. Hirschey, M., & Wichern, D. W. (1984). Accounting and market-value measures of profitability: Consistency, determinants, and uses. *Journal of Business & Economic Statistics*, 2(4), 375-383.
26. Hollander Jr, S. (1949). A Rationale for Advertising Costs. *HBR*, 27, 79.
27. Hollander Jr, S. (1949). A rationale for advertising expenditures. *Harvard Business Review*, 27(1), 79-87.
28. Ittner, C. D., & Larcker, D. F. (1998). Are nonfinancial measures leading indicators of financial performance? An analysis of customer satisfaction. *Journal of accounting research*, 36, 1-35.
29. Jastram, R. W. (1955). A treatment of distributed lags in the theory of advertising expenditure. *Journal of Marketing*, 20(1), 36-46.

30. Keller, K. L., Parameswaran, M. G., & Jacob, I. (2011). Strategic brand management: Building, measuring, and managing brand equity. Pearson Education India.
31. Lambin, J. J. (1969). Measuring the profitability of advertising: An empirical study. *The Journal of Industrial Economics*, 86-103.
32. Lodish, L. M., Abraham, M. M., Livelsberger, J., Lubetkin, B., Richardson, B., & Stevens, M. E. (1995). A summary of fifty-five in-market experimental estimates of the long-term effect of TV advertising. *Marketing Science*, 14(3_supplement), G133-G140.
33. Morck, R., & Yeung, B. (1991). Why investors value multinationality. *Journal of Business*, 165-187.
34. Nijs, V. R., Dekimpe, M. G., Steenkamps, J. B. E., & Hanssens, D. M. (2001). The category-demand effects of price promotions. *Marketing science*, 20(1), 1-22.
35. Notta, O., & Oustapassidis, K. (2001). Profitability and media advertising in Greek food manufacturing industries. *Review of Industrial Organization*, 18(1), 115-126.
36. Palda, K. S. (1964). Sales Effects of Advertising-A Review of the Literature. *Journal of Advertising Research*, 4(3), 12-16.
37. Palda, K. S. (1965). The measurement of cumulative advertising effects. *The Journal of Business*, 38(2), 162-179.
38. Paton, D., & Williams, L. V. (1999). Advertising and firm performance: some new evidence from UK firms. *Economic Issues*, 4(2), 89-105.
39. Peles, Y. (1970). Amortization of advertising expenditures in the financial statements. *Journal of Accounting Research*, 128-137.
40. Peles, Y. (1971). Economies of scale in advertising beer and cigarettes. *The Journal of Business*, 44(1), 32-37.
41. Peles, Y. (1971). Rates of amortization of advertising expenditures. *Journal of Political Economy*, 79(5), 1032-1058.
42. Rosenbaum, D. I. (1993). Profit, entry and changes in concentration. *International Journal of Industrial Organization*, 11(2), 185-203.
43. Schmalensee, R. (1989). Inter-industry studies of structure and performance. *Handbook of industrial organization*, 2, 951-1009.
44. Simester, D., Hu, Y. J., Brynjolfsson, E., & Anderson, E. T. (2009). Dynamics of retail advertising: Evidence from a field experiment. *Economic Inquiry*, 47(3), 482-499.

45. Simon, C. J., & Sullivan, M. W. (1993). The measurement and determinants of brand equity: A financial approach. *Marketing science*, 12(1), 28-52.
46. Simon, J. L. (1969). The effect of advertising on liquor brand sales. *Journal of Marketing Research*, 301-313.
47. Sougiannis, T. (1994). The accounting based valuation of corporate R&D. *Accounting review*, 44-68.
48. Srinivasan, S., Pauwels, K., Silva-Risso, J., & Hanssens, D. M. (2004). Staying ahead in the innovation race: new-product introductions and relative firm value. School of Management, University of California, Los Angeles, CA.
49. Srivastava, R. K., Shervani, T. A., & Fahey, L. (1998). Market-based assets and shareholder value: A framework for analysis. *The Journal of Marketing*, 2-18.
50. Sudarsanam, P. S. (1992). Market and industry structure and corporate cost of capital. *The Journal of Industrial Economics*, 189-199.
51. Vidale, M. L., & Wolfe, H. B. (1957). An operations-research study of sales response to advertising. *Operations research*, 5(3), 370-381.
52. Weiss, L. W. (1969). Advertising, profits, and corporate taxes. *The Review of Economics and Statistics*, 421-430.
53. White, J. B., & Miles, M. P. (1996). The financial implications of advertising as an investment. *Journal of Advertising Research*, 36, 43-54.
54. Willis, M. S., & Rogers, R. T. (1998). Market share dispersion among leading firms as a determinant of advertising intensity. *Review of Industrial Organization*, 13(5), 495-508.
55. Yiannaka, A., Giannakas, K., & Tran, K. C. (2002). Medium, message and advertising effectiveness in the Greek processed meats industry. *Applied Economics*, 34(14), 1757-1763.

An Insight of In-flight Connectivity: Current Scenario and way ahead in Indian Aviation Sector

Deepti Kiran

Assistant Professor
Institute of Chartered Financial
Analyst of India University
(ICFAI)
Dehradun, Uttarakhand, India.

Itisha Sharma

Research Scholar
Institute of Chartered Financial
Analyst of India University
(ICFAI)
Dehradun, Uttarakhand, India.

Abstract

The generation today is glued to the mobile sets, and we cannot imagine ourselves without Wi-Fi or 4G/LTE. But while traveling via flight, we have to deprive ourselves of this advantage as we put our phones on airplane mode, which is the gap addressed by In-Flight connectivity (IFC). In-flight connectivity or IFC is simply providing the internet and entertainment services while you are on the flight. The Indian government has already given a green signal, and many industry stalwarts have started working on making this facility available to us. IFC is a step towards door to door connectivity i.e. connectivity from home/office to airport to flight to the destination. IFC will also help in optimizing the maintenance, fuel efficiency, etc in the aircraft. This paper aims to understand the concept of IFC, the regulatory framework, and its future in context of the Indian aviation market. The Indian aviation market is the fastest-growing aviation in the world and is expected to be the second-largest market by 2038. The IFC can give an airline an edge over its competitors and ancillary revenue options. The research is secondary, and the data has been collected from various sources like websites, research papers, and conference proceedings.

Keywords

In-flight connectivity (IFC), In-flight entertainment (IFE), Indian Aviation, Internet on board.

1. Introduction

Before the introduction of In-flight connectivity (IFC), airlines operated manually by referring to various navigational and aeronautical charts, flight checklists, log books and operating manuals which were aircraft and flight crew specific. But the constant decrease in cost of computing and size of portable devices coupled with IP standard has paved the path for Connected Aircrafts ("The evolution of connected aircraft - Gogo", n.d.).

In-flight connectivity is simply digitisation of cabin crew's day-to-day processes and it strengthens commercial offerings to customers. It allows passengers to surf internet, browse websites, watch movies, share messages, reply emails, do video chats etc. along with ensuring better connectivity within the flight cabin.

The world has now become internet of things where everything that can feature an IP address (cell phones, television, coffee maker, head phones, lights, etc.) can be connected to internet with an on and off button. With this, aircrafts can seamlessly communicate with ground, remaining fleet, and other connected systems.

2. Objective of the Study

This paper will contribute to understanding the concept of In-flight connectivity (IFC) and its basic working. The paper also deals with the Indian regulatory framework and future of IFC in Indian context.

3. Research Methodology

Extensive literature review of news articles, research work (by Gogo, Mortar Intelligence etc.) were done.

4. Review of Literature

4.1 Concept of IFC

According to the global in-flight connectivity survey by Inmarsat (a British satellite telecommunication company) in August 2018, 78 percent of respondents considered Wi-Fi as fundamental to daily life and 87 percent of business travellers would use internet on board to work. (Inmarsat, 2018). Total number of internet users in India is 566 million, which is the second highest in the world after China. Out of the total internet users in India, 87 percent are regular users and 97 percent of the regular users surf internet on mobile phones ("Internet

users in India to reach 627 million by 2019-end: Kantar ICUBE 2018 Report - Exchange4media", 2019). The Indian users spend more time than the world's average in using internet (Kemp, 2019).

In-flight connectivity (IFC) gives an advantage to passengers of staying connected by browsing internet, surf websites, video calling, sending emails and messages etc.

It is not restricted to passenger services only and will also help in improving the entire aircraft communication experience by ensuring sharing of real-time in-flight performance data like fuel consumption, engine health, wing conditions etc. which will reduce aircraft maintenance time by providing better maintenance schedules. Therefore, a connected aircraft will have all the crew applications, aircraft monitoring systems, electronic flight bag, safety services and entertainment devices like laptop, tablet, seatback screens and cell phones connected to the internet allowing sharing of information/data in real time basis (BELLAMY III, n.d.). There are four major components of connected airlines which are explained below (Gogo, 2015).

Table 1: Components of Connected Airlines

Component	Benefit
In-Flight Services	<ul style="list-style-type: none">• Equip the crew members with customized information about passengers like meal preferences, tailored entertainment packages• Source of ancillary revenue• Coordination with ground handling team
Flight Operations	<ul style="list-style-type: none">• Connected Electronics Flight Bags allows exchange of real time information which can be used for the flight• Fuel savings and minimising delays• Turbulences can be mapped which allows safety and comfort of passengers• Automated reporting of aircraft
Maintenance	<ul style="list-style-type: none">• Maintenance needs can be predicted• Allow paperless documentations
Aircraft Systems	<ul style="list-style-type: none">• Ensure Air craft Health Monitoring on real time basis

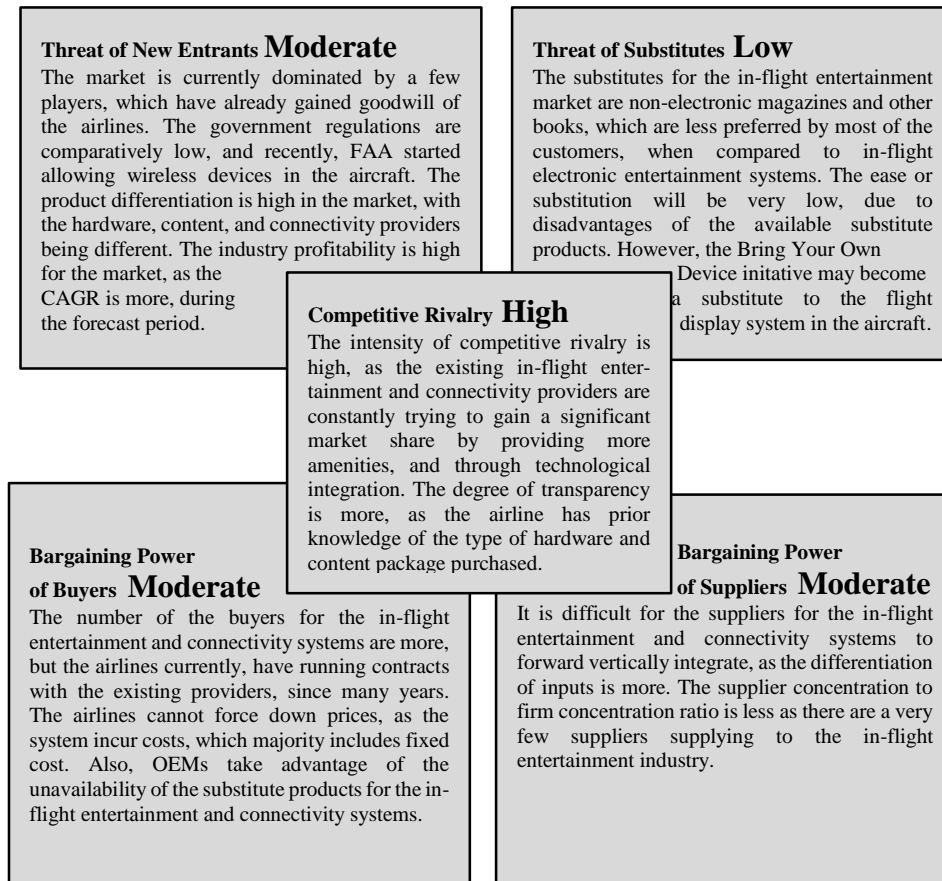


Figure 1: Porter's Five Forces Analysis of IFC Market

Source: Mordor Intelligence, 2019

IFC can help the airlines in getting demand and competitive advantage, opportunity to earn ancillary revenue and increase the fleet efficiency. Currently, the Department of Telecommunication (DoT) has allowed only Indian Space Research Organisation (ISRO) to provide satellite bandwidth and this has created a monopoly which will affect the prices and the airlines have to evaluate the pros and cons ("3 telecommunications companies have applied for In-Flight Connectivity - Live from a Lounge", 2019).

4.2 How IFC works?

Internet on flights is different from the existing public Wi-Fi connections available at home, hotels, railway stations etc. For this, geo-stationary satellites are used which are also used for weather

forecasts and TV signals. The aircraft can be connected in two ways – Air To Ground (ATG) and Satellites. In ATG, the signals from satellites are first received at receivers on ground and then transmitted to the antennas on airlines. In the latter case, the satellites directly send signals to antennas on airline which ensures connectivity irrespective of the flight is over land or water. (Ahaskar, 2018).

4.3 Indian Regulatory Framework

The Department of Telecommunication (DoT) has issued the Flight and Maritime Connectivity Rules (FMC) on 14th December 2018 and thereby allowing airlines (both Indian and International) and shipping companies to partner with telecom companies and provide voice and data services. FMC defines the applicability, eligibility, validity, restrictions and other regulatory provisions for In-flight and Maritime Connectivity (IFMC) (Ministry of Communication (DoT), 2018). IFC is expected to be a market of \$130 billion by 2035. Currently there are 83 airlines providing internet on board but the services are yet to be launched in India (Joshi, 2018). Licenses to Reliance Jio, BSNL, Bharti Airtel, Hughes India and Tatanet Services are already in process (Economic Times, 2019).

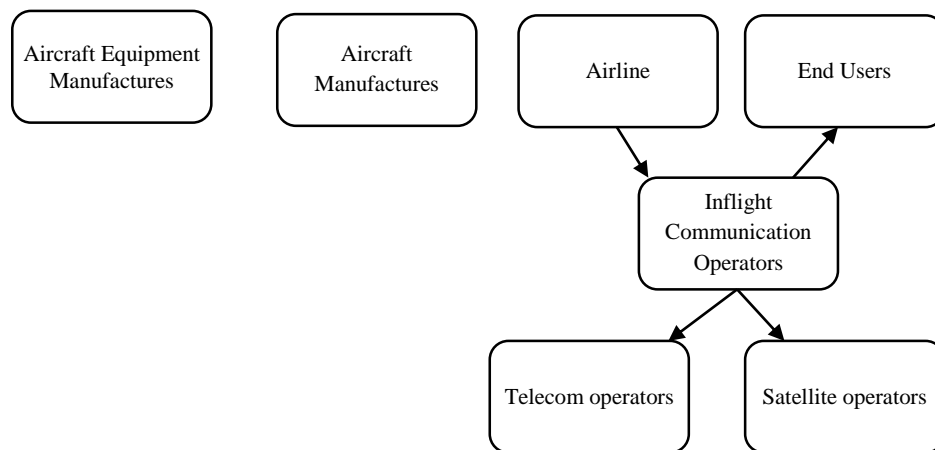


Figure 2: In-flight Connectivity Value Chain

Source: (El Ayoubi et. al., 2016)

4.4 Future of IFC

The introduction of IFC is uncertain in India as the government is still working on adding new rules and regulations to the Aircraft Act. The Flight and Maritime Connectivity Rules have allowed telecom operators to apply for licenses which have been approved now. Even the airlines are perplexed whether to install the wi-fi setup in the old aircrafts or not as it will only add up to the cost (Bailey, 2019).

5. Conclusion

In-Flight Connectivity can be beneficial to (2019):

- Aircraft: in improving communication with Air Traffic Controller (ATC) and Airline Operation Centre
- Airlines: in being more effective and efficient in ensuring smoother customer experience at lower costs
- Airports: in getting more precise and accurate information about aircrafts and passengers
- Air Traffic Management in delivering optimum service

The aircrafts will become nodes (connection points) which are capable of sharing information/ data with other aircrafts and ground handling staff at speeds that current Aircraft Communications Addressing and Reporting System (ACARS) and Aircraft Condition Monitoring System (ACMS) cannot (BELLAMY III, n.d.). Considering the popularity and demand of the services, it can be an easy, fast and scalable mode of reaching out to a large base of users. IFC can be a source of ancillary revenue to the airlines. Airlines can also benefit by becoming a marketing and promotional partner to third parties. India, being the fastest growing aviation industry in the world has a huge scope for the same.

6. References

1. Ahaskar, A. (2018). How Wi-Fi on airplanes works and why it is expensive yet slow. Livemint. Retrieved from <https://www.livemint.com/Technology/McLxVVqf3kWcpK5bZd98jN/How-WiFi-on-airplanes-works-and-why-it-is-expensive-yet-slo.html>
2. BELLAMY III, W. The Connected Aircraft: Beyond Passenger Entertainment and Into Flight Operations. Retrieved 2 October 2019, from <http://interactive.avionictoday.com/the-connected-aircraft/>

3. Economic Times. (2019). Reliance Jio applies for in-flight connectivity licence to DoT: Sources. Retrieved from <https://economictimes.indiatimes.com/tech/internet/reliance-jio-applies-for-in-flight-connectivity-licence-to-dot-sources/articleshow/68-903082.cms?from=mdr>
4. El Ayoubi, S., Jeux, S., Agyapong, P., Singh, S., Qi, Y., & Schotten, H. et al. (2016). Refined scenarios and requirements, consolidated use cases, and qualitative techno-economic feasibility assessment. Retrieved from https://pdfs.semanticscholar.org/24ca/c7e6e7937063fe265d290fe45cbe6f7a0a03.pdf?_ga=2.46273184.643998079.1570034145-1098092395.1570034145
5. Gogo. (2015). Gogo Whitepaper: Building the Case for the Connected Airline. Retrieved from <http://concourse.gogoair.com/gogo-whitepaper-building-the-case-for-the-connected-aircraft/>
6. Inmarsat. (2018). 2018 Inmarsat Inflight Connectivity Survey – Global Whitepaper. Retrieved from https://www.inmarsat.com/aviation/commercial-aviation/in-flight-connectivity-survey/#gf_110
7. Internet users in India to reach 627 million by 2019-end: Kantar ICUBE 2018 Report - Exchange4media. (2019). Retrieved 16 September 2019, from <https://www.exchange4media.com/digital-news/566-million-internet-users-in-india-18-annual-growth-kantar-icube-2018-report-95137.html>
8. Joshi, H. (2018). Can in-flight connectivity, a \$2-3 billion opportunity, take off in India?. Financial Express. Retrieved from <https://www.financialexpress.com/opinion/can-in-flight-connectivity-a-2-3-billion-opportunity-take-off-in-india/1361566/>
9. Kemp, S. (2019). Retrieved from <https://datareportal.com/reports/digital-2019-global-digital-overview>
10. Ministry of Communication (DoT). (2018). Flight and Maritime Connectivity Rules, 2018. Retrieved from http://dot.gov.in/sites/default/files/2018_12_17%20AS%20IFMC_1.pdf?download=1

11. Mordor Intelligence. (2019). In-Flight Entertainment And Connectivity Market (2019 -2024).
12. The evolution of connected aircraft - Gogo. Retrieved 30 September 2019, from <https://www.gogoair.com/learning-center/evolution-connected-aircraft/>
13. (2019). In Connected Aircraft Asia Summit 2019 (India). New Delhi.
14. 3 Telcos have applied for In-Flight Connectivity - Live from a Lounge. (2019). Retrieved 2 October 2019, from <https://livefromalounge.boardingarea.com/2019/01/21/inflight-wifi-in-india-getting-setup/>

An Ethical Analysis of a Conflict in Seller-Buyer Relationship in the Marketplace: An Aristotelian Perspective

Kumar Neeraj Sachdev

Associate Professor

Department of Humanities and Social Sciences

Birla Institute of Technology and Science (BITS)

Pilani Campus, Pilani, Rajasthan, India.

Abstract

The overlapping concerns of business and professions are increasingly becoming commonplace because more and more business considerations pertaining to for-profit are entering into the working of professionals and professional organizations. Earlier business considerations in the practice of professions were confined to, for example, engineering and media organizations but with the passage of time such considerations have also entered into the provision of certain medical facilities and educational institutions. With the result, the possibilities of ethical conflicts in the working of businesses and professional organizations are not only on the rise but appearing to be more and more a cause for problem-situations. The reason being the primary ethical obligation in business is owed to the owner or the shareholders whereas in professional organizations such an ethical obligation is owed to the client or the community. The difference in primary ethical obligations leads to various possibilities of ethical conflicts.

One of various ethical conflicts may arise in the relation between a professional salesperson and the buyer in the marketplace. The ethical conflict in the relation may arise particularly when the professional salesperson is well expected to share the required information about the product or service and provide an expert advice to the client or the buyer but at the same time he may be unsure about the extent of information and the manner of advice that he ought to provide to the buyer. I state and analyze the possibility and nature of such an ethical conflict in the working of professional salesperson in the course of professional-client or seller-buyer relationship from a philosophical perspective that is to say from an Aristotelian virtue-theoretic approach. I argue and suggest that the salesperson may overcome such an ethical conflict by way of adopting a virtue-centric moderate approach in the disclosure of information and in the manner of giving an advice to the buyer.

Keywords

Business, Professions, Ethical conflicts, Seller-buyer Relationship, Aristotelian Virtue-theoretic approach.

1. Introductory Remarks

Historically speaking, business as an activity of buying and selling goods or services has come into existence much before profession, which pertains to acquiring and providing an expert advice rather than things that is vital to the organized functioning of a society. (Bayles, 2003, p. 57) Business as an activity has traditionally appeared in the exchange of goods or services for profit. And the profession as a practice of giving an expert advice, to begin with, in the field of medicine or law, had started in an informal way and that too by learning about such a practice under the guidance of an experienced professional. With the passage of time, business has turned out to be a complex set of activities in providing goods or services that are centered on making more and more money even though government approved regulations at national and international level of such a complex set of business activities regularly keep track of truth and fairness in the exchange of goods or services.

Correspondingly, profession, medicine or law for example, appears to be distinct and advanced than a mere occupation. The reason being every profession is an occupation but not the other way round because profession as of today involves intellectually dominant extensive training with an orientation to provide an important service in a society. The credibility of extensive training is increasingly being judged by way of certificates, diplomas, degrees that happen to convey approvals and assessments of professionals and government and non-government agencies in the field. Moreover, a professional during the course of practice gets to learn about the objectives of his or her profession, for an example, during the practice of law a lawyer should be using his acquired expertise to make use of law and facts but not at the cost of speaking the truth in the court of law. And alongside, he gets to realize that to achieve such an objective he should retain his or her autonomy particularly in the delivery of an expert advice to the client. (Ibid.)

In view of the above, I shall inquire into the overlapping concerns of business and professions to understand the nature and resolution of an ethical conflict in seller-buyer relationship. I propose to look for the resolution of an ethical conflict in virtue-centric approach of a business professional particularly when he as a professional sales person interacts with his client as a buyer.

2. Assessing Overlapping Concerns of Business and Professions

Over a period of time, it has been observed that business and professions have come close in their areas of operations. In fact, there has been a professionalization of businesses on the one hand and an increasing business orientation in the practice of professions on the other. It is no longer possible to run businesses in a simplistic fashion as it requires the professional training to understand and manage complex business activities particularly in the areas of, just to name the two, human resource management and marketing. The professions on the other side have undergone the change into running as businesses as for instance engineering and media and in the ever expanding list of such changes in professions health and education have also joined and being run as businesses in many parts of the world. (Rowan and Zinaich, 2003, pp. 166-167)

With the result, we get to see many overlapping concerns of business and professions. The concern of hiring a person in the running of an automobile company for instance brings in the need to look for a person who has acquired intellectually dominant extensive training in the relevant field. If the field is electrical engineering then the person has to have some specialized knowledge and skill in the area and if the field is sales then accordingly the person has to have some professional training in the field of sales.

In a similar vein, a professional is well expected to learn the business skills in order to work as an employee in a business company. He has to learn to appreciate the need to generate profits, which is the primary concern of running a business even though providing goods or services happens to be in the forefront as the medium of generating profits. It may be noted in this regard that a professional may directly acquire business oriented extensive training, for example, in human resource management

or in marketing and be accordingly given the work assignment in the job. Or else, a professional may work in a hospital or educational institute as a doctor or as a faculty and still he may additionally be given some professional responsibility of administration in human resource management or marketing, for example, periodic assessment of employees for promotion or admission of new students. (Bayles, 2003, pp. 58-59)

3. Enumerating Possibilities of Ethical Conflicts in Business and Professions

In this scenario of overlapping concerns of business and professions the possibilities of ethical conflicts can always arise. The possibilities of ethical conflicts emerge from different sets of ethical obligations of business and professions. In case of business, it is well understood that the ethical obligations of all those who are involved in the business activities are owed to shareholders or owners. And in the practice of professions, the ethical obligations of professionals are owed to clients and community. This is one significant difference in the sets of ethical obligations, which brings to the fore the possibilities of ethical conflicts in the working of professionals in business organizations.

It is immaterial whether a professional is working as a professional sales person as a matter of primary work assignment in a business company or else he is employed as a doctor in a hospital, which is a for-profit business concern and in the hospital he is additionally given the work assignment of promoting the image and working of a hospital. The reason being, if at all one experiences a moral conflict in a given situation, for example, the conflict in sharing of information in a problem situation of seller and buyer, the nature of moral conflict or the experience of moral conflict will remain the same. Since, it is clear that either the professional in a given problem situation is engaged in the role of a seller as a matter of primary work assignment or he is engaged as a seller that happens to be an additional work assignment for him. The fact of the matter remains that he is in the problem situation as a seller.

The point of conflict that comes to the fore is that a person involved in any typical business activity as for instance selling an insurance policy or a music amplifier predictably looks after the profit margins of

shareholders or the owner in the company and on the other hand as a professional he is well expected to look after the welfare of his clients or community in general.

4. Understanding Seller-Buyer Relationship

There are a lot many business activities that go into the making of successful market transaction of goods and services in exchange for money. It goes without saying that marketing of goods and services is central to a whole lot of business activities because “marketing broadly conceived includes making decisions about what products or services to put on the market, who are the potential customers for these goods, how to reach the target markets and induce them to buy, how the price the product or service to make it attractive to these customers, and how to deliver the goods physically to the ultimate consumers.” (Boatright, Smith and Patra, 2018, p. 280) The marketing-oriented business activities thus are spread over critical areas of business namely, product, price, promotion and placement. Some thinkers even go to the extent of maintaining that marketing begins right at the stage of conceptualization of product itself.

This implies that the fundamental importance of marketing in a business company puts forth many key areas of successful market transaction of goods and services. The two parties in the market transaction that is to say the seller and the buyer enter into this temporarily established relation in the hope that both will be gaining something of value and the exchange is dependent upon not only the hope for value but also upon the readiness to opt for either product or money that one happens to assigns more value in the given context. A seller opts for money and a buyer opts for a music amplifier, for example. Both happen to accept the deal and the market transaction successfully takes place.

However, the market transaction in a simple exchange of product and money as mentioned above depends upon not only economic considerations but ethical considerations as well. Some of these ethical considerations assume the scale of relationship that may hold between a seller and a buyer. One extreme side of the scale of seller-buyer relationship may speak about one of traditional doctrines in business practices – “let the buyer beware – caveat emptor.” It states that the buyer has to be on the guard that is to say he should be well-informed about the

product before he enters into the seller-buyer relation to buy. The buyer is under an obligation to know about details of the product and he should also know that the seller may not inform him adequately about the product or may even try to mislead him. (Boatright, Smith and Patra, 2018, p. 281) This sort of business practice works fine so long as both the seller and the buyer are well aware of the rules of this practice and both freely enter into the seller-buyer relationship. (Ebejer and Morden, 2003, p. 181)

The other extreme side of the scale of seller-buyer relationship brings to the fore another traditional doctrine in business practices – “let the seller beware – caveat venditor.” Under this doctrine, the seller is under an obligation to share the information with the buyer about the product. Such an obligation assumes significance particularly when it is well assumed that the seller has better access to the information and the expertise about the product than the buyer himself. And it is also true that the seller can acquire this information at a cheaper cost than the buyer. (Boatright, Smith and Patra, 2018, p. 281) “Let the seller beware – caveat venditor” is basically conceived of on the basis of government paternalism.

This doctrine informally weighs in the virtues of seller paternalism, which are based on the protective stance of the seller. Herein, the seller because of his superior knowledge about the product plays a protective role and keeps in mind the well-being of the buyer. He happens to safeguard the interests of the buyer during the transaction. He doesn't even allow the buyer to buy some product if he happens to perceive that the buyer is making a wrong choice in the given context. He infringes upon the buyer's liberty of choice for the sake of buyer himself. (Ibid.) As for instance, a seller refuses to sell a music amplifier in his shop to a buyer despite the fact that he is willing to buy it because he notices a fault in the music amplifier. He asks him to come back to his shop after a week to buy the music amplifier of the same company or else he may go to other shop in the market to buy the same product. This instance of seller's behavior falls in the category of seller paternalism.

It has been observed that these two extremes in the scale of seller-buyer relationship always remain in the viewpoint of a market transaction. The seller or the buyer though in real business practices may not be interacting in such a way that they touch upon the extreme point of scale either in the stance “let the buyer beware” or in the stance “let the seller

beware.” Because, in real world, both the seller and the buyer have good economic reasons to either become informed in case of a buyer or to provide information as a seller about the product. (Boatright, Smith and Patra, 2018, p. 281)

Alongside this seller-buyer perspective, some thinkers argue for a buyer-initiated approach in place of a seller-initiated approach because “by handing over the power of information revelation to the customer, the firm ensures that she will inquire about the product's features in a way to ensure that it is of high quality. High-quality solutions are, of course, better for the customer as well.” (Bhardwaj et al., 2008, p. 1105) And in the course of discussion pertaining to conflict management strategies in seller-buyer relationship Bradford and Weitz contend that “...conflict management approaches signal the salesperson’s consideration of the buyer’s needs and a willingness to consider those needs in resolving conflicts. Further, the use of these approaches indicates a willingness to work together and a respect for the buyer's perspective. By accentuating the buyer's perspective and allowing business to progress in a manner consistent with the goals of the buyer, the use of these approaches can divert concerns away from the interpersonal incompatibility.” (2009, p. 28)

The point of contention is to look for an ethically agreeable point of acceptance in this broad scale of seller-buyer relationship. I wish to maintain that an ethically agreeable point of acceptance will help both the seller and the buyer to overcome an ethical conflict in the transaction of goods and services for profit. We may, I propose, go in the direction of an ethically agreeable point of acceptance by way of identifying an example of an ethical conflict in the seller-buyer relationship and arguing for ethically justifiable ways and means to overcome such an ethical conflict.

5. Identifying an Ethical Conflict in Seller-Buyer Relationship

It has been observed that the conservative professional considered seller paternalism that runs even at the cost of depriving the buyer his liberty of choice his justified stance keeping in view his superior knowledge in the given situation. A doctor for instance thought that it is his prerogative

to decide whether the patient's appendix needs to be removed. But modern professional practices acknowledge the importance of patient's informed consent.

The modern viewpoint demands that the patient should be informed about the available treatment options so that the patient himself can make the decision. This limited version of paternalism violates the freedom of buyer only to the extent that the buyer is not allowed to make uninformed choice in the given situation particularly when the ignorance of buyer can harm him in the bargain. The seller behaves in a parent-like manner but still he doesn't himself make a choice in place of the buyer. He lets the buyer to choose but before the buyer makes a choice he makes all efforts to inform the buyer about the product or service. He keeps in mind the need of the buyer and explains the qualities of the product or service so that the buyer can make a correct judgment whether the product or service will meet his need.

We may consider an example: A man approaches a professional sales person in an authorized agency to complain that his Laptop has stopped working and he asks him to replace the motherboard of his Laptop. The sales person in the course of examination finds that the Laptop motherboard is fine and Power IC of Laptop motherboard needs replacement. The sales person has three options. First, he can replace Laptop motherboard and collect five thousand and five hundred rupees. Second, he can talk to the customer and refuse to do as asked for but informs that all that is needed is to replace Power IC of Laptop motherboard and collect one thousand rupees. Third, the sales person explains the whole situation to the customer with all the relevant information about the product and his expert advice and then lets him decide whether he wants him to replace the whole Laptop motherboard or only the Power IC of Laptop motherboard.

The first option that anyway a lot many sales persons will follow implies that the customer himself has to be aware or in other words as mentioned above "let the buyer beware". The second option appears to be paternalistic in the conservative sense wherein the sales person deprives the customer of his liberty to make a choice himself. The third option goes in favor of an ethically agreeable point of acceptance that strikes the balance somewhere in between the first option and the second option. The sales person should inform the customer all the relevant facts about the Laptop motherboard and thereafter he should let the customer make

an informed choice. If the customer is rich and wants to replace the Laptop motherboard anyhow, then he may be allowed to opt for first option or else he may opt for the second option. The fact of the matter is that the sales person ought to consider the third option as an ethically correct option in the course of his understanding of professional responsibility.

However, it may be noted that the sales person happens to be under no obligation to reveal to the buyer that the same Laptop motherboard is available across the road in other shop for five thousand rupees! This may appear to be fourth option but not an appropriate option. The sales person as an expert is expected to share all the relevant information about the product with the buyer and the cost of product is an external piece of information that any non-expert can find out on his own. (Ebejer and Morden, 2003, p. 182)

6. Arguing for Moral Justification of Conflict Resolution

At this stage, a question may arise regarding the moral justification of third option that the sales person happens to make in the given situation of seller-buyer relationship. I wish to consider Aristotelian Virtue-theoretic approach in the way of moral justification. The sales person, I maintain, acts on the strength of his virtues that he has cultivated to adhere to the ideal of professional responsibility. The ideal of professional responsibility is one of the ideals that he wants to fulfill as a good sales person and his understanding of a good sales person happens to follow from his understanding of a good human being. (Rowan and Zinaich, 2003, pp. 43-44)

A good human being, according to Aristotle, is a being who is able to act rationally, which is the distinguishing function of a human being. The distinguishing function of acting rationally defines the criterion of a fulfilling human life in the world - a typical human life that is geared towards realizing the telos or purpose of being human. The telos or purpose of a human life in Aristotle's viewpoint is conceived of as eudaimonia or happiness. He contends that "the good for man is an activity of the soul in accordance with virtue." (Aristotle, 1976, p. 16) The latter part implies that acting rationally is the distinguishing feature of virtues because virtues are human excellences or dispositions "to choose that is in a mean relative to us and determined by the right

reasoning of the wise man.” (Urmson, 1990, p. 36) A human being, for example, is able to cultivate the virtue of fairness on the strength of his exercise of reason in the world. He practices to act and feel in the right way in order to be fair. That is to say, he practices to act and feel neither in excess nor in deficiency. He knows that acting or feeling in excess or in deficiency is a characteristic of being irrational and will result in the cultivation of vices. Norman maintains in his articulation of Aristotelian virtue-theoretic approach that, “Just as a good sculptor or a good carpenter is one who succeeds in performing the proper function of a sculptor or carpenter, so also we can determine what a good human life is by looking for the function of a human being.” (Norman, 1998, p. 32). In fact, excelling in living a life of a human being complements excelling in living a life of a sculptor or a life of a carpenter. The reason being living a virtuous human life gets translated into living a virtuous sculptor’s life, for example. In this regard, Rowan and Zinaich contend that,

“Aristotle was concerned primarily with the human function, but in the professions, we can carry the idea forward and say that a morally good doctor, for instance, is one who performs his function well as a doctor one must first fulfill one’s function as a person before one can understand and fulfill one’s function as a certain professional; things cannot work the other way around.” (2003, p. 44)

In a similar vein, a good professional sales person cultivates the virtue of fairness for the sake of realizing the ideal of professional responsibility in a seller-buyer relationship. The reason being, “Fairness or justice is a central concern because it is a basic moral requirement of any market transaction—and the result of successful marketing is always a market transaction.” (Boatright, Smith and Patra, 2018, p. 281) He does realize in the example given above that as far as rationally identifying virtue of fairness in his actions and feelings is concerned, the first option is ethically a deficient stance and can be categorized as a vice and the second option is ethically an excessive stance and can again be categorized as a vice. This is why; he happens to opt for third option and lets the buyer decide himself because he understands that this option can be ethically classified as a virtue. He knows about his true position as a rational being that this stance goes well in the way of putting across an ethically agreeable point of acceptance in seller-buyer relationship.

As far as fourth option is concerned the sales person considers this option alongside second option that is ethically an excessive stance. In other words, he gets to realize that such a stance reflects an excessively protective parent-like stance and comes in the way of buyer's freedom to make an informed rational consumer choice in the matter.

7. Concluding Remarks

It has been observed that with the passage of time the concerns of business and professions are overlapping as professional practices are required for in the running of businesses and business practices are entering into practices of professions. Alongside, since people in both business and professions owe a different set of ethical obligations to shareholders and clients respectively, the possibility of an ethical conflict is always open. It is inferred on the basis of an ethical conflict in seller-buyer relationship in a marketing transaction that the professional sales person ought to consider the ethically agreeable point of acceptance while sharing information and his expert advice about a product or service with the buyer. The professional sales person may avoid both the extremes of not at all sharing information and his expert advice on the one hand and not permitting the buyer to make a rational consumer choice on the other. Instead, the professional sales person as a virtuous sales person while taking a clue from his understanding of a good human being acts in a fair manner and adequately shares information and his expert advice with the buyer and thereby helps him to make his own rational consumer choice.

8. References

1. Aristotle (1976). *Nicomachean Ethics*, Translated by J.A.K. Thomson. London, UK: Penguin Books.
2. Bayles, Michael D. (2003). *What is a Profession?* Edited by John Rowan, and Samuel Zinaich, Jr. Belmont, CA, and USA: Wadsworth, 56-62.
3. Bhardwaj, P., Chen, Y., & Godes, D. (2008). Buyer-Initiated vs. Seller-Initiated Information Revelation. *Management Science*, 54(6), 1104-1114.

4. Boatright, John R., Smith, Jeffery D. & Patra, Bibhu Prasan (2018). *Ethics and the Conduct of Business*. Pearson Education. Eighth Edition, Indian Edition.
5. Bradford, K., & Weitz, B. (2009). Salespersons' Management of Conflict in Buyer-Seller Relationships. *The Journal of Personal Selling and Sales Management*, 29(1), 25-42.
6. Ebejer, James M. and Morden, Michael J. (2003). Paternalism in the Marketplace: Should a Salesman Be His Buyer's Keeper? Edited by John Rowan, and Samuel Zinaich, Jr., Belmont, CA, and USA: Wadsworth, 180-183.
7. Norman, Richard (1998). *The Moral Philosophers: An Introduction to Ethics*. Second Edition, Oxford: Oxford University Press.
8. Rowan, John and Zinaich, Samuel, Jr. (2003). *Ethics for the Professions*. Belmont, CA, USA: Wadsworth.
9. Singer, Peter (Ed.), (1993). *A Companion to Ethics*. Oxford, UK: Blackwell Publishers.
10. Urmson, J.O. (1990). Aristotle on Excellence of Character. *New Blackfriars*, 71 (834), 33-37. Retrieved from <http://www.jstor.org/stable/43248477>.

Is Fierce Competition a Reason for Performance Plunge of Mobile Telephony Sector in India

Kishore Kumar Morya

Associate Professor
School of Management
GD Goenka University
Gurgaoun, Haryana, India.

Ajit Shankar

Research Scholar
School of Management
GD Goenka University
Gurgaoun, Haryana, India.

Abstract

The number of mobile telephony service providers which was fifteen at its peak (in 2009-2012) has come down to just four creating the services a virtual oligopoly. The annual subscriber growth rate has declined considerably. Similarly, the service price, the average revenue per user (ARPU) as well as the adjusted gross revenue has been exhibiting a consistent decline. Three out of four wireless telecom companies are running in net losses and their operational margins have declined to unsustainable levels. A few companies like Aircel, Sistema, RComm, Quadrant, TTSL, TTML, Uninor, Videocon etc. have shut down because of non-feasibility. Idea & Vodaphone have merged their business to face stiff competition in the sector but their profitability does not show any remarkable change. Very often, the blame for this situation is pinned on the new entrant in mobile telephony space. By comparing various performance metrics pertaining to India to that of the Globe. This paper examines whether this performance plunge of Indian operators is a global phenomenon, purely due to saturation of telephone density or it is due to high intensity of competition and/or anti-competitive practises being adopted by any player in the sector. This examination concludes that not only the present service pricing has become lower than the marginal costs but the ratio of ARPU and GDP in comparable countries has also become lower than the trend in comparable markets because of the intensity of competition in the sector.

Keywords

Competition, Mobile telephony, ARPU, Sustainability, Profitability and Subscriber growth.

1. Introduction

Analysis of Competition in wireless telecommunications arena in general becomes typical in view of continual and dynamic technological changes (2G to 3G to 4G to 5G etc.), regulated competition and pricing, impossibility of storage of service, network effects and interconnection between competing service providers.

Effective competition in an oligopolistic environment typically means non-continuance of a price giving excess profits thereby gradually reducing the product or service prices to marginal costs. Paradoxically, the essence of effective competition is lost even when competitive pressures lead to the prices going below the marginal costs as the same leads to elimination of the competitor who blinks first and increasing market concentration. RJIO in India changed the price dynamics of mobile telephony by charging only data and not the voice as a strategic pricing decision to garner increased customer share. This led to reduction in tariffs by other operators also leading to reduction in ARPU and losses by the competitors Vodafone Idea, Bharti Airtel and BSNL. In fact, BSNL has been a typical bureaucratic organization showing little dynamism in responding to market and is expected to remain a fringe player. Hence, closure of one of the other two or even merger of the two will lead to a duopoly which may not be in the long-term interests of the consumers. Unfortunately, in absence of any floor price of services, the closure of one or more players cannot be ruled out. Till just two to three years back, growth of mobile Telephony in India was considered a show-case success story. However, in view of the aforesaid ARPU reduction and a few related developments like closure of a number of mobile telephony service providers and an unusually disproportionate debt burden on the major mobile operators, serious questions are being raised about the health and sustainability of this business in India. Merger of Vodafone & Idea Cellular does not appear to have improved their performance. The subscriber market share of different operators is shown in (Annexure B, Fig.11). Which shows the increasing dominance of the new entrant Reliance Jio.

The basic objective of all business entities is to create value for its stakeholders. For mobile telephony service operators, such value accretion may happen due to increase of subscriber base, increase in per minute service usage charges and overall revenue; and/or increase in operational profits. Incidentally, in Indian mobile telephony sector,

operational revenue and profitability of three out of four surviving operators has been declining (Fig.1) due to declining revenue per minute of usage and declining average revenue per user (ARPU) (Appendix-A, Fig.9). The subscriber growth rate has declined (Appendix-A, Fig.10) considerably. A clear mismatch is visible in the growth rates of AGR and that of subscriber numbers (Fig. 2). On top of it, a recent Supreme Court judgement related to AGR has further adverse implications on this sector which already has an existing total debt in excess of INR 4050 billion.

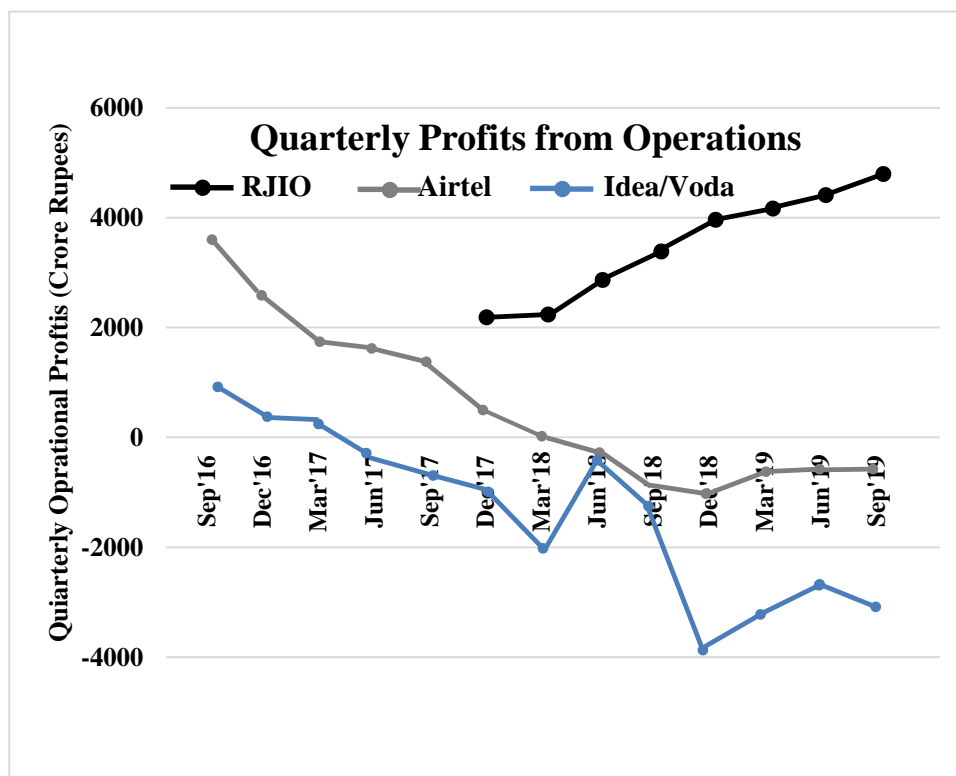


Figure 1: Operational Profit of Various Indian Wireless Companies. BSNL's operational margin from wireless services has not been plotted as it is difficult to reliably calculate as a lot of resources are shared with wireline business.

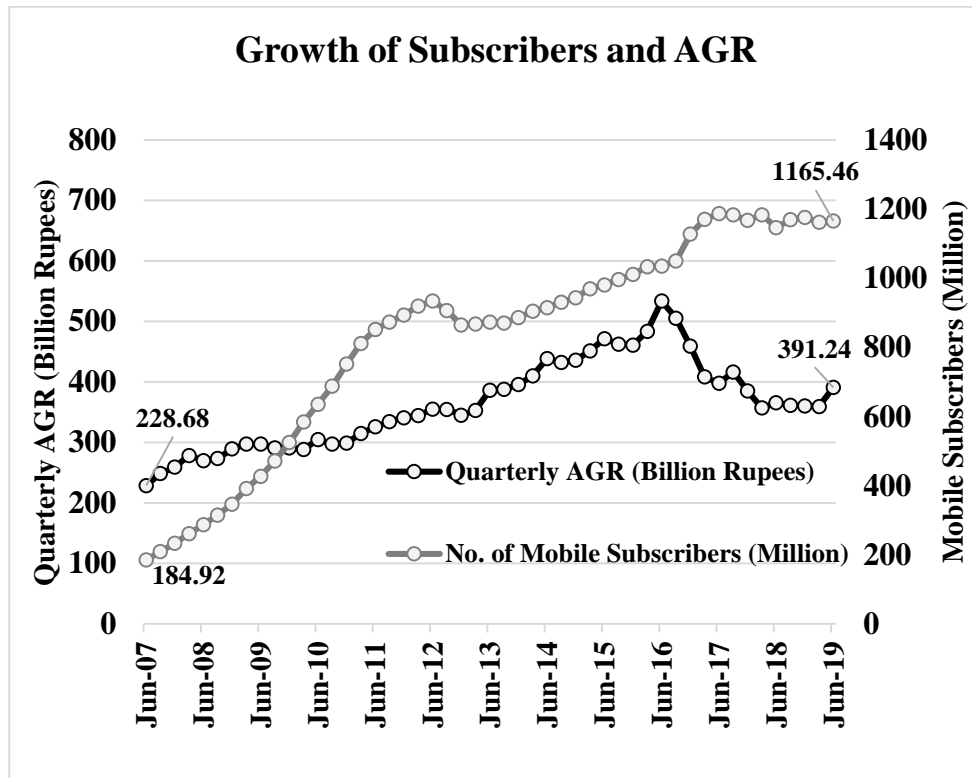


Figure 2: Growth of Subscribers & AGR, in a decade from June 2009. The subscriber number has grown 2.73 times while the AGR has grown 1.32 times only.

Hence, there has been a continuous erosion in value of almost all operators leading to write off of the investments made by them. This erosion in value is what has been termed as “performance plunge”. Besides others, the performance plunge can also be viewed through a comparison with some parameters globally.

It is noted that mobile telephony service products of different competitors are quite homogeneous. Additionally, there is near absence of price difference between operators in view of quick imitation of price reductions by rivals. The measurement of cross price elasticity for use in measuring intensity of competition, accordingly, becomes quite difficult. This paper tries to assess the competitive intensity and its contributions, if any to the troubles of the industry by analysing certain symptoms depicting the health of companies and the sector.

2. Review of Literature

D'Aveni (1998) has enlisted four driving forces causing hypercompetition in various sectors including telecommunications. These driving forces are consumers expecting higher value for money, technology causing rapid changes, falling entry barriers and use of deep pockets. He makes a clear distinction between perfect competition and hypercompetition. Perfect competition makes the competitors similar to each other by eroding all competitive advantages and gradually wiping out everyone's profitability. Hypercompetition is a constant struggle for gaining temporary advantage in aforesaid four arenas of competition. In India, the new competitor Reliance Jio has clearly worked on all these four arenas viz: by changing price structure for creating perception of better value for money amongst consumers, using latest technology for reducing operational costs while maintaining quality, using various strategies including M&A to gain entry in market and using its deep pockets to acquire customers for long term value creation while sacrificing on temporary gains. However, D'Aveni has warned that no advantage is sustainable and hence, new advantages must be continuously created to maintain or achieve leadership position.

Kim, Lee and Ahn (2006) have studied competition in the Korean mobile phone market using Lotka-Volterra competitive diffusion model for estimating demand function and examined the existence and stability of an equilibrium point with respect to the estimated demand function. This study revolves around impact of Personal Communication Service (PCS)-a second generation mobile service working on 1800 MHz band on the first-generation Cellular telecom services working on 800 MHz band and vice versa. This study, in a way highlights the competition for similar services driven by two different technologies.

Nashiruddin (2019) has studied mobile telephony in Indonesia- an analogous telecom market which is also facing severe turbulence with negative growth rate and market leaders reporting negative YoY growth for the first time in recent past. He recommends using cooperative business strategy to overcome the turbulence through reduction of risks and uncertainties, reduction of competition intensity; and design & production of more efficient products.

Grzybowski & Karamti (2010) have studied competition in mobile telephony in France and Germany- both oligopolies and having regulated entry similar to India. Conseil de la Concurrence (CdC)- the competition authority in France had found in Dec 2005 that Orange, SFR and Bouygues were sharing sales data and termed it as collusive and anti-competitive behaviour despite the fact that the service prices did not increase substantially in the period (1998-2002) under study and in fact, were comparable to Germany, a similar market. Grzybowski & Karamti have come up with explanations like difference in the elasticity of demand for mobile services as well as difference in customer behaviour about mobile phones being substitute or complement of fixed line telephones- the fact remains that the end consumer continued to get good quality service in France during the period of supposed collusive behaviour by service providers. What is important to understand is that all co-operation between competitors is not necessarily anti-competition or harmful for the customers, On the contrary, at times such collaboration helps in bringing down costs. In high capex mobile telephony industry, Airtel, Idea & Vodafone – three arch-competitors forming Indus Towers- a tower company to provide shareable towers is an ideal example in this regard. In fact, spectrum, because of its scarcity, is also quite costly besides the infrastructure. Gruber and Verboven (2001) and Valletti (2003) have opined that this makes the mobile telephony market resemble a natural oligopoly. Even Competition Commission of UK, in 2003, had conceded that mobile telecommunications sector has an inherently oligopolistic industry configuration and effective competition is difficult to achieve.

3. Analysis of a Few Parameters by Comparison with other Economies

To select the sample for comparison with India (except for the analysis of subscriber growth where global data has been considered). We took 30 most populous countries of the world as they are closer to India in terms of the size of target population for mobile telephony subscriptions. Out of these countries twenty countries closest to India in terms of per capita GDP were selected and, in the process, 10 countries viz: USA, Germany, France, United Kingdom, Japan, South Korea, Spain, Italy,

Russia and Turkey were eliminated from our sample. Subsequently, we are left with twenty countries including India which we intend to use in relation to our hypotheses. The resultant sample consists of countries with population higher than 36.84 percent of India's population and per capita GDP in between $1/n$ times to n times that of India, n being equal to 1.377. This process is expected to ensure markets most analogous with Indian market for mobile telephony.

(a) India's Participation in Global Subscriber Growth:

India's contribution to the global mobile subscriber growth is shown in (Fig. 3). It is noted that while in years like 2010 & 2015, India has contributed more than one third of global subscriber growth the overall contribution has not been consistent. For clarity, we look at the annual growth rate of subscribers. (Fig. 4) shows the annual growth rate of mobile telephony subscribers in India and the rest of the world. It is noted that for the period 2002-2016, barring the exceptions in year 2012 & 2013, annual growth rate of India's mobile subscriber has been consistently better than that of the rest of the world. However, subsequent to 2016, India's growth rate has been lower than the rest of the world. In the Cumulative average growth rate (CAGR) plot with 2001 as a base year, the difference between CAGR of India and rest of the globe is also reducing (Fig. 5). This phenomenon is worrisome because of India's late start in mobile telephony field because of which overall tele density is still substantially lower than the global average (Fig. 6).



Figure 3: India's contribution in Global Mobile Subscriber growth, source of subscriber data: International Telecommunication Union statistics.
 Source: (<http://www.itu.int/ict/statistics>)

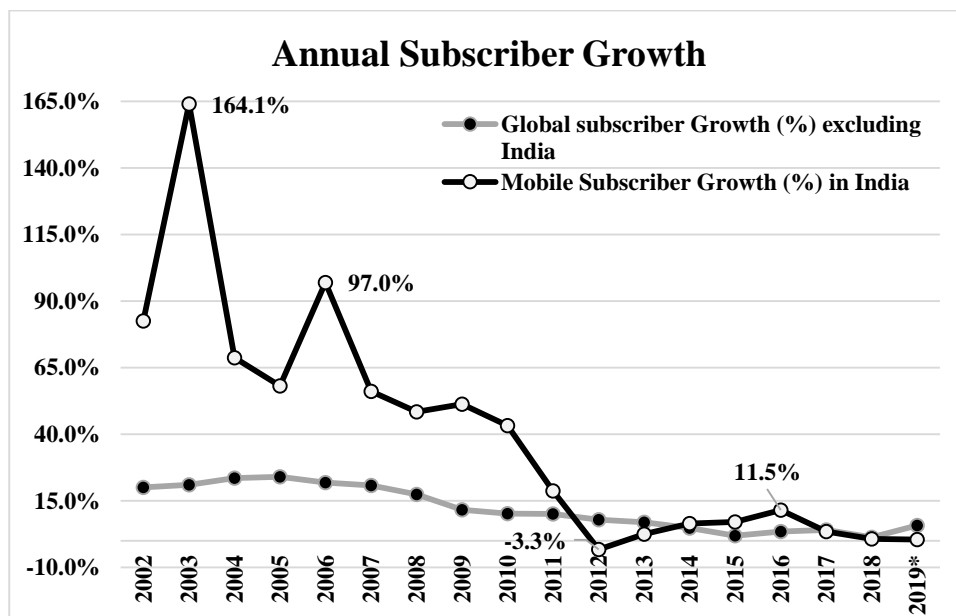


Figure 4: Annual Subscriber growth rate expressed as a percentage of number of subscribers in the previous year.
 Source: <http://www.itu.int/ict/statistics> & www.trai.gov.in

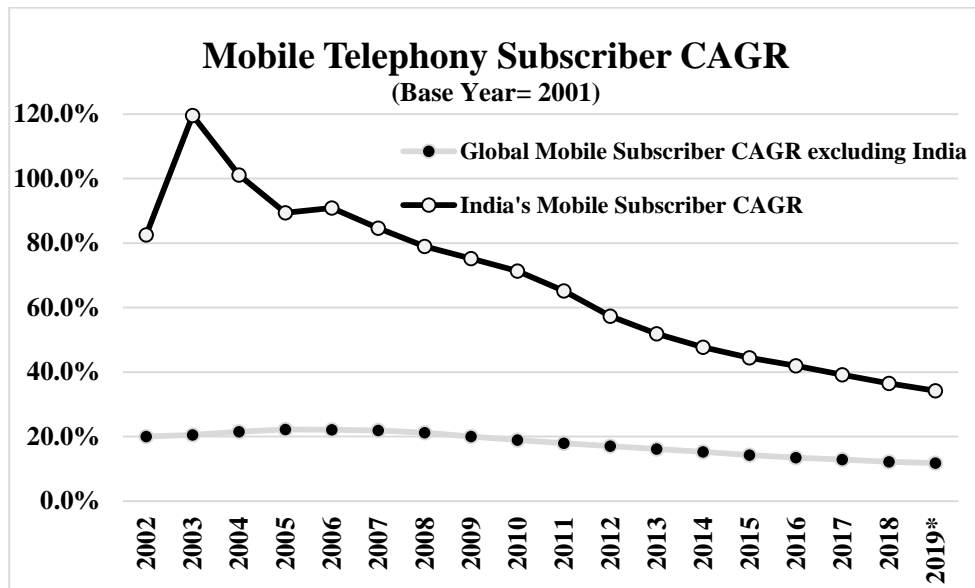


Figure 5: Compounded Annual Subscriber growth rate, calculated the number of subscribers in 2001 as base.

Source: <http://www.itu.int/ict/statistics> & www.trai.gov.in

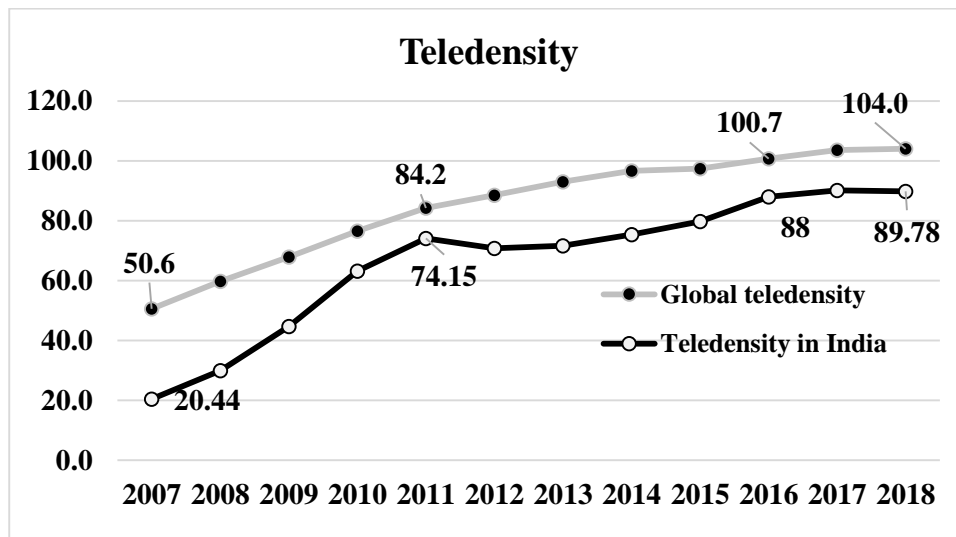


Figure 6: In Dec. 2018, the Global Teledensity (number of wireless phones per 100 people) is at 104-while India's teledensity is hovering around 88-89 for last three years.

(b) Number of Operators

The number of competitors is an important metric in the determination of degree of competition. Hence, we compared the number of operators in India with those countries which appear in our list of countries having comparable market. Subsequent to the closure of various mobile telecom operators and a few mergers happening, India effectively has only four mobile operators Vodafone-Idea, Reliance JIO, Airtel and BSNL+MTNL. BSNL and MTNL together have been considered as one entity as they function in mutually exclusive territories and are government controlled. Moreover, Cabinet of Government of India has already approved the merger proposal of these two companies. Reaching to just four from almost 15 operators at a point of time may raise fears of a collusion

Table 1: Number of Functional Mobile Telephony Service Providers in a Country (out of 20 Countries in our Data Set)

Number of Functional Mobile Operators in a Country		
Number of Operators	Number of Countries out of our sample of 20 countries	Name of the Country
3	5	China, Mexico, Philippines, Iran, Colombia
4	7	India, Brazil, Bangladesh, Egypt, South Africa, Myanmar, Kenya
5	2	Pakistan, Thailand
6	2	Indonesia, Congo D R
7	1	Nigeria
8	3	Ethiopia, Vietnam, Tanzania

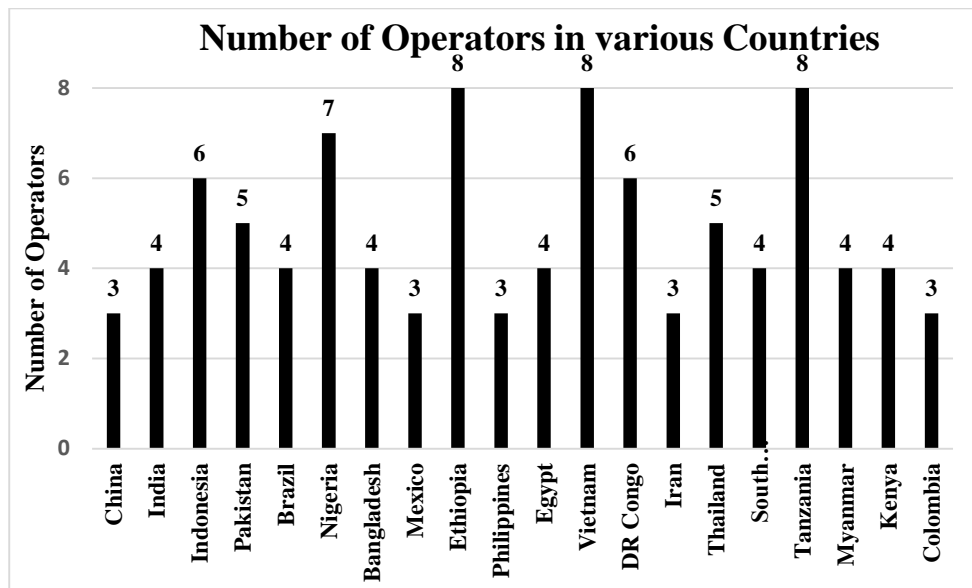


Figure 7: Number of Mobile Telephony Service Operators across different Countries.

amongst remaining service providers and hence, through a comparison with similar markets- the hypothesis tested is whether the number of operators in India which are operational today is significantly different from that in the set of comparable countries (mean number of operators = 4.8421, standard deviation = 1.8032).

H₀: India with number of operators as 4 is not different from comparable mobile telephony markets.

H₁: India with number of operators as 4 is different from comparable mobile telephony markets.

We performed one sample Z_{test} at 5 percent significance level. We have,

$N = 1$, $X_{\text{average}} = 4$, standard error = 1.8032, $Z_{\text{calculated}} = -0.4670$

Two tail p-value = 0.640549, Lower $Z_{\text{critical}} = -1.95996$, Upper $Z_{\text{critical}} = 1.95996$

Since $Z_{\text{calculated}} = -0.4670$ is between Lower $Z_{\text{critical}} = -1.95996$ and Upper $Z_{\text{critical}} = 1.95996$, the null hypothesis of India belonging to the set of countries with mean number of operators as 4.8421 cannot be rejected at a significance level of 5 percent. This is also proved by the fact that the p-value of 0.6405 is more than α -value of 0.05. Thus, India is behaving similar to analogous markets. From the number of functional operators in comparable

countries, it is also noted that the median for the number of companies providing mobile telephony services in a country is four which is exactly the number functional in India.

(c) Significantly Lower ARPUs than the Expected Trend:

India being at absolute bottom of ARPUs clearly distinguishes itself as a hyper-competitive market probably with unsustainable rates presently. In fact, based on the ratio of GDP and ARPU, if we remove four countries each with highest and lowest ratios considering them as outliers and plot GDP & ARPU of balance twelve countries, we find a reasonably high correlation (Figure 8(a)) and a simple regression shows the following relationship:

$$P = 0.004Q + 0.6172; R^2 \text{ (Coefficient of determination)} = 0.7997$$

Where P = Average Revenue Per User (expressed in US\$ per month)

Q = Per capita GDP (expressed in US\$ per month)

Hypothesis test of the significance of the correlation coefficient was also done to decide whether the linear relationship between per capita GDP and ARPU is strong enough to let us extrapolate a stable ARPU for analogous countries.

Null Hypothesis: $H_0: \rho = 0$ (The correlation coefficient is not significantly different from zero) i.e. There is no significant linear relationship (correlation) between per capita GDP and ARPU.

Alternate Hypothesis: $H_a: \rho \neq 0$ (The correlation coefficient is significantly different from zero).

Using a significance level of 5 percent for two-tailed test, at $df = 10$ we have $t_{critical} = 2.228$

Under H_0 , with $R = 0.8943$, the test statistic $t = 14.1183 > t_{critical}$

Accordingly, null hypothesis $\rho = 0$ is rejected at 5 percent level. i.e there exists a significant linear relationship (correlation) between per capita GDP and ARPU in the population.

Assuming the input costs as similar in all the countries. This implies that due to country specific reasons particularly degree of competition amongst service providers or regulatory costs viz: licence fees, spectrum costs, taxation etc. It will be reasonable to assume that the service rates and consequently ARPU in India, Indonesia, Egypt and Iran shall go up and in Ethiopia, Kenya, Myanmar & Thailand shall come down. In case, the per capita GDP & ARPU relationship as shown in Fig. 8(a) holds good, the ARPU is expected to stabilise as tabulated in Table 2.

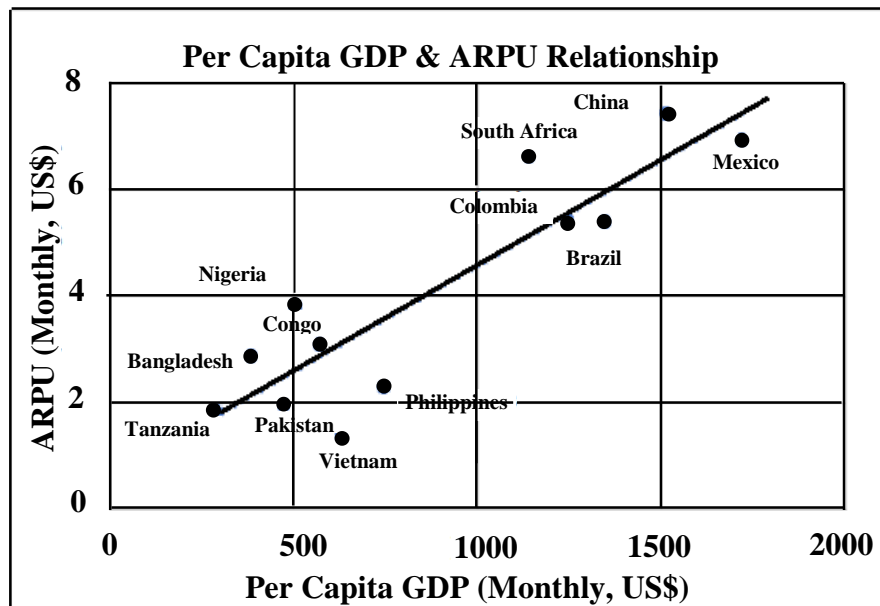


Figure 8 (a): Scatter Diagram of Per capita GDP and ARPU of different Countries.

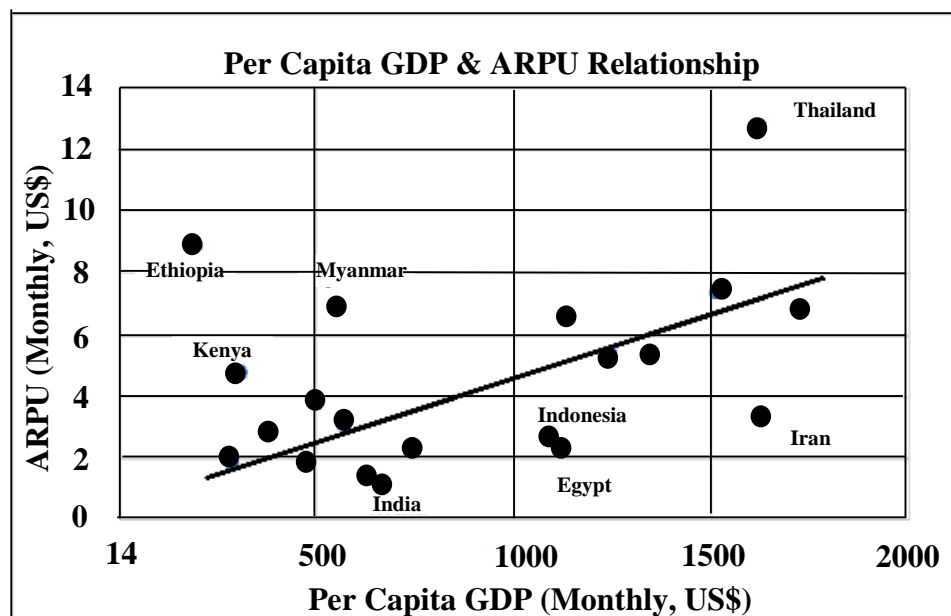


Figure 8 (b): Scatter Diagram of per Capita GDP and ARPU of different Countries. Countries having significant deviation from trend are mentioned.

Table 2: Likely Changes in ARPU Predicted based on a Regression on Analogous Countries.

Countries where ARPU is expected to decrease			Countries where ARPU is expected to increase		
Country	Present ARPU (US\$ per month)	Predicted Stable ARPU (US\$ per month)	Country	Present ARPU (US\$ per month)	Predicted Stable ARPU (US\$ per month)
Ethiopia	8.88	~ 1.39	India	1.2	~ 3.24
Kenya	4.82	~ 1.85	Egypt	2.31	~ 5.07
Myanmar	6.9	~ 2.79	Iran	3.39	~ 7.14
Thailand	12.8	~ 7.11	Indonesia	2.48	~ 5.03

(d) Profit Margins of Competitors:

Fig.1 shows the profits of various mobile telephony service operators. It is clear that the sustainability of business of Vodafone-Idea, Bharti Airtel and BSNL is highly doubtful unless there are significant intrinsic changes in the operations and financing of these organizations or the revenue per minute of mobile telephony service use is revised upwards. On the contrary, while the profitability of global telecom leaders have reduced-they are still making reasonably good profits. As per a Forbes report, the top five telecom companies-AT&T, Verizon, China Mobile, Softbank & NTT together earned a revenue of \$584 billion and made a net profit of \$ 96 billion and thus making a net profit of 16.44 percent & their combined operational margins may be in excess of 35 percent. This implies that the profitability pressure is not a global issue and is more a characteristic of Indian market. Clearly, the degree of rivalry between competitors has pushed the service prices down thereby disrupting the whole Indian wireless telecommunication industry.

4. Conclusion

The Indian phenomenon of consolidation amongst various telecom operators and elimination of a few might be a part of the on-going consolidation of telecom companies around the world. Hence, the number of present service providers left in Indian Market is not unusual and is in line with the number of operators in similarly placed countries. However, the present price of usage of mobile services appear to have gone even below the marginal costs of production of service. Hence, the average revenue per user in India is abysmally low, even after considering the per capita GDP. This is evident from the fact that the operational margins have been consistently declining and all except one operator are showing negative net profits. Since the competition in the sector, in any case, is regulated. It becomes important for the regulator to put a floor price for services for long term health of competition in the sector. Increase of unit price of product and services due to collusive behaviour between competitors is not the only anti-competitive behaviour to be watched by the regulator, a price which does not pass the test of economic sense is an equally threatening symptom. It is, indeed, a serious dilemma faced by the regulator when one of the competitors of an oligopoly indulges in strategic reduction of prices because the regulator intervention on this issue leading to increase in prices, even if it is temporary may be unpopular amongst the customers but non-intervention may cripple the competitors in the long run leading to monopoly or duopoly which may not be in the best interests of the customers whom the regulators are expected to protect. And yes, while the closure of different firms till now may have happened due to intrinsic issues of such companies. The performance plunge of existing three out of four operators appears to be due to the unusual intensity of competition which has dropped the prices to non-sustainable level. At the same time, the three competitors should strive for creation of their own temporary advantages amongst D'Aveni's four arenas of competition.

5. Appendices

Appendix-A: Indicators of the Performance Plunge

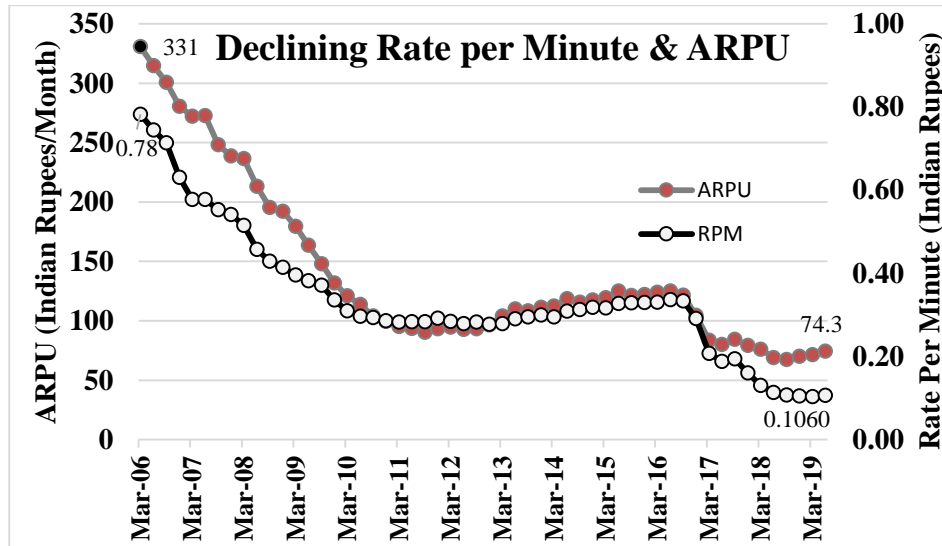


Figure 9: ARPU & Service Rate Per Minute.



Figure 10: Growth of Mobile Telephony Subscribers. Subscriber Numbers are Virtually Stagnating with Total Subscribers Being 1170 million in March 17 and 1174 million in September 2019.

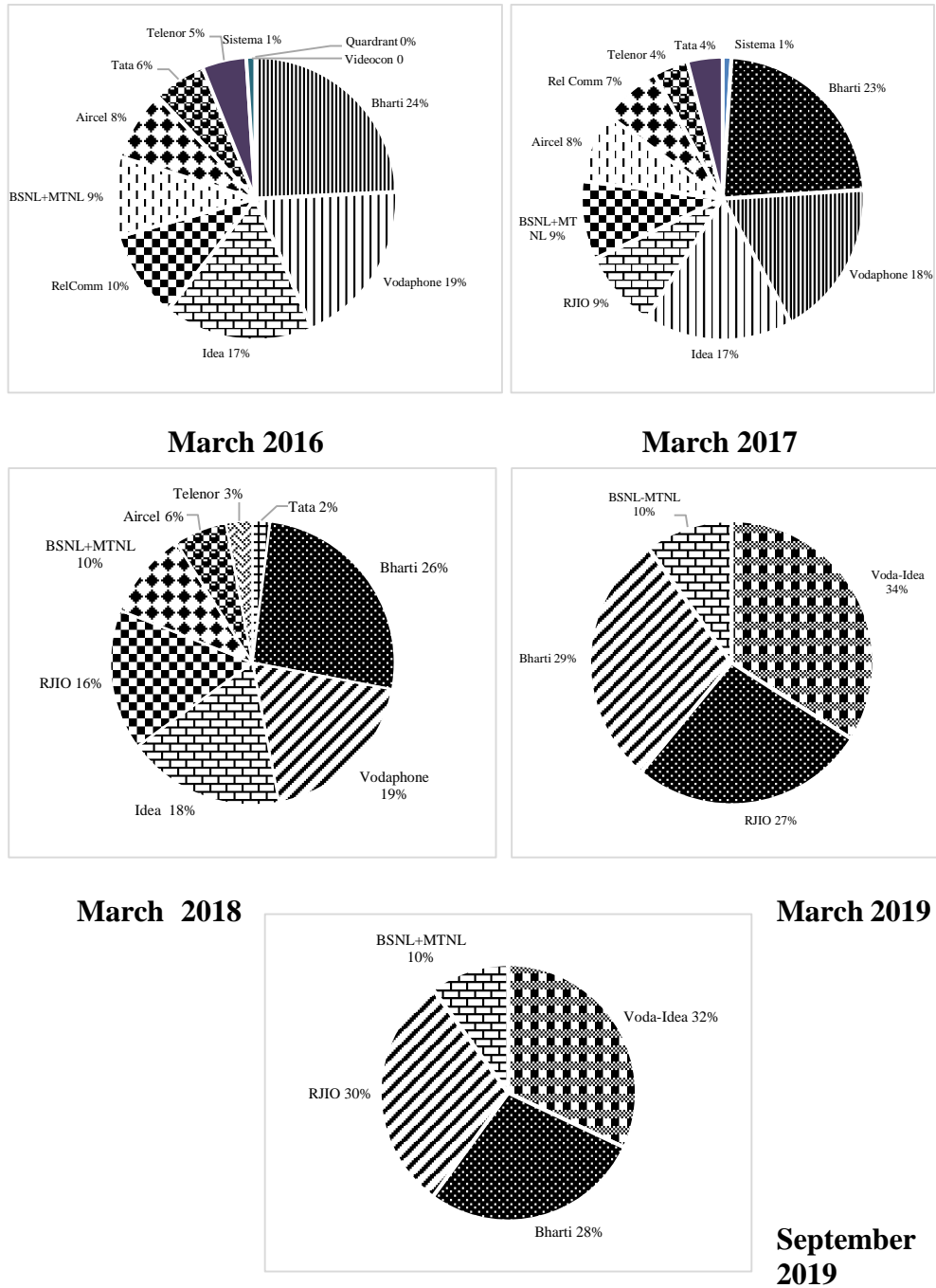


Figure 11: Market Share of different Operators from March 2016 to September 2019.

Note: RCom subscribers have been added in RJIO in March 2018 & March 2019. Tata Subscribers are added in Bharti Airtel in March 2019. BSNL MVNO subscribers are shown under BSNL.

Appendix-C: Thirty Most Populous Countries of the World (2019)

S. No.	Country	Population (2019)	S. No.	Country	Population (2019)
1	China	1,43,37,83,686	16	DR Congo	8,67,90,567
2	India	1,36,64,17,754	17	Germany	8,35,17,045
3	United States	32,90,64,917	18	Turkey	8,34,29,615
4	Indonesia	27,06,25,568	19	Iran	8,29,13,906
5	Pakistan	21,65,65,318	20	Thailand	6,96,25,582
6	Brazil	21,10,49,527	21	United Kingdom	6,75,30,172
7	Nigeria	20,09,63,599	22	France	6,51,29,728
8	Bangladesh	16,30,46,161	23	Italy	6,05,50,075
9	Russia	14,58,72,256	24	South Africa	5,85,58,270
10	Mexico	12,75,75,529	25	Tanzania	5,80,05,463
11	Japan	12,68,60,301	26	Myanmar	5,40,45,420
12	Ethiopia	11,20,78,730	27	Kenya	5,25,73,973
13	Philippines	10,81,16,615	28	South Korea	5,12,25,308
14	Egypt	10,03,88,073	29	Colombia	5,03,39,443
15	Vietnam	9,64,62,106	30	Spain	4,67,36,776

Source: CIA factbook, IMF's World Economic Outlook Database, April 2019

Appendix - D: Basic Data with respect of 20 Countries Comparable to India (used in this paper)

S. No.	Country	Per Capita GDP (monthly, US\$)	Tele-density (Mobile phones/100 people)	ARPU (US\$ per month)	Number of Mobile Telephony Operators
1	China	1509	115.53	7.434	3
2	India	656	86.94	1.2	4
3	Indonesia	1103	119.34	2.48	6
4	Pakistan	473	72.56	1.96	5
5	Brazil	1346	98.84	5.39	4
6	Nigeria	502	88.18	3.85	7
7	Bangladesh	385	100.24	2.9	4
8	Mexico	1717	95.23	6.93	3

S. No.	Country	Per Capita GDP (monthly, US\$)	Tele-density (Mobile phones/100 people)	ARPU (US\$ per month)	Number of Mobile Telephony Operators
9	Ethiopia	194	37.11	8.88	8
10	Philippines	745	126.20	2.33	3
11	Egypt	1114	95.29	2.31	4
12	Vietnam	626	147.20	1.42	8
13	DR Congo	567	95.34	3.11	6
14	Iran	1630	108.46	3.39	3
15	Thailand	1623	180.18	12.8	5
16	South Africa	1140	159.93	6.6	4
17	Tanzania	287	77.24	1.87	8
18	Myanmar	543	113.84	6.9	4
19	Kenya	308	96.32	4.82	4
20	Colombia	1245	129.91	5.43	3

Notes:

- (i) The periods considered for teledensity & ARPU figures may not exactly be coincidental as the results for different countries are published at different time intervals and in a few countries there are reporting issues. However, this study is a study of patterns and trends rather than a study for deterministic predictions of various parameters and hence, the difference or error due to the same is not expected to alter the conclusions.
- (ii) Multiple sources have been used for collection of ARPU for different countries- notably, websites like
 - www.itu.int
 - www.statista.com
 - www.pressreader.com
 - www.gsmaintelligence.com
 - www.bnamericas.com
 - www.mobileworldlive.com
 - www.oxfordbusinessgroup.com
 - www.itweb.co.za
 - www.ovum.informa.com
 - www.ceicdata.com
 - <https://data.worldbank.org> and is thankfully acknowledged.

- (iii) The per capita GDP has been taken from IMF's World Economic Outlook Database, April 2019. IMF.

6. References

1. D'Aveni, R. A. (1998). Waking up to the new era of hypercompetition. *The Washington Quarterly*, 21(1), 183-195.
2. Grzybowski, L. & Karamti, C. (2010). Competition in mobile telephony in France & Germany. *The Manchester School*, 78(6), Dec-2010, 702-724
3. Gruver, H. & Verboven, F. (2001). The evolution of markets under entry and standards regulation – the case of global mobile telecommunications. *International Journal of Industrial Organisation*, Vol. 19, 1189–1212
4. International Telecommunications Union Statistics (2019), published on <http://www.itu.int/ict/statistics>
5. Kim, J., Lee, D-J., & Ahn, J. (2006). A dynamic competition analysis on the Korean mobile phone market using competitive diffusion model. *Computers & Industrial Engineering*, 51(2006), 174-182.
6. Morya, K. K. & Shankar, A. (2019). Diffusion of mobile telephony services in India. *International Journal of Recent technology and Engineering*, 8(4), November 2019, 10298-10304.
7. Morya, K .K. & Shankar, A. (2020). Competition in Indian Mobile Telephony Sector. *Proceedings of the Second International Conference on Recent Innovations in Science, Engineering Technology and Management* (11th & 12th Jan, 2020)
8. Nashiruddin, M. I. (2019). Business Strategies in a turbulent business environment: findings from Indonesian telecommunication industry. *Jurnal Pekommas*, 4(2), Oktober 2019,111-222.
9. Telecom Regulatory Authority of India, Quarterly performance reports periodically published on www.trai.gov.in
10. Valletti, T. M. (2003). Is mobile telephony a natural oligopoly? *Review of Industrial Organization*, 22(1), February, 47-65

Reinventing Communication for Industry 4.0

Suparna Dutta

Associate Professor

Birla Institute of Technology

Mesra, Ranchi, (off Campus Noida) India.

Abstract

The immense technology-led disruptions that we are witnessing around us are compelling both individuals and organizations to respond in new and novel ways and means as well. This is fundamental now because there are consequential changes at the structural as well as the functional aspects of our existence across the globe due to the mindless progress in science and technology. Further, in a world that is so tremendously networked, so unprecedentedly globalized, and is so hypercompetitive today that, most of the traditional behaviour both professional and social, which are by and large looked upon as the relics of the industrial revolution, are themselves becoming atrophied. Further, with the emergence of exciting and even strange technologies like Augmented Reality, Artificial Intelligence, Internet of Things and so on, there is also much resultant uncertainty and ambiguity around both the future and nature of work, workplaces and practices. Consequently, we are witness to the emergence of new learning contents and styles like adaptive learning, modified and customized learning and a host of new other approaches. Simultaneously, the skillsets required to meet the new and emerging workplace challenges have also undergone stark transformations and makeovers. In other words, it has become imperative to re-architect our institutions, practices and protocols that are supposed to deliver the competences required to address and adapt to the emerging new order. In this new scheme of things, 'learnability' is strongly believed to be the new skill that is now expected to drive excellence in both individuals and institutions. It also must be kept in mind that, learnability rides high on communication. So, to keep pace, communication, especially business and professional communication must concomitantly evolve as well.

Keywords

Globalization, Disruption, Futuristic technology, Skillset, Learnability, Communication.

1. Introduction

The euphoria of a hugely anticipated globalized existence has largely paved ways for the world to shrink further into ‘customized cottages’ delightedly engaged in the realm of ever unfolding technology to connect and assist in every aspect of life. Gone are the community specific ethnic existence that expressed and connected in unique, traditional and specific manners. Communication today has successfully overcome the silos of micro community driven essentials and taboos. As a result, the broad contours of culture which were till very recently largely expressed in terms of defined ethnicity across the globe too has diluted and by and large has stopped frowning at the strange and the familiar. It is mediated communication which has thus connected the human race as never before. However, this unprecedented interconnection of people across geography, politics, religion, culture and language has not only changed communication across communities but it has also brought about a radical change in our perception, attitude, behaviour and practices both at home and work.

2. Mediated Communication

Mediated communication will refer to any communication paradigm or situation where a medium augmented and enabled by technology is introduced to aid and assist the interaction. The prolifically growing global propensity to use digitalized communication as in emails, text and instant messaging, hypertexts, distance learning, internet forums, USENET newsgroups, bulletin boards, mobile apps, streaming videos, videoconferencing and many more are examples of mediated communication (Subrahmanyam Kaveri, Greenfield Patricia (2008). However, a very important aspect in this this paradigm is language mediation. As defined in the Common European Framework of Reference for Languages, Language mediation is a generic term and is the sixth competence defined which refers to any function, process or activity in which a text is communicated from one language to another. This has a special relevance in the ever-shrinking globalized context of

cross-cultural communication. Especially in contexts like India, where society is polyglot and diversities myriad, where dialect, tradition, and rituals change every 100-kilometers, language mediation has to naturally assume a special prominence and critical influence in almost every communication and communicating situation.

However, in the paradigm of communication, the importance of the non-verbal aspects of communication can never be over emphasized nor can one ignore the communication principle that though seeing is more powerful than hearing, it is best to experience the message in order to be influenced by the communication. Further in contexts Like India, challenges due to poverty, illiteracy and drudgery makes it almost imperative to replace text with suitable visual content that would at once attract and arrest attention. This is also the fundamental precinct of infotainment practices where the use of emerging technology like the immersive technologies will play a very critical role especially while designing and strategizing communication for both business and entertainment.

In this context, it becomes obvious that, we need to constantly reinvent our means and manner of communication to maintain a sustained dialogue with our audience. On the one hand, this remains easy because man is fundamentally gregarious and must constantly remain networked with his fellow being for both survival as well as his success. However, on the flipside, it is an intrinsic human need to remain entertained. It is common knowledge that, workplace productivity increases with periodic breaks. Such breaks become even more meaningful when they come laced with recreation which dilute drudgery and monotony of routine work. Man has invented numerous means of entertainment since time immemorial, but it is the progressive evolution of technology that is providing us with new tools for expression. Further, the globalized world that we are living in today is certainly and systematically breaking down our traditional silos that we had created for our convenience of living in our insulated self-sustaining micro communities. What we are witnessing around us is the sustained unraveling of a new exciting and a very powerful order in which the arts, sciences, and technology are continuously merging to create a broad spectrum of unprecedented possibilities. Progressive evolution of technology not only provides us with new tools for communication and expression, but also delivers new social perspectives for our daily survival. Hence, although every

invention impacts the society, yet it is the innovations in communication that categorically influence culture at a broader level and behaviour at a more specific level.

3. Industry 4.0

If we look back at history, we shall realize that what we now call the Industrial Revolution of the 18th -19th century, is the first milestone in the long evolutionary march in the history of production and manufacturing that marks the transition to new manufacturing processes in Europe and the United States. During this first stage, also now referred to as the industry 1.0, the manufacturing and production of goods moved from small individual units like small shops and homes to the large-scale production units called the factories. Further, these factories were mostly found in the cities which led to unprecedented urbanization that brought in its wake a paradigm shift in culture as people moved from rural areas to big cities in order to work and livelihood. However, what is relevant in this discussion is that, this first milestone which marks the transition to new manufacturing processes using water and steam was hugely beneficial in terms of manufacturing a larger number of various goods and creating a better standard of living for some against the vast majority that began their struggle against drudgery, unfavourable work conditions and most importantly new workplace challenges in terms of adaptability and new desirable skillsets. This struggle of the many is still on and what is also constant is the concomitant search for new means and methods of addressing such challenges,

Industry 2.0 or the second milestone in the history of the Industrial Revolution was pegged in the 19th century with the discovery of electricity and assembly line production. The legendary Henry Ford sponsored the development of the assembly line technique of mass production by taking the idea of traditional mass production in a slaughterhouse in Chicago: Ford carried over these principles into automobile production and drastically altered it in the process. While earlier, one single station completely assembled an entire automobile, now the vehicles were produced in partial steps on the conveyor belt reducing cost and increasing speed but demanding once again new skillsets and workplace challenges.

In this sequence of things, Industry 3.0 refers to the third stage in the Industrial Revolution which was at its incipience in the seventh decade of the 20th century through partial automation and using memory-programmable controls and computers. These were innovation and new practices in science and technology that made it possible to automate an entire production process in certain esoteric areas without human intervention and assistance. Here too, it is easy to discern both the changing skillsets and learnability that industry was desiring from its workers at every level and how new behaviour and practices emerged due to adaptation to the new order of things.

We are now poised at the Industry 4.0 or the fourth milestone of this long evolutionary march of Industrial Revolution. Typically characterized by the application of ICT or the Information and Communication Technology and its progressive outcomes to industry, Industry 4.0 builds further on the production systems and mechanisms of the Industry 3.0 that already was supposedly acclimatized to progressive Information & Computer Technology. A predictive outcome of this leapfrog progress of industry 4.0 amongst other things, is to evolve into what is being projected as the smart factories. In lay man's terms, these would be the companies that would largely use a robotic manufacturing fleet to ensure greater productivity at a much lower upkeep cost. Profession jargon in this context would mean that, 'production using the props of network connection of cyber-physical production systems in the industry 4.0 is expected to reach the stage of almost autonomous production'.

The companies using robotic fleets for manufacturing are also called the dark factories or 'the lights-out factory' Here, as James Cook, an applications engineer at Stäubli Robotics says that, robots can help lower building costs by optimizing space as these manufacturers can 'fit a larger number of compact cells in the same space to increase production without adding heating, lighting or cooling to the cost of the building the use'. Such fully autonomous robotics industrial workforce is expected to become the order of the coming times as this would increase productivity at reduced costs to the company. In this context, the example of FANUC, the Japanese robotics company that has since 2001 been operating a "lights out" factory for robots may be cited. In FANUC, unsupervised robots, for a stretch of 30 days, are capable of are making 50 other robots in one single day. Here, as the Fanuc vice president Gary Zywiol states, "Not only is it lights-out," but also "we turn off the air conditioning and heat too."

So, in this emerging context that focuses heavily on interconnectivity, automation, machine learning, and real-time data we are looking at a highly volatile situation is anticipating exhilarating cost cutting situations as well as the stark uncertainties of retrenchment and attrition of a normal workforce. It is in this context, communication, especially business communication, will have to reinvent, reinforce and evolve further to meet new challenges.

4. ICT and Evolving Communication Paradigm

It has become a common propensity today to depend on mediated communication and wittingly or unwittingly take advantage of digital networks for most of our communication needs. [Nunes Mark (2011)]. Whether it is simply a tete-a-tete with friends and family or a serious business negotiation and discussion or for that matter any other communication, the interlocuters from almost all denominations of every society across the world are getting used to and comfortable with the facilitations provided by the ever-evolving ICT driven and supported communication. Looking around, we shall realize that, people across India, like the rest of the world, are spontaneously welcoming with open arms the penetration of and access to mobile phones in a very impressive manner. In fact, smartphones are looked upon an existential necessity rather than a luxury. Today, it may be said that, at least one member in almost every family has a smartphone. And thanks to the android, the users of this technology have now access to myriad application or apps available on the app stores which can help specific users with their specific needs. For instance, there are now apps especially designed for women to become aware of most of the issues that are important and critical to their wellbeing including their health issues. Hannah Nichols (2018) has very successfully augmented menstrual health management (MHM) by compiling a list of apps which helps to keep track of the (menstrual) period cycles. But big problems should signify even bigger opportunities. What disruptive technology is indicating is massive in terms of our lifestyle and practices. Starting small but thinking big will be a key to using evolving technology to solve current as well as imminent problems. How do we, for instance, use such technology to induce behaviour change is a challenge that should start small but roll out greater and all encompassing possibilities.

5. Digital Literacy and Communication

The ICUBE 2018 report by Kantar IMRB shows that, in a population of 133.92 Crores (2017) in India, it is estimated that digital literacy still has not gone much beyond the 6 percent (224 Million are computer literates). Though, in quantifying the internet usage in India, the data indicates that, it has exceeded half a billion people for first time, pegged at 566 million in December 2018 and was expected to register a double-digit growth to have touched 627 million people in 2019. A significant component in this annual growth of 18 percent in the Internet usage in India, was the growth and usage in rural internet. This in turn indicates that, the secondary access to technology has been steadily growing at a significant pace in our country where according to an estimate, 295 million active Indian internet users are urbane population and some 200 million live in rural India. Globally speaking too, India occupies a significant position of being the third largest consumer of Internet. [<http://www.internet-worldstats.com>, (2018)], [Vernacular Content Report (2012)]. Of these active users, it is a whopping 97 percent that uses the mobile phone as one of the devices to access the Internet.

The number of smartphone users in India is expected to rise by 84 percent to 859 million by 2022 from 468 million in 2017, according to a joint study by Associate Chambers of Commerce & Industry of India and PwC. It is also assumed that in the next three years, 10 percent of the India population will own tablets as compared to the 5.3 percent in 2017. While exploring the tendency of Indians to use mobile apps it was seen that the number of apps installed by smartphone users in India range from five to 207, the average number of installed apps on a phone is 51, said a new report on Wednesday. However, it is obvious that, people do not use all the apps they install. Most of the people in India use just about 24 apps on their smartphones, according to the research from technology research consulting firm TechARC. The findings of the "TechARC DIGIT" report indicate that there are some users who go on installing apps without much of a thinking and understanding. However, the study indicates that by category, the social media apps lead the usage with 76 percent of the users using them on a daily basis.

This emerging trend is indicative of the fact that, in future, communication will be the primary driving factor for economy. Innovations in telecommunication and the amazing developments in infrastructure is going to ensure that opportunities will not be limited either by time, distance or money. E-commerce is gradually becoming a

sanguine enabler and an equalizer by providing easy and quick access to desirable and critical products, services and resources to all and every. This is the much desired and aspired customization of both creativity and consumption that is expected to transform not only the global economy, society and geopolitics as well.

6. Learnability and New Media

Learnability is going to be a critical skill required to adapt new communication style and means in times to come. Learnability per se and especially in this context cannot be imposed but on the other hand, should ideally be facilitated. This facilitation should ensure spontaneous and motivated participation of the learners and not rest at a passive ‘head nod’ participation. Participation is deemed important as it is supposed to lead to a context of conversation and when conversation is systematized, we will have ‘discourse’ at our disposal. New media that we are now getting used to is fundamentally equipped to ensue participation due to the very nature of its technology mediation. New media is new primarily new in terms of its novel modus operandi that emphasize on interactivity through participation. This in turn, leads to the customization of content and communication resulting in the elusive ownership of content (Boukes Mark 2018). It is this customization of content and communication leading to the ownership of content that creates the conducive environment for leaning and learnability.

As mentioned earlier, that, new digital tools of communication like the smart phones, computers, laptop, tablets and the like have become easily accessible to ordinary men even in rural or remote areas, and the internet and the ever-evolving mobile phone technology have changed the way people communicate. This new technology induced social revolution should be tapped to harness new levels of learnability which is essential to cope with this new age communication.

7. Conclusion

The buzzword for the emerging industry driven by a medley of myriad futuristic technologies is certainly interconnectivity. This is something we all appreciate and, in a sense, this interconnectivity is what man has ever been working for. However, what is unnerving in the unfolding paradigm is the anticipated reduction in human presence and participation in a ‘robotomized’ work environment. Man is afraid of

losing his job to intelligent robots, but we must also remember that, man was equally afraid of losing his job to computers. Today, we see how man has been capable of harnessing the computer for his benefit and how enterprises, big, small or the massive are computerized in industry 3.0. This was possible with new learnings and adapting new skillsets. Industry 4.0 too, in a similar manner, is or will be asking for new skillsets and adaptive learning which in all possibility be driven by technology as well. What needs to be done is to proactively respond to the emerging ecosystem that is cutting across our tradition social and economic silos and embrace emancipation form our practices that reap advantage emanating from an unfair hierarchy of status at work and society. In this new order of things, it is our ability to adapt to new technology, use it meaningfully both as its user and its author, finetune our education in accordance right from the primary education, re write our curriculum to bring out the learners from the passive classrooms to where the action is, dilute the divide between the rich and the poor, the young from the old which will in all probability settle the ruffled feathers of the ongoing times.

8. References

1. Bergeron B, (2006), 'Developing Serious Games', Thomson Delmar Learning, Published by Charles River Media, Inc., Massachusetts, ISBN 978-1-58450-444-3
2. D. Waters R et al (2009), 'Engaging stakeholders through social networking: How nonprofit organizations are using Facebook', Public Relations Review, Science Direct,
3. Dervin, B. & Huesca, R. (1999) (Jacobson T. & Servaes J., (Eds.), 'The Participatory Communication for Development Narrative; An Examination of Meta- theoretic Assumptions & their Impacts', Theoretical Approaches to Participatory Communication, . Cresskill, NJ; Hampton Press).
4. Humphrey Jay D and Holmes Jeffrey W, 'Style and Ethics of Communication in Science and Engineering', Morgan and Claypool Publishers, ISBN: 9781598292985 (2009)
5. Meir S, (Oct 2005), 'Communicating with Video Games', retrieved from <http://www.forbes.com/>

6. Nunes M, (2011), 'Error Glitch, Noise, and Jam in New Media Cultures', The Continuum International Publishing Group, London, ISBN: 978-1-4411-2120-2, 2011
7. Rachel C, Ayyar R, Ram Ganesan S (2016, December 6), "Smartphones are Helping Rural Women Get Better at Business", The Times of India Daily National Newspaper, New Delhi Edition, 4 Retrieved from <http://timesofindia.indiatimes.com/india/Smartp-honesare-helping-rural-women-get-better-at-business/articleshow/-55778613.cms>
8. Seetharaman, G (2018, February 11). "Indians spend roughly 3 hours a day on smartphones, but are they paying big bucks for apps?" The Economic Times Retrieved from https://economictimes-indiatimes.com/magazines/panache/indians-spend-roughly-3-hours-a-day-on-smartphones-but-are-they-paying-big-bucks-for-apps/articleshow/62866875.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst
9. Strecher VJ, et al (1999), 'Interactive multimedia and risk communication', www.academic.oup.com, JNCI Monographs, Volume 1999, Issue 25, 1999, Pages 134–139, <https://doi.org/10.1093/oxfordjournals.jncimonographs.a024188>
10. Subrahmanyam K, Greenfield P (2008), 'Online communication and adolescent relationships, The Future of Children' Children and Electronic Media, Vol. 18, No. 1, (Spring, 2008), pp. 119-146
11. Willams C. (2004), 'Community Capacity Building; A Critical Evaluation of the THIRD Sector Approach', Review of Policy Research, 21 (5),

Role of Human Resource Competencies in Leveraging the Innovativeness of a Software Enterprise

Samar Raqshin

Faculty Associate
School of Management
Gautam Buddha University
Greater Noida, Uttar Pradesh, India.

Mehak Sharma

Research Scholar
School of Management
Gautam Buddha University
Greater Noida, Uttar Pradesh, India.

Abstract

This research is concerned with the sustainable performance of Indian Software firms and the role of firms' innovativeness, which is nourished by the HR competencies of workplace of the firms. The factors that influence the competence development efforts of the firm and thereby foster its innovativeness and were adopted for this study are the human resource practices, organizational commitment, organizational citizen behavior, communities of practices and risk orientation. We have discussed relationships between innovation capability and growth of firms also. Human Resource Practices of a software entrepreneurial firm are positively associated with its innovation capability. In order to make a significant contribution to the enhancement and up gradation of competence levels of the employees, the firm should foster an appropriate balance of both formal and informal means of learning. And the most crucial aspect is that the HR practices should be so designed to ensure that this aggregation of competencies is built in such a manner that it provides a synergistic effect to the competencies of software SME'S discussed in it. The basic premise for the selection of methodology of research in this paper is qualitative research method.

1. Introduction

According to the present scenario Indian software firms are growing gradually with the effect of human resource competencies and updated innovation technology. Due to the monopolistic power public sector undertakings exercise, they continue to provide services without taking cognizance of the intense worldwide competitive scenario and the need for innovation it manifests. Employees are also reluctant to perform innovatively due to poor reward and incentive systems because the success recipe for the organization is to focus on a creative and

innovative workforce (Preiss and Spooner, 2003). Since the last few years, the requirement for innovation has increased in the state-owned organizations around the world. Public organizations are expected to perform as efficiently and effectively as just private organizations. In this milieu, governments are trying to devise strategies to augment innovation within organizations by adding skilled employees to their payroll, improving operating systems, or selling traditional infrastructure and properties. Innovation has assumed primacy in public and private organizations. Since, it is evident that the traditional methods to operate the organization are less effective in the motivation and development of employees' creativity, which contributes to the modern age characterized by quick transformations and unpredictability. The firms need to adapt and transform their mode of operation to perform effectively. In the globalization era, to compete and sustain in the long run, a business establishment must be ingenious and encourage the culture of creative potential and by utilizing the competency of human resources (Waheed A., Miao X., Waheed S., Ahmad N., & Majeed A., 2019). And in this business of uncertainty, risk, and volatility, creativity forms an important function towards providing leverage for organizations. Many researchers have proposed that creativity and innovation make a critical contribution to organizational effectiveness for the long-term survival of organizations, because it empowers and facilitates organizations to remain competitive in a rapidly changing environment and achieve a competitive advantage (Werner H. C., 2017). Hence, promoting and developing creativity is a strategic choice that every successful organization has to undertake. And in an organizational setup, it's the HR system that plays a critical role in assisting and communicating the objectives of creativity and innovation to the human resources and the means to accomplish the organizational goals (Panigrahy P.N., Pradhan K. R., 2015). Therefore, through this paper, has made an effort to convey about the novel issues relating to the multifarious factors and practices of HR system that promotes the cultures and milieu for fostering creativity and innovation among the employees. The paper is structured as follows. The next section examines the role of human resource competencies towards creativity and innovation.

2. Review of Literature

2.1 Human Resource Competency (organizational commitment, organizational citizenship behavior & communities of practice)

The research literature suggests that certain attributes, which are behavioral outcomes of human resource practices, also influence the innovation capacity of a firm. One of the behavioral outcomes of HR practices that are being considered for this study is Organizational Commitment, which is related to the attachment of professionals to the firm. It has been described that there are three factors of Organizational Commitment viz., affective Commitment (sense of belongingness), Continuance Commitment (based on cost-benefit analysis for staying with the firm), and Normative Commitment (based on moral grounds). It is believed that a professional having a sense of belongingness for a firm would be able to deliver a better performance. There is a strong likelihood that such individuals will be able to enhance the innovativeness of the firm. Another behavioral outcome of HR practices and also of Organizational Commitment associated with employees' extra-role behavior beyond their formal role requirements is Organizational Citizenship Behavior (OCB). The research literature reveals that there are two types of Organizational Citizenship Behaviors, one directed at individuals which is associated with helping co-workers and new entrants, and the second directed at organizations. Professionals who indulge in OCB directed at organizations value being a part of such a set-up and would go out of the way to contribute to activities that contribute to the firm's competitive performance. As software development is performed by teams it is obvious that there would be OCB directed at teams. Such behavior of professionals in a firm assists in overcoming the hurdles of delivering outcomes on time and of the desired quality. Further, as software development is innovative, all three forms of OCB enhance the firm's innovative capability. This study suggests that HR practices of a firm contribute to create an environment for learning by formal and informal means. The HR practices of a firm through their training and development activities address the formal means of learning. At the same time there are inherent need to utilize informal interactions among professionals for learning purposes. Firms have realized the benefits of these Communities of Practices as knowledge has become a key factor of

production and managing knowledge has emerged as the most critical aspect of business (Wenger, McDermott and Snyder 2001). As it is about a shared interest of a topic or subject, it has members across firms and boundaries of the industry as well. In this context, companies' success depends on their competence and innovative capability (Henderson & Clark, 1990; Liberman & Montgomery, 1998; Schumpeter, 1934, Schumpeter, 1942; Tushman & Nadler, 1986; Utterback, 1994, 1994). Many researches and literature also emphasized the key role of Human Resources (HR) and practices of Human Resources Management (HRM) which can play in such competitive environments in enhancing firm's competitiveness advantage (Lado & Wilson 1994; Wright, McMahan & Mc Williams 1994; Becker & Gerhart 1996). Focusing on employees' skills and knowledge and behaviors can be sources of competitive advantage. Past literature suggests there has been a lot of discussion in recent years concerning competency-based human resource systems. According to research managers, competencies constitute are harbingers of success in work; it is in their interest to know, how to ensure that a majority of the employees will expand their competencies to the maximum. While the common conclusion is that competency-based strategies have considerable potential value. It is also recognized that variegated organizations have assisted an individual to achieve what he can do rather than what the person knows. It is based on visible behavior and not espoused behavior. (Cerinšek. G., & Dolinšek. S., 2009). Further when people can experience meaning in the work they do, they are most likely to display positive organizational behavior which is related to the application of positively oriented human resource strengths and capacities which can be developed and effectively managed in the workplace.

2.2 Creativity & Innovation

Creativity is the ideation and generating of new ideas, and innovation is the effect it has in an organization or society (Cheng C., Cao L., Zhong H., He Y. & Qian J., 2019). Until there's a visible effect innovation doesn't really exist. It just remains a brilliant idea. So, creativity is the ideation and innovation is the execution (Sharp. R., 2018). It is a well-established fact that innovation assists the organization to obtain a competitive edge in today's tumultuous

business environment. Of course, it's easier said than done. Zhao (2006, p.106) explains that "almost every company talks about the importance of innovation and many are doing it. But only a few companies actually succeed in doing it." It is undeniable that when we are talking about innovation, we are talking about change (Tidd, 2000) and this change has to increase value (customer/producer/economic/social value). Green Paper on Innovation (1995), 2 published by the European Commission, December defines innovation as the "successful production, assimilation and exploitation of novelty in the economic and social spheres". The general view in the literature describes innovation as that phenomenon that builds value, strengthens competitive advantage, and improves organizational sustainability (Sundbo, 1998; Tidd, 2001). In this paper, innovation, which refers to the time elapsed from initial spawning of an idea to commercialization, is considered as the barometer of innovation performance due to its integration of the notions of staff-related creativity and organizational structural innovation.

Martin (2000) proposed that while creativity can be considered as the generation of a new useful idea for products services and procedures by individuals or groups in a specific organizational context, innovation may be regarded as the implementation of a new and possibly-solving idea, practice or material artifact which is considered as new by the relevant unit of adoption and through which a change is brought about. Researchers suggested that innovators do not involve in creative ventures merely for the sake of creation, but the purpose behind their endeavors is to solve problems (Root-Bernstein, 1989). Creativity is defined as creating new and effective ideas, but researchers consider it as a process (Gholami K., & Karimi R, 2014). Creativity is a concept that may often be confused with innovation. Creativity is the first step within the innovation process. The same concept has also been suggested by Amabile (1996), who claims that creativity is the beginning of innovation; the first is a necessary but not sufficient condition for the second. As propounded by Kinder (O'Reilly, 1997), a good creative idea is fragile like a lightened match, easily blown out by cold winds (lack of motivation, self-confidence or ambitiousness; improper organizational structure, etc.). Studies focusing an organizational aspects of creativity and

innovation examining the organizational characteristics and their impact on innovation were conducted by numerous scholars. It was argued, “Even when individuals have developed the capacity for innovation, their willingness to undertake productive efforts may be conditioned by beliefs concerning the consequences of such actions in a given environment” (Mumford & Gustafson, 1988). However the research literature provides no evidence of any study on likely implications of the human competence for innovative behavior of individuals, the innovative behavior being defined as “all individual actions directed as generation, introduction and/or application of beneficial novelty (i e., innovation) at any organization level (Kleysen & Street 2001; West & Farr, 1989). Thus, it may also be explained that the innovation process consists of two phases, generation of innovation and adoption of innovation (Gopalkrishanan & Damanpour, 1997). Generation phase include idea creation and problem-solving for product and process solution and the adoption phase is associated with the acquisition and implementation of an innovation. The creativity which concerns the ideation component of innovation envelops the process leading to the generation of novel and cherished ideas and the innovation which relates to individual or organizational endeavors for achieving the desired novelty essentially encompasses both creativity and innovation implementation (Panigrahy P., N., Pradhan K. R., 2015). Thus, in the context of our present research it is desirable to study the possible contribution of the human resource competencies on individual and organizational innovativeness through qualitative research based on case studies of Indian software firms.

3. Research Propositions

Thus, keeping in view, the conclusions of the review of the research literature discussed earlier. The following research propositions are being proposed for validation through the case studies.

1. To study the role of human resource competencies in a small enterprise.
2. To study the effect of human resource competencies on innovativeness of workforce in a firm of Indian software sector.

4. The Case-Studies

4.1 Methodology adopted

The study utilized the technique of conducting semi-structured interviews with the senior executives of the firms. Two SME firms with consistent good performance during the last five years and their operations spread over several countries were selected for conducting the case studies. Semi-structured interviews were conducted with the senior management executives of these firms. All interviews were recorded, transcripts were prepared and analyzed. Those transcripts were reviewed by two senior academicians of national management institutes and their suggestions were duly incorporated. The next section provides a brief description of case studies.

4.1.1 Company details

Company A

This company was established in 1999 by two ex-employees of TATA consultancy services. Tata consultancy services is a part of one of the most prestigious business houses of the country and is one of India's largest software consulting firm. Two professionals started this firm one is a technical expert and the other is a trained chartered accountant with experience in developing software for the financial sector. The firm is ISO 9001 certified and has strategic relationships with firms in Switzerland and Italy and one of the large Indian firms. It has a workforce of about 80 people of whom 75 percent are certified sun/IBM/Microsoft professionals. About 90 percent have the experience of working abroad with qualifications ranging from graduates in Engineering to postgraduates in Engineering or Computer Sciences.

The Findings of Case Studies

'Software SME'S do not have the option of growing in number of employees, as it calls for a firm to have deep pockets and plenty of leads to engage the workforce. The only option SME'S have is to remain focused in a niche area and move up the value chain by developing high level of expertise. In case an SME wants to change or add an area of application it needs to have domain expertise of some significant level to enter that area or else the effort may prove to be futile'. "Organizational commitment, organizational citizen

behavior, Risk Orientation is no doubt an essential attribute of all successful individuals. It provides support to an individual's integrated thinking process and transforming a creative idea into a novel product or process".

1. Our interactions thus reveal that 'human resource competencies' have a positive impact on the workforce that enhances their potential for creativity and innovation. It unequivocally validates our research propositions P1 stating: To study the role of human resource competencies in a small enterprise. The CEO of company B was optimistic that "Small software firm can switch to a different area of application (domain), only if it has the knowledge of that domain and further it can bear the risk of failure".

Note: These companies have strategic partnership with companies across the globe. Further company A has strategic partnership with a large Indian Software firm for handling competence-based work. This augments the learning and competence enhancement of professionals that they get from interacting with clients.

Company B

Based at Jaipur, the capital of the northwestern state of Rajasthan in India. This firm was established in 1999. It has a strong export-orientation and serves certain domestic clients as well. This firm is led by executives who have over 15 years of experience in the software industry. The firm employs about 70 professionals. The majority of them are graduates and postgraduates in engineering with a small number being Science or Commerce graduates having specialized training in various functional areas and technologies.

Initially the firm started by performing low-value work like maintenance and programming and in two years' they have moved one step on the software value chain. They successfully completed the project implementation assignments. The firm has adopted and put use the Microsoft.net technology. They have a number of projects on this technology. The firm has a few products also. The expertise of the firm lies in project implementation, legacy system up-gradation, software solution development, etc. They also work in jewelry design and have developed software for the same. The company has obtained the ISO 9001 certification for its design and development activities.

Our next question was thus focused on the likely role of human resource competency in enhancing individual and firm's innovativeness. The CEO of Company A was of the opinion that 'Software SME's cannot grow through number of employees with ease; it has a lot of risk associated with it. The best option is to identify a niche area, develop competence in that and grow by moving up the value chain.'

'Let me say that if there was anything which has helped us to survive and excel during the present decade which has been the most difficult period for business in software sector due to global recession, it was the continuous flow of our innovative products, ensured by our creative work force'.

'A small software firm can switch to a different area of application (domain) only if it has knowledge of that domain and further it can bear the risk of failure and self-efficacy'.

1. Our interactions thus reveal that 'human competency' has a positive effect on the workforce that enhances their potential for creativity and innovation. It unequivocally validates our research propositions **P2 stating:** To study the effect of human resource competencies on innovativeness of workforce in a firm of Indian software sector.

5. Conclusions

The individuals and organizational innovativeness are inter-related constructs fostering each other. The creative potential of an individual at the workplace is a crucial parameter determining the firm's innovation capability. Life imposes so many challenges upon us. When a person due to some existential necessity or an inner urge involves himself in solving the riddles of what is yet unsolved and in the process is able to connect certain unrelated ideas it leads to creativity and innovation. This essentially requires that an individual at the workplace feels capable and empowered to conduct new experiments.

- There are certain human competencies that are positively associated with firm's innovation supportive climate such as organizational commitment, organizational citizenship behavior, communities of practice, experiences, cross-functional interactions, risk orientation, operational autonomy and participation in the decision-making

process which play an important role in providing motivation and empowerment to individuals at the workplace.

- Human resources competencies i.e., organizational commitment, organizational citizenship behavior, communities of practice self-efficacy act positively on individuals' innovation capabilities. It may however be emphasized that these constructs are intrinsically connected with each other.

6. Limitations & Suggestions for Further Research

The present researcher is not aware of any formal study being conducted on understanding the role of 'Human resources competencies' for enhancing the individual and organizational creativity and innovation, and no evidence is available for comparing the finding of the present research. It is thus suggested:

- The study may also be conducted in the context of other sectors of industry to acquire a comprehensive understanding regarding the initiation, development, and implementation of the innovation.
- Research is also recommended for developing an appropriate 'competence' training technique for strengthening the individuals' innovations potential. Such a technique may take into consideration the various techniques adopted to enhance the various psychological constructs viz., self-efficiency, hope, optimism, and resilience of individuals at the workplace. A system for figuring out the implications of these techniques on individual personality factors may also be developed through appropriate research.

7. References

1. Ackfeldt, A.L., & Coote, L.V. (2000), 'An investigation into the antecedents of organizational Citizenship Behavior', Proceedings of ANZMAC 2000 visionary Marketing for the 21st Century: Facing the Challengee, Gold Coast, Queensland.
2. Amabile, T.M. (1996), Creativity in context: Update to "The Social Psychology of Creativity." Westview Press.
3. Cerinšek. G., & Dolinšek. S., (2009) Identifying employees' innovation competency in organizations, *International Journal of Innovation and Learning* • January 2009.

4. Cheng C., Cao L., Zhong H., He Y. & Qian J., (2019), The Influence of Leader Encouragement of Creativity on Innovation Speed: Findings from SEM and fsQCA, *sustainability*, 11, 2693; doi:10.3390/su11092693.
5. Gholami K., & Karimi A., (2014), The Role of Creativity, Innovation and entrepreneurship in the Organization, *Academy for Environment and Life Sciences*, India, ISSN 2277-1808.
6. Green Paper on Innovation. COM (95) 688 final, 20 december1995. *Bulletin of the European Union Supplement* 5/95.
7. Henderson R. & Clark. K., (1990), 'Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms', *Article in Administrative science quarterly*.
8. Lado, A. A. & Wilson, M. C., (1994), 'Human resource system and sustainable competitive advantage: a competency based perspective', *Academy of Management Review*, Vol. 19 (4), pp. 699-727.
9. Martins E.C. & Teleblanche F. (2003), Building Organizational Culture that Stimulates Creativity and Innovation. *European Journal Innovation Management*. Vol.6. No.1, pp. 64-74.
10. Nirjar, A. , Tylecote, A.B. , Khosrow-Pour, M. (2007). 'Breaking out of lock-in: insights from case studies into ways to up the value ladder for Indian software SMEs'. *Emerging Information Resources Management and Technologies*. Hershey, PA:IGI Publishing , 294-320.
11. Panigrahy P., N., Pradhan K. R., (2015), *Creativity and Innovation: Exploring the Role of HR Practices At Workplace*, Conference: National Conference held at Ravenshaw Business School,
12. Panigrahy P.N., Pradhan K. R., (2015), *Creativity and Innovation: Exploring the Role of HR Practices at Workplace*, Conference: National Conference held at Ravenshaw Business School, Cuttack, at Cuttack.
13. Sharp. R., (2018), HR's Role in organizational creativity and innovation, [.hrmagazine.co.uk/article-details/hrs-role-in-organisational-creativity-and-innovation](http://hrmagazine.co.uk/article-details/hrs-role-in-organisational-creativity-and-innovation).
14. Tidd, J., Bessant, J. & Pavitt, K. (2001), *Managing Innovation, Integrating Technological, Market and Organizational change*. 2nd Edition. John Wiley & Sons ltd.

16. Waheed A., Miao X., Waheed S., Ahmad N., & Majeed A., (2019), "How New HRM Practices, Organizational Innovation, and Innovative Climate Affect the Innovation Performance in the IT Industry: A Moderated-Mediation Analysis". www.mdpi.com/journal/sustainability, Sustainability 2019, 11, 621; doi:10.3390/su11030621.
17. Wenger, E. C., McDermott, R. & Snyder, W.M. (2002), A Guide to Managing Knowledge: Cultivating Communities of Practice. Harward Business School Press 2001.
18. Werner H. C., (2017), Managing Creativity and Innovation: Theories and Practice from the Fields of Psychology, Education, Business and Engineering, The 15th conference of the International Centre for innovation in Education (ICIE): Excellence, Innovation, & Creativity in Basic Higher Education & Psychology, At Lisbon, Portugal.

Productivity and Sustainability at Workplace: A Study on Happiness-Generating Hormones

Sanjay Kumar Satapathy

Dean

Anita Pareek

Research Scholar

School of Commerce & Management

Ravenshaw University

Odisha, Cuttack, India.

Sumit Pahwa

Research Scholar

School of Management

G.D. Goenka University, Sohna

Gurgaon, Haryana, India.

Abstract

Organizations crave for an effective work-force. Happiness is a prime component of Effectiveness. Happiness associated with materialistic-objects brings temporary delight and collaborated with mental-happiness leads to Euphoria. Thus this entire emotional-play is controlled by the "brain".

This paper addresses the basic insight on Emotional-system and its effects on work-place by knowing about the various neurotransmitters and their controlling activities. The paper also reflects about "Happiness-hormones", the diet/activities which help to enhance those and ultimately generating Happiness - Positivity - Team Behaviour - Productivity at work-place. The topics covered in this paper may act like a miniature guiding-note for both managers and employees and pave way for a developmental fusion.

Keywords

Productivity, Happiness at work, Emotional system (Limbic system), Neurotransmitters, Happy hormones.

1. Introduction

Organizations urge for productivity, fertility and happiness at work-place. Organisational accomplishments crave for conglomerating individual achievements. Scientists and researchers have made innumerable studies and findings in the field of Management and Human Resource. Apart from various empirical outcomes and theories, researchers should also find health-environment oriented ways to infuse productivity and happiness at work as models/frameworks and theories are sometimes difficult to implement practically in an organizational set-

up. The paper aims at a deviant way from the traditional methods to bring happiness at work-place. The paper puts light on the emotional system (Limbic system) of brain, so as to educate managers and other employees about various systems and hormones that deal with multiple situations (like anger/happiness) in day-to-day life. Thus "Brain" is the master organ which control the foresaid activities/emotions/hormones and a focus on this organ can internally help the policymakers to spread forth productivity among the employees.

Human brain is the central hub of complicated neural network. Series of reactions take place in fraction of seconds where brain is the primary remote control of how an individual reacts. For instance when boss praises an employee in front of the entire office crew, the hormones released further motivate them to work better, and also it creates positivity in mind and health. On the other hand, an insult by the boss for not completing an assignment creates completely opposite hormones leading to anger, anxiety, stress and de-motivation. To understand them, a narrow light is focused on the emotional system of the brain (Limbic system), which is actually responsible for producing those. Homosapiens have two different types of brain systems – the limbic system and the cortex. The Limbic system is responsible for emotional processes and produces the neuro-chemicals that entails the body as to what's good or bad for them. The Neurotransmitters remain in constant flux throughout human brain. They are manufactured and released by billions of neurons which a human brain possesses, they control the actions like how humans feel and react to any particular situation. The Special cells called "neurons" are liable for information transportation through the brain to the body. To pass this information, they utilize small chemicals known as neurotransmitters. Neurotransmitters are connected stem to stem, i.e. they are released from one neuron and received by another neuron, using special receptors – which recognises the neurotransmitter and passes on the information further to the cell body. Thus, in the light of something good, the brain releases four main 'feel-good' chemicals namely – endorphin, oxytocin, serotonin, and dopamine these hormones are the happy hormones which may actually help managers to build a strong work-force; on the other hand in the presence of danger and other related situations it releases, the 'bad-feeling' chemical – cortisol – comes into picture, thus managers should discover ways , as to how can the feel bad

hormones which leads to anxiety, tiredness, stress and other mental disorders that adversely affect physical health. Thus, in order to know and understand about various brain hormones, the focus shall be laid on the system which generates them" The Limbic system".

2. Work and Function of the Emotional System: Limbic System and Work-place

The role of emotions are essentially unavoidable in life of human beings. A book by Daniel Goleman (1995): *Emotional Intelligence: Why It Can Matter More Than IQ*, discussed the importance of emotions. Owing to the principle of evolution, it is believed that emotional part of human brain (limbic system) existed long-before rational brain (cortical system). This idea has been supplemented with the fact that all living creatures dealt with the challenges and threats of survival first. The emotional system of the brain helped to make decision regarding the approaching challenge or danger like to accept, run, fight or ignore any dangers. The seat for assessment, analysis and rational thoughts were added to human personality later. Thus it is necessary to keep the limbic system healthy as it is the seat of action and reactions of almost all day-to-day activities, one utilises their limbic brain for almost everything whereas rational brain is mostly utilised during problem solving. The structures and interacting areas of limbic system are primarily involved in the process of motivation, emotional states, learning, and also memory. The limbic system functions by impacting the endocrine system and the autonomic nervous system. Suppose, in an organizational set-up when a task is assigned in a team, or an accident happens or a festival is celebrated, the parts of the limbic system gets activated and starts working according to previous experiences and the hormones are released at those instances.

The limbic system is also tightly connected to the prefrontal cortex. Some scientists revealed that this connection is related to the satisfaction which one obtains from solving problems. The functional relevance of this system has directed to serve many different activities such as emotions, memory related activities, sensory organ processing, time of perception, alertness, consciousness, instincts, autonomic controls, and motor behaviour. The happiness, satisfaction and motivation of completing a task is attained from this section of brain. When an individual is satisfied

after problem solving and task completion, they feel motivated to work more. The feelings like anger, anxiety, frustration, stress and burnout are also the outcomes of this emotional system. This is the area where mental aggression and work-load may sometimes lead to mental disorders, thus an alertness among individuals and managers is necessary to understand the system of our body and derive basic solutions so as to maintain a productive and competitive workforce.

Out of the hundreds of chemicals that brain release during different activities/emotional stages, few important one's are listed below in the table and also the examples of situations when these hormones are generated in common to have a better understanding about their functions.

Table 1: Chemicals produced by Brain and their Related Activities/Functions with Situational Examples based in an Organizational set-up.

Chemical	Discovery	Activity
DOPAMINE (Happy -hormone)	Dr. Carlsson, 1950's	Dopamine effect makes one 'want' to do things (that are related with happiness/pleasure). Its inadequacy causes slower reaction time and also anhedonia (unwillingness to do a task) and even depression. Dopamine is released when the doing action is connected with pleasure. It influences the level of motivation and plays a crucial role in how an individual perceives reality. Inefficiency in dopamine transmission is associated with a state called psychosis, a severely distorted form of thinking which is characterized by hallucinations and also sometimes delusions. It also plays a major role in the brain's reward system. Example: Feeling of an employee when rewarded for good performance.

Chemical	Discovery	Activity
SEROTONIN (Happy-hormone)	Vittorio Ersplamer,1940	<p>Serotonin causes the feelings related to safety, calmness, joy and also self-confidence. Its scarcity leads to lowered self-esteem, high obsessive thoughts, quick compulsive behaviour, impulsiveness and aggression. Serotonin is released when carbohydrates are consumed (example: sweets and chocolate). Serotonin gives a feeling of calmness and confidence. Not just happiness but it is calmness. Precisely is relaxed happiness. Serotonin also helps in regulating sleep, appetite/hunger, moods and also inhibits pain. Certain research supports the idea that depressed people tend to have a reduced level of serotonin transmission. Thus lower levels of a serotonin by-products have been associated to a higher risk for suicide. Example :When employees celebrate festivals and success together.</p>
ENDORPHINS (Happy-hormone)	Choh Hao Li,1960	<p>Endorphins leads to really good/happy mood (also euphoric) and gives the surplus energy to “go an extra mile”, with decreased feeling of tiredness. This chemical is considered very vital since stone age, as endorphins saved the life of nomads which kept them going in spite of hunger and tiredness. The lack of endorphins can cause mood swings and also extremely, contrasting emotions. It is also released during physical exercises and movement and tends to decrease the perception of pain. Example: An employee is given an extra task at the end of the day.</p>

Chemical	Discovery	Activity
CORTISOL	Edward Kendall, Tadeus Reichstein and Philip Hench,1930	This hormone is released during the time of stress hence called the "stress hormone". It increases heartbeat, blood glucose, blood pressure, muscle tension and respiration. It also temporarily shuts down the functions that are not in need during the crisis/alertness time i.e. digestion. Example: Feelings created in employees during insult and chiding by the boss.
ACETYLCHLOIN	Henery Dale,1936	Acetylcholine is the chemical present between the nerve synapses, or the gaps, in between nerve cells. When activated, it contracts the skeletal muscles and activates the glandular functions of the endocrine system enhancing the power of learning and recalling. Acetylcholine has a vital role in the enhancement of alertness when humans wake up from sleep, and also in sustaining attention and in learning and memory . Damage to this cholinergic (acetylcholine -producing) system in the brain has revealed to be associated with major memory related with Alzheimer's disease. Example: Employee giving a presentation on an important topic.
GLUTAMATE	Kikunae Ikeda,1908	Glutamate is an amino acid. It is found to be an excitatory neurotransmitter, i.e. it tends to increase the likelihood of a nerve cell to fire an action potential. Its main function is to pass information that maintains brain development and also determines cellular survival. Glutamate though is present throughout the brain in good level of-concentrations, but excessive glutamate, as well as scarce

Chemical	Discovery	Activity
		glutamate, can be dangerous either. It must be present in accurate concentration at correct location of the brain and for the regulated length of time for functions to be carried out without damaging the cells. Example: Employee during the beginning of a new project which has a near deadline.
GABA (Gamma-aminobutyric acid)	Eugene Roberts,1950	Researchers believe GABA as an inhibitory neurotransmitter. GABA is also an amino acid which behaves as a neurotransmitter and its natural function is to slow the activity of the neurons to which it is connected. It facilitates nerve transmission in the brain, which acts as calming nervous activity. This makes a person feeling of tranquility and give a sense of wellbeing . GABA also makes the body and mind relax to fall asleep, soundly throughout the night. Low GABA levels are is interlinked to insomnia and also disrupted sleep . In a study, it was revealed that, the GABA levels in people with insomnia were found almost 30 percent lower than in people without any sleep disorder. <i>Example: Mid-tea breaks, relax time of employee in between work.</i>

The idea on various activities and the root chemicals can steer clear the way for team building and nurturing happy workforce (Table 2). The term happy is derived from the old Norse term happ implying “luck” or “chance”. The treaties An Enquiry into the Original of Our Ideas of Beauty and Virtue by Francis Hutcheson (1725) highlighted the concept that action is best which accomplishes the greatest happiness for the greatest numbers. So here is a shift from individual happiness to collective happiness. The organisations can sense the neural roots of their organisations.

Table 2: Activities and Root Chemicals Related to Them

Activity	Root Chemicals
Insomnia	Dopamine, Norepinephrin, Serotonin, Orexin
Sleep	GABA, Melatonin
Anger	Adrenalin, Dopamine
Mood swings	Dopamine, Norepinephrin, Adrenalin
Love	Oxytocin, Dopamine, Serotonin
Hunger	Glutamate, Ghrelin, GABA
Music	Dopamine, Opioids,
Alertness	Norepinephrin
Exercise	Dopamine, Norepinephrin
Excited	Dopamine
Death	DMT-dimethyltryptamine

3. Hormones and Productivity at Workplace

The figure above shows Casey Moore's Productivity chain for increasing organizational effectiveness. The chain include twelve factors that contribute to make an effective work-force: Communication & relationship among each other, Decision making in the organization, Delegation of duties, Drive to work, Goal setting , Health, Organization of data, Planning, Re-invention, Resources available, Task management and finally boundary setting. Each of them plays an equal role in productivity where, the concern picked for this paper is Health.

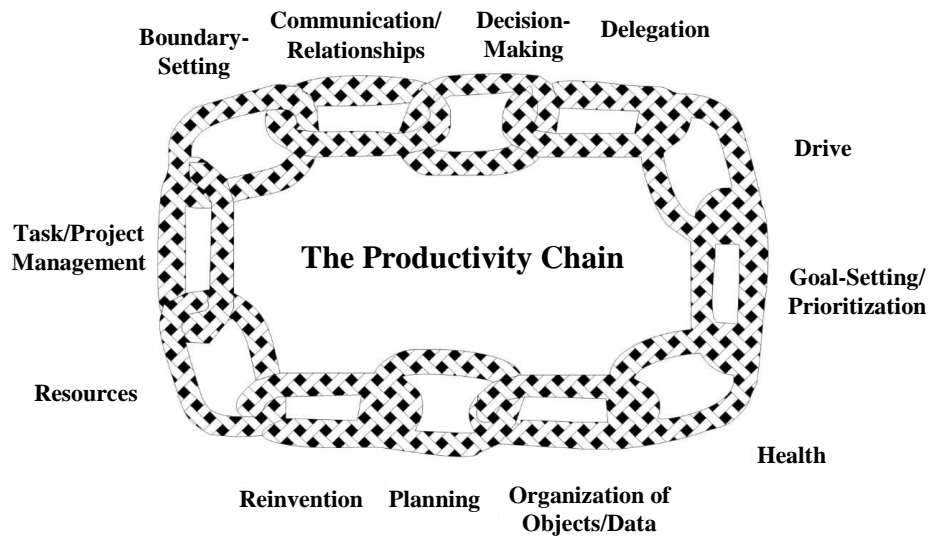


Figure 1. Casey Moore's Productivity Chain Model for Increasing Effectiveness

Source: caseymooreinc.com

An old saying 'Health is wealth', is to be taken as statutory warning by today's organizations to reach at a competitive stage for organizational success. Thus, a new dimension to health i.e. keeping the neurotransmitters/ chemical messengers positive can help to attain balance, health and well-being at large. As mentioned earlier, there are hundreds of neurotransmitters that are produced in human body out of which four are considered to be the happy hormones or DOPE hormones, and organizations must consider them in order to being productivity among employees. The neurotransmitters are Dopamine, Oxytocin, Serotonin and Endorphins. The people in general are unaware of how can these neurotransmitters be enhanced by daily activities and foods thus, a quick guide is given below, which can be a guide for self-development, productivity, happiness and sustainability at workplace which are the essential point of a growing organisation.

4. Ways to Enhance Happy Hormones for Productivity and Positivity at Workplace: A Guide for Self-development and Team Building:

Dopamine: (Food and Activities)

- Rich in protein
- Consuming low saturated fat food

- Consuming Velvet beans
- Regular exercise
- Consuming Almonds, Avocados, Bananas, Green Tea, Milk , water melon
- Eggs, Fish, meat, nuts
- Avoid sweeteners
- Getting the right sleep hours
- Having friend
- Exposing to morning sun
- Meditating
- Listening music
- Listing down to-do tasks

Oxytocin: (Food and Activities)

- Vitamin C & D
- Acupuncture therapy
- Consuming caffeine content
- Keeping pets
- Listening soothing music
- Eating dark chocolate
- Using scent of jasmine and Lavender
- Massage
- Yoga
- Exposing oneself to both cool and warm temperature
- Positive social encounters

Serotonin: (Food and Activities)

- Consuming Soy products in good quantity.
- Taking a quality probiotic,
- Properly hydrating oneself
- Consuming a brain-healthy diet.
- Spending time with nature
- Gratitude: Research show that the feeling of gratitude affects the brain's reward system directly. Since it is associated with the release of dopamine and serotonin it has been directly linked to increased well-being and happiness.
- Essential Oils: possess medicinal properties which reveal that bergamot, lavender, and lemon essential oils are rich in therapeutic properties. Utilizing them calms brain and releases serotonin.

- Happy Memories: Creating and remembering happy memories promotes production of serotonin.
- Psychotherapy helps in elevating mood and serotonin level.
- Exposing oneself to bright light
- Consuming vitamins of B6, B12 (green leafy vegetables and whole grains.)
- Increasing magnesium intake(dark greens, bananas, and fish)
- Less sugar consumption
- Staying calm and positive

Endorphins: Food and Activities

- Consuming Chocolate which contains substances such as phenethylamine and theobromine, these are chemicals that suppress pain and makes a person feel serene and pleasant by elevating endorphins.
- Eating favorite food make the brain satisfied which releases endorphins to boosts mood.
- Exercise - As working out stresses the entire body, thus brain has to pumps out endorphins to cope with the strain and pain.
- Laughter as a medicine.
- Listening and making music
- Activities like charity, volunteering, donating, as well as helping others make a person feel good which activates the pleasure centre of their brain which ultimately improves endorphins.
- Dancing to music reveals endorphins.
- Getting some walk and morning sun-rays
- Breathing exercises, yoga and meditation.

Apart from keeping all the above things in note, Ergonomics at the working-place (arrangement of things in simple ways) as well as colour of the work place, the temperature maintained, moments of Laughter, Music, providing short-breaks are all key factor in promoting happy hormones at work-place.

Research Implications:

- The study helps to guide managers/ employees to relate productivity with internal factors like health and well-being, rather than the traditional ways of following models and theories.
- It tries to educate management individuals about the master organ "Brain", its role in transmission/communication/decision making.
- It addresses the path making to spot the inner engineering similarities and nurturing teams rather than just individuals.

5. Conclusion

Happiness is not just a feeling, it is a choice which every individual must make, it is a gift which one individual must present their fellow beings by bringing a modulation in everyday activities and actions. In this light, neural balance is essential for keeping brain's functional equilibrium. Promoting happy hormones through neural-knowledge, not only makes an individual healthy in physical and mental ways, but also spread a soothing wind of positivity, which makes the entire environment pacified and ultimately enhances productivity. Mirror neurons can be ignited through team building and spiralling satisfaction effects. Thus to create a culture of harmony-happiness in the organizational set-up, management studies should also render focus to neural-knowledge as it may adhere countless benefits through managing the flow of collective happiness in the people component for the growth-stability-productivity of the organization.

6. References

1. Aashish Nanda, (Dec, 2016). Hormones and Chemicals that influence emotions. Retrieved from <https://www.mokshamantra.com/hormones-chemicals-influence-emotions/>
2. Deane Alban, (November 15, 2018). How to increase Endorphins naturally. Retrieved from <https://bebrainfit.com/increase-endorphins>
3. Dolores Garcia, (May 2, 2017). Happy-or-Sad-the-Chemistry-behind-Depression. *The Jackson Laboratory* Retrieved from <https://www.jax.org/news-and-insights/jax-blog/2015/december/happy-or-sad-the-chemistry-behind-depression>
4. Danial Goleman (1997). Emotional Intelligence "Why it can Matter more Than IQ", Boston, United States of America: Bantam Books
5. Dominika Kuczyńska, (Dec 23, 2016). Short story about the Brain Chemicals and How they Affect Players. Retrieved from <https://blog.daftmobile.com/short-story-about-the-brain-chemicals-and-how-they-affect-players-d078792139ec>
6. Erica Julson, (May 10, 2018.). 10 Best ways to Increase Dopamine Levels Naturally. Retrieved from <https://www.healthline.com/nutrition/how-to-increase-dopamine#section4>

7. ET Bureau, (Dec 10, 2018). Boost these hormones to succeed as a leader at work. *The Economic Times Wealth*. Retrieved from https://economictimes.indiatimes.com/articleshow/66988190.cms?from=mdr&utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst
8. Genevieve Rayner, (September 26, 2016). The emotion centre is the, oldest part of the human brain: why is mood so important? *The Conversation* Retrieved from <https://theconversation.com/theemotion-centre-is-the-oldest-part-of-the-human-brain-why-is-mood-so-important-63324>
9. Gibb, B. J, A. (November, 2017). A Quick Guide to Brain Chemistry. Retrieved from <https://bigpictureeducation.com/chemicals-brain>
10. Glenn Santos, (March 15, 2018). #3 ways to Increase Dopamine to Boost your Productivity. Retrieved from <https://helloendless.com/10-ways-to-increase-dopamine-to-boost-your-productivity>.
11. Glutamate. (May 24, 2017) *Good Therapy*. Retrieved from <https://www.goodtherapy.org/blog/psychpedia/glutamate>
12. Harvard health Publishing. (Updated: June 24, 2019, Published: June, 2009). What causes depression? Retrieved from <https://www.health.harvard.edu/mind-and-mood/what-causes-depression>
13. Jennifer Berry, (February 6, 2018). Endorphins: Effects and How to Increase Levels. *Medical News Today* Retrieved from <https://www.medicalnewstoday.com/articles/320839.php>
14. Joanna Smykowski, (January 2, 2019). Aristotle & Plato-How their Views on Happiness Help us Today. *Better Help*. Retrieved from <https://www.betterhelp.com/advice/happiness/aristotle-and-plato-how-their-views-on-happiness-can-help-us-today/>
15. Joe Cohen, (July 25, 2019). BS, Beneficial Effects of Oxytocin + 34 Ways to Increase it. *SELFHACKED*. Retrieved from <https://selfhacked.com/blog/the-social-chilled-out-and-empathetic-genes-oxytocin-receptor-snps/>
16. Jordan Fallis, (March 30, 2019). 25 Effective Ways to Increase Oxytocin Levels in the Brain. *Practical Brain and Mental Health Solutions*. Retrieved from <https://www.optimallivingdynamics.com/blog/25-effective-ways-to-increase-oxytocin-levels-in-the-brain>

17. Katherine Wu, (Feb 14, 2017). Actually: The Science behind Lust, Attraction, and Companionship. *Science In The News (SITN)*. Retrieved from <http://sitn.hms.harvard.edu/flash/2017/love-actually-science-behind-lust-attraction-companionship/>
18. Lachlan Brown, (March 13, 2019). 11 Ways to Increase the Serotonin in your Brain (Naturally). *Hack Spirit*. Retrieved from <https://hackspirit.com/11-increase-serotonin-brain-naturally>
19. Marie Miguel, (Jan 2, 2019). Happiness Article. *Better Help*. Retrieved from <https://www.betterhelp.com/advice/happiness/>
20. Medical University of Vienna, (August 31, 2016). Dopamine: Far more than just the 'happy hormone'. ScienceDaily. Retrieved from <https://www.sciencedaily.com/releases/2016/08/160831085320.htm>
21. Psychologies. (April 14, 2018). Boost your Natural “Feel Good” Chemicals. Retrieved from <https://www.psychologies.co.uk/self/how-to-boost-your-natural-feelgood-chemicals.html>
22. R.L. Isaacson, (2001). Limbic System. *Science Direct*. Retrieved from <https://www.sciencedirect.com/topics/neuroscience/limbicsystem>
23. Sawaram Suthar, (May 23, 2016). 6 Scientific Ways to Increase Productivity. *VISME*. Retrieved from <https://visme.co/blog/how-to-increase-productivity-at-work/>
24. Seana, (2014). Happy Hormones: How Training makes you Happy. [Blog Post]. <https://www.freeletics.com> Retrieved from <https://www.freeletics.com/en/blog/posts/happiness-hormones-training-makes-happy>
25. Swaim, Emily. (December 12, 2017). 10 Ways to Boost Dopamine and Serotonin Naturally. Good Therapy. Retrieved from <https://www.goodtherapy.org/blog/10-ways-to-boost-dopamine-and-serotonin-naturally-1212177>
26. Timothy J. Legg, (May 25, 2018). What are the benefits of Sunlight? *Healthline*. Retrieved from <https://www.healthline.com/health/depression/benefits-sunlight#benefits>
27. Wikipedia, (April 23, 2020). Limbic System. Retrieved from https://en.wikipedia.org/wiki/Limbic_system

Industry 4.0: Evolution, Opportunities and Challenges

Arun Kumar

Professor

Department of Commerce
& Business Administration,
University of Allahabad
Prayagraj, Uttar Pradesh, India.

Satyam Kumar

Research Scholar

Department of Commerce
& Business Administration,
University of Allahabad
Prayagraj, Uttar Pradesh, India.

Abstract

Over the last few years, the term ‘Industry 4.0’ is a new buzz word for the Industrialists, Academicians, Engineers, Scientists, and many more intellectuals and it has attracted more and more attention all around the world. Earlier phases of Industrial Revolutions have been recognized only after they actually happened. But this is the first time when we are witnessing an Industrial Revolution which is currently on its way. Evolution and advancements in information and communication technology, Cyber-Physical Systems, Big Data, the Internet of Things (IoT), 3D Printing, Autonomous Robots, Cloud Computing, Augmented Reality, etc. are some of the key technology areas that will digitize the whole value chains in multiple industries. The results of the adoption of these technologies are expected to be enormous along all dimensions like efficiency, flexibility, quality, mass customization, larger product selection, automation, and increased customer satisfaction.

The paper aims to present and facilitate an understanding of Industry 4.0 and its elements and explore the opportunities and challenges in the adoption of Industry 4.0 technologies.

Keywords

Fourth Industrial Revolution, Industry 4.0, Internet of Things (IoT), Cyber Physical System, Big Data, Artificial Intelligence.

1. Introduction

There's no question that technology is playing a huge part in our everyday lives today, but the increasingly connected culture we live in is also having an impact on the world of industry. This is a point where Industry 4.0 evolves. Basically Industry 4.0 is a growing combination of traditional manufacturing and industrial platforms and practices with the latest smart technology.

The term 'Industry 4.0' originates from a strategy project within the German government. In 2011 at Hannover Messe, a German annual industrial gathering, the expression Industry 4.0 was presented. Industry 4.0 is an expression that defines the fourth industrial revolution. Germany Trade and Invest (GTAI) define Industry 4.0 as:

A paradigm shift, made possible by technological advances that constitutes a reversal of conventional production process logic. Simply put, this means that industrial production machinery no longer simply "processes" the product, but that the product communicates with the machinery to tell it exactly what to do-*German Trade and Invest (GTAI)*.

2. Industrial Evolution

The fourth industrial revolution is going to transform the complete manufacturing scenario. But it doesn't begin all of sudden. There is a huge history of the Industrial revolution which starts with the 18th century.

From manual manufacturing to automated production, the world has seen a huge leap in the industrialization. We can begin to understand Industry 4.0 by examining how the industry developed throughout history. So, let's have a look at how the Industrial Revolution has evolved from the past to the present.

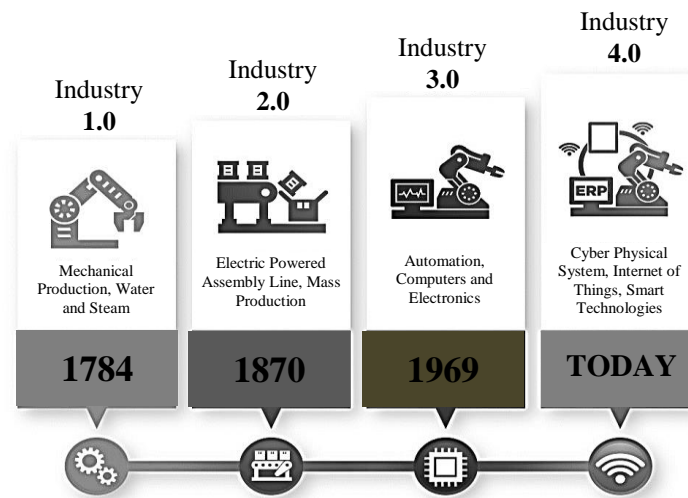


Figure 2: Industrial Revolution

Industry 1.0

The industrial revolution in Britain came with introducing machines into production by the end of the 18th century. In this era, steam-powered engines replaced the manual production system and water is being used as a source of power.

The textile industry was the first industry to adopt such innovative methods of production. It benefited the textile industry in multiple ways. It gave a very fine leverage to the British economy at the time.

Industry 2.0

After the mechanized production in the First Industrial Revolution, technological evolution took another leap towards advancement, referred to as the Second Industrial Revolution. The second one dates near 1870. During the beginning of the first technological revolution, railroads had already improved the transportation system. Improved way of transportation ensured the smooth and uninterrupted supply of raw materials and also facilitated the delivery of products in new and remotely located markets. The second industrial revolution had also witnessed the development of electrical technology which was technologically superior to steam power for the production works. Such advancements ensured the further up gradations so that the production

level could be taken to the whole new level. In this way the concept of mass production came to the public domain. Such technological advancements facilitated the development of heavy industries all around the world and many countries like Germany, Japan, USA, and England took a leapfrog as leading producers in heavy industry.

Industry 3.0

Apart from the other industrial revolution, perhaps today we are much more familiar with the third industrial revolution. This is because almost every tech-savvy is familiar with the use of digital technologies in the industrial production. The third industrial revolution appears around the second half of the 20th century.

It is often referred to as the Digital Revolution, and came about the change from analog and mechanical systems to digital ones. Due to the huge development in computers and information and communication technology, this time is also being called as Information Age. In this age, machines did not only dominate our everyday lives, but also began to abolish the need for human power in life.

Industry 4.0

Industry 4.0 focuses on how to integrate new technologies and digitization to gain manufacturing advantages. It visualizes a complete automated manufacturing and production system with total adaptability and nominal environmental impact while improving product quality. It refers to a mechanized system where machines and equipments will operate independently or can cooperate with human beings for customized production with continuous improvement. Adoption of Industry 4.0 can make a machine an independent entity, so it can be able to collect, store and analyze data, and taking decisions on its behalf.

These technological advancements become possible with the introduction of self-optimization, self-customization, and self-cognition techniques into the industries. With the introduction of it the manufacturer would be in a position to communicate with computers rather than operating them.

3. Key Elements of Industry 4.0

There are nine main pillars of the Fourth Industrial Revolution which are considered as key elements of Industry 4.0. These pillars outline the new technology manufacturers are using to improve all areas of production processes. Whether you work in the manufacturing industry or not, it is

very important to familiarize yourself with these pillars, as they are expected to have a widespread impact across all industries and society as a whole.

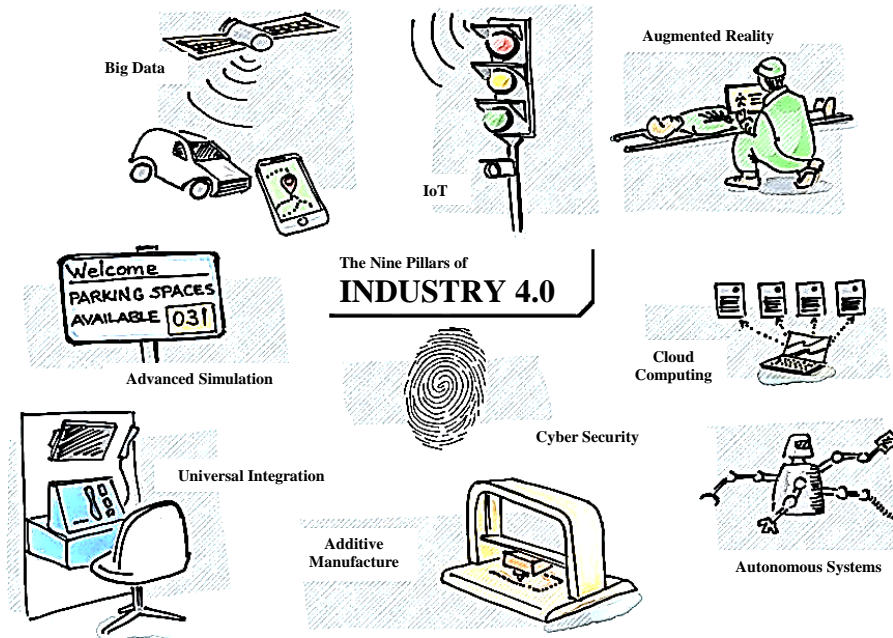


Figure 2: Nine Pillars of Industry 4.0

Source: www.plextek.com

3.1 Big Data and Analytics: In the current Information Age there are extensively huge amounts of untapped data available in the industrial world. Their analysis and use could help in saving energy, optimizing production quality, and improving the services. The main objective of big data analytics is to ensure 'Real-time Decision Making'. It might also help in Predictive maintenance. Predictive maintenance is economical and safer than the conventional method of routine maintenance.

3.2 The Internet of Things (IoT): "The Internet of Things (IoT) is a network of physical objects like sensors and actuators that are digitally connected to sense, compute, monitor and interact within the company and between multiple companies and its supply chain ensuring nimbleness, visibleness, tracking and information sharing to

ease timely management of the supply chain process”. Many gadgets such as smartphones, tablets, laptops, wearables, cars, and any machine or device that facilitates the data transmission, are known as the Internet of Things.

In the world of manufacturing, this technology is often referred to as the Industrial Internet of Things (IIoT). Producers and Manufacturers can connect the sensors and actuators to machines and other physical objects to collect real-time data which might lead to more efficient and productive operations.

3.3 Augmented Reality: Augmented reality (AR) makes the digital content visible in the real world through any of the electronic devices, such as tablets, Mobile phones or special eyeglasses. There are a lot of different uses of this technology in the manufacturing industries, such as safety training, maintenance, etc. Augmented-reality tools are still in their infancy, but they can pave the way for new services. For example, they will provide operators with the real-time information they need for faster decision-making and for improving work processes.

3.4 The Cloud: The operating processes of Industry 4.0 require more data sharing across numerous sites and companies. Cloud is a remote system that can be accessed provided from anywhere using the internet. As the use of technology and data sharing at manufacturing companies grows, cloud computing provides scalable storage and increased computing power. The cloud also improves data accessibility and integrity, helping to eliminate data silos.

3.5 Autonomous Robots: More systems in business are becoming autonomous and need less human intervention to provide effective results. Robots can work with and without human beings and can learn the human skills. The use of robotics in manufacturing could result into cost efficient and improved production outcomes in comparison to traditional manufacturing systems. Now robots are assembled and designed to work as similar to humans, with the added ability to monitor and transmit data with more accuracy.

3.6 Additive Manufacturing: Recently many companies have initiated the introduction of 3D printing for unit production and prototyping as well. With the adoption of Industry 4.0, the use of these

technologies will be made for very high performance in producing small quantities or batches of customized products and in designing and prototyping. 3D printing facilitates the decentralized production systems and it can reduce the cost of transportation and inventory management.

3.7 Cyber Security: As connectivity increases, the risk of a potential cyberattack grows alongside it. Any security breach could damage multiple areas of the business, from supply chain to operations. It's absolutely critical that companies prepare and protect their information systems and production lines from cyber threats. Secured and encrypted identity and machine access management systems will be used to provide secure, reliable communications.

3.8 Horizontal and Vertical System Integration: Today, information systems are not well integrated. A lot of Companies are still not connected with their supply chain system. For example, engineering design departments are rarely linked directly to the production house within its own manufacturing unit. But with Industry 4.0, the entire organization could be interconnected, and companies will be able to interact and connect with one another.

3.9 Simulation: Simulations follows the real-time data to visualize and reflect the physical world of product development and production processes in a virtual environment. Simulation can be used to access the real-time data to process more efficient tests, so that processes and settings are improvised and optimized even before the starting of production. It may help in reducing time lapse and improving product quality.

4. General Opportunities and Challenges

Developing countries must keep up with technological changes to ensure that they are not left behind by Industry 4.0. Applying Industry 4.0 technologies can be a gradual process and some solutions do not have to be expensive. Good ICT infrastructure is needed to help SMEs move into the digital economy. Countries and companies will need a digital strategy, and a strategic vision for a fully integrated multi-stakeholder policy approach to adopt such kind of technological changes. Education and technical qualifications should play an integral role in digital strategy

and a business-friendly environment. Government organizations and society have a key role to play in building awareness of the potentials of new technologies for inclusive and sustainable industrial and economic development through establishing platforms for dialogue, knowledge, and experience sharing.

To thrive and indeed survive in tomorrow's world, we need to stay updated in terms of technology. The adoption of industry 4.0 can provide a competitive edge over the competitors. At the same time we need to focus on each of the following challenges and act upon them as soon as possible. Businesses or organizations require fresh thinking, a positive mindset, for understanding the power of connectivity (made possible by new technologies) to adopt Industry 4.0. After being progressive and able to adopt a new mindset and refreshing the company culture, Industry 4.0 will definitely help a business to become smarter and more efficient. To summarize, here are the key opportunities and challenges of the new industrial revolution.

4.1. Opportunities

- Economic gains, such as increased revenues because of lower transaction and transportation costs.
- Higher quality products as a result of real-time monitoring.
- Enhanced productivity through optimization and automation.
- Eliminate human dependency.
- Shift to mass customization.
- Enabling innovation across many applications, with a much larger economic impact on growth.
- Energy-efficient and environmentally sustainable production and systems.
- Effective use of human resources and materials.
- Increased food security and safety.
- Improvements in the health and safety of workers.
- Changes in education and training systems.
- More open innovation systems.
- Predictive and Remote maintenance.

4.2. Challenges

- Change management, something which is too often overlooked.
- Examination and Review of company culture.
- Proper interconnection of all departments of the organization.

- Recruitment and development of the new talents.
- Cyber security.
- Huge initial Investments.
- Collaboration.
- IT modernization.
- Infrastructure gaps.
- Continuous learning and on-the-job training.
- Outdated international rules and regulations.
- Data ownership and security.
- Reliability and stability of CPSs.
- Transparency, privacy, ethics and security.

5. Conclusion and Future Work

The fourth industrial revolution is a new industrial revolution of the 21st century, which enables companies to go for smart, efficient, effective, individualized, and customized production at a reasonable cost. The paper mainly focuses on the concept of Industry 4.0, its evolution, and its elements. An effort has been made to elaborate on the multiple phases of industrial evolutions. The nine pillars of industry 4.0 explained with the Opportunities and Challenges of Industry 4.0 adoption. Since the Industry 4.0 is in its transitional phase, many more challenges might be visible in the future. Adoption of Industry 4.0 can not only transform the whole organization and value chain system but also provides the competitive edge over the competitors, which is very essential in the current global economy. Not just the business advantages, but it also contributes to transparency, good governance, and social upliftment.

6. References

1. Alaxendra Sciocchetti (2018), The real Industry 4.0 revolution is in business models, at <https://blog.bosch-si.com/industry40/the-real-industry-4-0-revolution-is-in-business-models>, Accessed on: 2019-12/22
2. Andreja Rojko (2017), Industry 4.0 Concept: Background and Overview.iJIM.11, at <http://online-journals.org/index.php/i-jim/article/view/7072>, Accessed on: 2019/12/08
3. Antonella Petrillo, Fabio De Felice, Raffaele Cioffi, Federico Zomparelli (2017), Fourth Industrial Revolution: Current Practices, Challenges, and Opportunities, at

- <https://www.intechopen.com/books/digital-transformation-in-smart-manufacturing/fourth-industrial-revolution-current-practices-challenges-and-opportunities>, Accessed on: 2019/10/08
4. Bernard Marr (2018), What is Industry 4.0? Here's A Super Easy Explanation For Anyone, at <https://www.forbes.com/sites/bernardmarr/2018/09/02/what-is-industry-4-0-heres-a-super-easy-explanation-for-anyone/#799c09109788>, Accessed on: 2019/11/26
 5. Boston Consulting Group (2020), Embracing Industry 4.0 and Rediscovering Growth, at <https://www.bcg.com/en-in/capabilities/operations/embracing-industry-4.0-rediscovering-growth.aspx>, Accessed on: 2020/01/11
 6. Crispin Andrews (2017), Industry4.0 Challenges and Opportunities, at <https://eandt.theiet.org/content/articles/2017/07/industry-4-challenges-and-opportunities>, Accessed on: 2019/11/19
 7. David Burrell (2019), Principles of Industry 4.0 and the 9 Pillars, at <https://www.plextek.com/insights/insights-insights/industry-4-0-and-the-9-pillars>, Accessed on: 2019/12/02
 8. Mike Moore (2019), What is Industry 4.0? Everything you need to know, at <https://www.techradar.com/in/news/what-is-industry-40-everything-you-need-to-know>, Accessed on: 2019/12/28
 9. Renesas (2015), Industry 4.0 - The Next Industrial Revolution?, at <https://www.eeweb.com/blog/renesas/industry-4.0-the-next-industrial-revolution>, Accessed on: 2019/11/15
 10. Richard E. Crandall (2017), Industry 1.0 to 4.0: the Evolution of Smart Factories, at <http://www.apics.org/apics-for-individuals/apics-magazine-home/magazine-detail-page/2017/09/20/industry-1.0-to-4.0-the-evolution-of-smart-factories>, Accessed on: 2019/11/12
 11. SaurabhVaidya, PrashantAmbad, SantoshBhosle (2018), Industry 4.0 – A Glimpse, at <https://www.sciencedirect.com/science/article/pii/S2351978918300672>, Accessed on: 2019/12/02
 12. Tay, S.I., Lee, T.C., (2018), An Overview of Industry 4.0 Definition Components and Government Initiatives, at https://www.researchgate.net/publication/332440369_An_Overview_of_Industry_40_Definition_Components_and_Government_Initiatives, Accessed on: 2019/12/14

Tapping the Talent through Training: A Case Study on Up Skilling

Mohammad Iqbal Zaffar Ansari

Deputy Chief Controller of Explosives

Petroleum and Explosive Safety

Organisation (PESO)

Guwahati, Assam, India.

Abstract

Managing business in the digital era of 21st. century is a bit difficult as one has to keep pace with the fast changing world due to emerging innovative technologies on almost daily basis. Sustainability in the business can only be achieved through innovations and adapting established core HR practices. Trusting the trustworthy employees, up skilling their existing talent to counter the digital invasion of the new era emerging due to automation, artificial intelligence, and internet of things types of inventions in a fast changing digital environment and to stay ahead of their rivals, one has to adapt a sound training and development methodology for achieving sustainable growth in the business, as success in management require learning as fast as the world is changing. The present case study imitates an interesting attrition trend prevailing in the north eastern region of the country where migration to national capital region has become an essential part of professional's livelihood, making it a bit difficult to retain the work force, who are frequently leaving the company in search of better career and living prospects. Motivational initiatives alone seems not effective to retain the employees as rate of attrition is increasing, making repeated hiring and retaining an important HR issue of today's business world. A training and development solution has been suggested by showcasing this case study to tackle the situation by tapping the talent through up skilling the existing pool to beat digital invasions with latest innovative and trust building motivational techniques.

Keywords

Digital skill, Open learning, Motivational training, Trustworthiness, Up skilling.

1. Opening Paragraph

On its 10th foundation day, the present CMD of the selected case company which is operating in the far north eastern region of the country, had found himself in a predicament to handle the digital skill invasions by the latest innovative technologies being adopted by their metropolitan based urban competitors for achieving sustainability in the field of green fuel business, as their existing talent pool were found being shifted to the urban localities,

Mostly to the tier 1 metro cities in search of better working environment and future career prospects especially in the National Capital Region (NCR) Delhi, where existing Compressed Natural Gas (CNG) and City Gas Distribution (CGD) Companies are providing better perks and packages to the experienced aspirants. Posing retention and hiring a very big challenge for the remotely located companies as it has become very difficult to counter the digital skill invasions without up skilling existing talent pool using better training and developmental strategies suitable for fast changing digital environment required for the sustainable growth. Currently the selected case company is facing an acute retention problem by operating in the North Eastern Region (NER) where it is quite common trend to migrate to National Capital Region Delhi for better career prospects, as every time company cannot afford to hire a new work force, therefore an expert opinion is sought to counter this key HR issue of today's business world?

2. Problem Identification

Up Skilling the existing talent pool now has become an emerging key HR Issue of today's business world. Selected case company since located in the far eastern region of the country, after 10 years of its inception is now facing acute hiring problems and looking for an innovative retentions strategies to tap the talent. As an HR expert can you suggest any practicable solution to beat the digital skill invasions currently being faced by the case company?

3. Learning Objectives

The case is most likely to develop insights on the key HR issues like retaining and hiring as per the choice based curriculum needs of students of BBA, MBA and PGDM-HR streams. It can throw lights on

recruitment policy and motivational factors responsible for retaining the trustworthy talents through innovative training and developmental methodologies being adopted for up skilling the existing talent pool to beat the digital skill invasions created due to automation, artificial intelligence, and internet of things types of inventions in a fast changing digital environment of 21st. century. The case objective is to make the HR-Students able to understand the underlying concepts of core HR issues like hiring, and retaining the talent pool through motivational training and development to achieve the overall organizational goal required for the sustainable growth of an emerging company.

4. Underlying Issues

Hiring, Retaining and Development is the three core Human Resource Development (HRD) facade of a company, which can be very well addressed by designing a suitable strategy for achieving the sustainable goal of the company using Training and Developmental components. Up skilling for handling digital and multi-task assignments using modern technological tools is the only way out to develop the existing manpower through specialized training programmes and trusting the trustworthy employee to boost the motivation of the remaining work force by rewarding them through regular paid incentives and highlighting their current achievements among other members are need of the hour, as motivation is defined as a set of attitude that predisposes a person to act in a specific goal-directed way, it is an inner state that direct human behavior to achieve organizational and individual goals (Ivancevich, John M, 2008).

Exhibit 1: The selected case company is a City Gas Distribution (CGD) company operating at Agartala, Tripura situated in the far North Eastern Region (NER) of the country. It is a subsidiary of Govt. of Tripura, Govt. of Assam and of GAIL India Limited, which is in fact a Navaratna Public Sector Undertaking (PSU) of Govt. of India under Ministry of Petroleum and Natural Gas (MoPNG), having its registered office in the National Capital Region (NCR) Delhi since its inception. The case company has posted a net profit of Rs. 9.37 Cr on an operating income of Rs. 57.22 Cr in previous years as compared to a net profit of Rs. 7.94 Cr on an operating income of Rs. 50.66 Cr in past years as per the available

financial data placed in public domain and their annual reports, which suggest that in last 10 years the case company has managed to built a very firm financial backup and presently operating with huge overall profit.

Exhibit 2: The selected case company has a very well drafted Health Safety and Environment (HSE) Policy in place and it believes that outstanding business performance requires an outstanding HSE performance in the protection of the health and safety of their people, those affected by their operations, their physical assets, their reputation and overall surrounding environment. The Goal of the selected case company is to achieve zero injuries because it believes that, all work place accidents and related injuries are preventable. Selected case company always tries to conduct its business in a very responsible manner and adhere to the internationally accepted safe and sound practices in a transparent manner at their works.

At selected case company's working premises the health safety and environment performance is everyone's responsibility and each one has a duty to intervene and to prevent unsafe actions of others and to reinforce their good behavior through demonstrating self motivated HSE leadership in all their acts. Safety in all their operations is a very critical success factor for their business development. In implementing their HSE policy the selected case company ensures that, they are providing direction, education, training and technical supervision in all facade of their operations to ensure that their each and every employees are competent enough and fully understand their accountabilities, their required behavior and the consequences of any non-compliances of the laid down statutes of the OSHA, OISD, PNGRB, and PESO keeping in view the safety first motto in all their works at all time.

5. Session Plans

After teaching hiring and retention techniques, class of HR students may be served with this thought provoking case study exercise, which is most likely to invite discussions on the retention methodologies and improving training and developmental activities by adapting various motivational tools to improve the working environment of the company and off course in turn it will build a very high level of managerial confidence amongst the participating HR students. Who will skillfully learn how to tackle this type of situation if faced in their real work life situation? Students can

also experience it, with live demonstration through simulation games and role plays or by understanding the concept behind need of organizing a rejuvenating dose of customized capacity building training programme on the digital up skilling and other safety related issues to counter the problem of attrition, which is in fact emerging as a key HR issue of today's business world. As one who is not courageous enough to take risk will accomplish nothing in life. Thus the students have to work hard to develop their talent, they have to believe in themselves and believe in goodness of others. Remember the legendry Muhammad Ali, who used to hate every minutes of his training sessions but he quite politely use to say himself in boxing ring that "Don't Quit, Suffer now and Live the rest of life as a Champion".

Therefore, it is highly recommended that students must be encouraged to present this case study exercise in a class room scenario, where each and every student must be given quite sufficient time to think, tackle, explore and to present a workable solution of this real case problem, individually and even the case may be presented in small group of beginners.

For their better understanding the emphasis on Training Need Analysis may also be taught with live and current date examples for adopting the specialized up skilling training methodologies to motivate the existing talent pool to counter the digital skill invasion and building the trust for taping the talent through training. After undertaking this exercise, the basic HR concepts of hiring and retention through motivational techniques will certainly improve the overall HR skills of the participating greenhorns presenting this attrition related case study paper.

6. Teaching Notes

Peter F Drucker (1966), once said any organization whether a business, a non-profit, or a government agency, needs to rethink itself once it is decades old. If it continues in its old ways, it becomes ungovernable, unmanageable, and uncontrollable, though success is not an overnight issue, as it takes a lot of hard work to become an overnight success (Diana Rankin). The selected case company is now organizing an extensive innovative training programmes for their entire cadre consisting managers, engineers, safety professionals, operators and contractual workers to up skill them towards digital mode of operations, online product dispenser monitoring, online compressor control, automation through automated radar gauging, Behaviour Based Safety (BBS)

training, Supervisory Control and Data Acquisition (SCADA) based controlling system, online incident reporting, online accident investigation and reporting system and handling cash less payments issues, to build their capacities to counter the digital invasion through intensive training programmes specially designed by incorporating innovative technologies as per the present needs of their customers and working environments in order to retain the employees for not leaving the company by migrating to National Capital Region Delhi, where other operating CGD companies are providing them far better opportunities in terms of higher pay and perks as prearranged by M/s. IGL in Delhi NCR area, M/s. HCG in Guru Gram area, M/s. AGL in Faridabad area, and M/s. Gail Gas in adjoining Meerut area and by M/s. SGL in Mathura and Vrindawan areas and M/s. GGL in Agra and Lucknow areas of Uttar Pradesh.

7. Closing Paragraph

It is a quite common trend or we can better say an inherent culture of the North Eastern Region's People to migrate to National Capital Region Delhi, for fulfilling their higher education, advance sports related coaching, up skill training and employment needs irrespective of their gender and marital status due to better facilities, infrastructure, connectivity, career, working environment and higher pay and emolument structures.

Therefore training by up skilling their existing talent pool with digital skills seems to be the only workable solutions to counter the problem of migration of employees of the selected case company to the metro cities. Since longevity in this business is about being able to reinvent yourself or invent in the future (Satya Nadella, 2019). Last but not the least; it is felt worthy to mention here that by adopting the motivational retention methodologies by up skilling their existing talent pool and improving training and developmental activities the selected case company has become an orientation training hub though located in the far eastern region of the country by providing hands on training experience to emerging CGD companies of the North Eastern Region (NER) like AGCL, DNPL, BCPL, Gail Gas Limited and recently constituted Indradhanush Gas Grid Limited (IGGL) in hope of Tapping The Tempo: Together Towards Tomorrow.

8. Case Company Profile

The selected case company for placing the exhibits for the participating students was in fact, M/s. Tripura Natural Gas Company Limited (TNGCL) situated at Agartala in Tripura, whose websites, www.tngcl.com and www.tngclonline.com; was accessed for placing their financial statements, annual reports and other policy documents, which were used for collection of secondary data, and placed as exhibits of this case study paper, was found hosted on their public domain sites with written case permission sought in person from company's CMD on "Children's Day". The case is dedicated to them through ICRB international platform with transfer of copy rights to the patrons of Shuchita Prakashan, Allahabad, U.P. India. The academic use of the case is permitted with due citation of author as per the ethical standards.

9. References

1. Herman Aguinis. (2005), "*Performance Management*", 3rd Edition. Prentice Hall, Upper Saddle River, New Jersey. Kelley School of Business Indiana University. Retrieved from <https://vulms.vu.edu.pk/Courses/HRM713/Downloads/Performance%20Management%203rd%20Edition%20by%20Aguinis.pdf>
2. Herzberg, Frederick. (1959). *The Motivation to Work* (2.ed). Business & Economics. John Wiley & Sons, New York.
3. Herzberg, Frederick. (1968). Harvard Business Review. One More Time: How Do You Motivate Employees? Harvard Business Publishing.
4. Ivancevich, John M. (2008), "*Human Resource Management*", 10th. Edition, Tata McGraw-Hill Publishing Company Limited, *Motivation*-p12, p56, and p633, First Reprint: 2008, New Delhi.
5. Kirkpatrick, D. (1996, Jan). Great Ideas Revisited. Techniques for Evaluating Training Programs. Revisiting Kirkpatrick's Four-Level Model. *Education Resource Information Center (ERIC)*, 50(No. 1), p54-59. Retrieved from <https://eric.ed.gov/?id=EJ515660>
6. Kirkpatrick, D. L., & Kirkpatrick, J. D. (1998). Evaluating Training Programs 3rd Edition The Four Level. *Evaluating Training Programs, Third Edition*.
7. Peter F Drucker. (1966), "*Managing for Results*". Harper and Row Publisher, INC, p51

8. Prose, D. D. (2003). *Smart Things to know about Motivation*. Jossey & Bass, San Francisco: Capstone. Wiley, 2003.
9. Tripura Natural Gas Company Ltd. *Health, Safety & Environment (HSE Policy)*. Retrieved from <http://www.tngclonline.com/hse-policy.php> Accessed on 19//11/2019
10. Tripura Natural Gas Company Ltd. *Safety Awareness*. Retrieved from <http://tngclonline.com/safety-awarnes.php> Accessed on 19//11/2019
11. Tripura Natural Gas Company Ltd. *Overview about TNGCL*. Retrieved from <http://tngclonline.com/overview.php> Accessed on 19//11/2019
12. Tripura Natural Gas Company Limited. *Financial Statements of TNGCL*. Retrieved from <https://www.icra.in/Rationale/ShowRationaleReport/?Id=29007> Accessed on 19//11/2019
13. Vangie Beal. *SCADA - Supervisory Control and Data Acquisition. Webopedia*. Retrieved from <https://www.webopedia.com/TERM/S/SCADA.html> Accessed on 19//11/2019
14. Webopedia. (2019) *Webopedia: Online Tech Dictionary for Students, Educators and IT Professionals*. Retrieved from <https://www.webopedia.com/>

Awareness and Perception of Women Consumers on Cosmetic Brands in Coimbatore

R. Rajasekaran

Associate Professor
PSG Collage of Arts and Sciences
Coimbatore, Tamil Nadu, India.

K.S. Banu

Research Scholar
PSG Collage of Arts and Sciences
Coimbatore, Tamil Nadu, India.

Abstract

Cosmetic products are mixture of natural substances or manufactured substances and offered to consumers. Consumers buy cosmetics for enhancing their beauty, and make better of their skin, hair and nail. Cosmetic products include such as make-up and skin cream as well as grooming aids such as shampoo, conditioners and deodorant etc. When herbs are used for their fragrance and medicinal value in cosmetics, they are known as herbal or green personal care products. India is a county with a population of over a billion people. Over last couple of decades, Indian cosmetics industry had a rapid growth, and during over last few years it has witnessed strong development and there emerged a high growth of the industries holding immense future growth potential. This study has been conducted in order to understand the level of awareness and perception of women consumers on cosmetic brands.

Keywords

Cosmetic, Awareness, Satisfaction, Problems, Consumers.

1. Introduction of Indian Cosmetics

The Indian cosmetic market has high growth in the recent past year, it comprises of skin care, hair care, fragrances and oral care categories and more. It has performed world's leading cosmetic markets in terms of growth in the recent past. The factors like influence of western culture and higher disposable income have majorly conducted to the growth, and compensated the impact of economic slowdown. Taste and tradition of upper middle class of the society have changed due to higher recognition of the western and fashion trends and higher paying jobs. Nowadays women's are more aware of their look and presence so they are glad to

spend more money on enhancing in future. The change in cosmetic and skin care product consumption is witnessed today due to rise in number of women consumers. The demand for cosmetics in India is increasing due to many reasons like, growing awareness among Indian consumers, increased advertising in general and increased organized retail outlets which provide opportunity for wider product choice and availability. In addition, the winning of Indian contestants in several internal beauty pageants in the last few years has made the Indian women more conscious of their appearance and awareness of western cosmetic products and brands. The demand for professional beauty care products is increasing due to the emerging Indian fashion industry and has also contributed to the growth in demand for professional beauty care products. Women's are ready to spend more on personal care to enhance their beauty. Increased media exposure and advertisement are few reasons to know the utilization and perception of cosmetic products in India. The growth trends of cosmetics industry is sending good signals about the industry prospects.

2. Statement of the Problem

Though the cosmetic brands market shows positive trend, level of awareness and perception on cosmetic brands by women consumers need to be studied. If there is any substandard products or duplicate products explored the market that also can be identified so that valuable input can be shared in the competitive market which will throw a light on quality brands and availability of the product.

3. Objectives of the Study

1. To study the awareness and perception of women consumers on cosmetics brands.
2. To analyse the usage of cosmetic brands by consumers.
3. To identify the level of satisfaction on cosmetics brands.
4. To find out the factors influencing cosmetics brands.
5. To understand the problems faced by women consumers with cosmetics brands.

4. Scope of the Study

For this study, 400 women respondents have been chosen using a random sampling method of data collection. Coimbatore has been identified as the study area. Reviews and secondary data also collected and considered. The output of the research will help the producers, marketers, and consumers about the clear picture of cosmetic market. It will support and create a new market for the cosmetic products.

5. Research Methodology

The methodology used in the study is as follows:

Sampling method

A total of 400 respondents from Coimbatore city were selected for the study. Random Sampling method has been followed for collecting the data from the respondents.

Area of study

The area covered by the study is Coimbatore city in the state of Tamil Nadu.

Analytical tools

The statistical tool that has been used for the analysis of this research paper is Simple percentage, Chi-square test, Mean value, and Anova.

Collection of Data

Primary data

Data collected by the researcher herself. By distributing a questionnaire to the identified respondents in the study area. The researcher gets first-hand information from the respondents which has been analysed for the study.

Secondary Data

Secondary data is the data that have been already collected and obtainable from other sources. Such data are more quickly available than the primary data and also may be available when primary data cannot be obtained at all.

Secondary data includes Journals, Magazines, Newspapers, Internet websites, Books, etc.

6. Review of Literature

- 1) Gomez, M.I., McLaughlin, E.W, Wittink, D.R. (2004) in this study states that linked perception of store attitude, satisfactory statement of customer together. In this research paper, the survey has taken from the food retail store. It shows the way of store revenue gets damaged by managing customer gratification. And also to show nonlinearities they have built statistical tools in net sales performance link.
- 2) Suh, J.C., Youjae, y. (2006), have investigated how the product role is rather getting obstructed concerning customer gratification and loyalty relation. This research paper is based on the attitude accessibility and stability theory. It has also manifest that both first hand and second hand customer satisfaction is proportional to faith, this is clarified by the structural equation model. But when coming to an attitude and corporate identity it has an unintended effect on brand attention through mediating influence. Finally it concludes that there is a decline in customer gratification on brand attitude and faith directly while an increase in ad attitude and corporate identity indirectly.
- 3) Sondoh Jr, S. L., Omar, M. W, Wahid, N. A., Ismail, I., 7 Harun, A. (2007), draws on the colour cosmetic product. It has five brand image benefits, they are functional, social, symbolic and experiential and appearances enhance. These were investigated. This has judged that loyalty intention is affected by presumption and aspect enhancement. The result states that in order to achieve customer loyalty, marketers has to concrete on brand image benefit sand also it was indicated that customer loyalty is influenced by overall satisfaction.
- 4) Yasmin Singaporewala (2008) observed that with the increasing globalization, the Young Indian women have realized the importance of always looking good. Both skin care and colour cosmetic products have seen rapid growth throughout the past 5 years. The Euro monitor shares a report on the Indian cosmetics and toiletries market, the colour cosmetics industries stand at \$113.4 million and skincare at \$346.9 million.
- 5) Yuen, E. F., Chan, S. S. (2010), focused on the customer loyalty impacts of the product faith and quality dimension and retail service quality dimension. This research paper has focused on the industry, particularly to the curtain retail sector. Data were collected from the

customers who are existing there. The study has concluded by stating three dimensions, which are related to the customer faith in products to store positively. The service quality with customer loyalty to staff is positively associated.

- 6) Apaolaza-Ibanez, V., Hartmann, P., Diehl, S., Terlutter, R. (2011), Conjecture on Women's satisfaction on cosmetic products. To perform the research paper, analysis has been performed on women with 355 respondents. The end result is that hedonic brand and utilitarian contribution to the fulfilment with brands.
- 7) Thakur, S., Singh, A.P.(2012) expressed the connection between faithfulness, intention, brand identity and customer gratification related to cosmetic brands together with the people of central India and it proceed with the five superiority of brand identity were talk about, they are illustrative, resources, social, appearance boost and practical. The study concluded that marketing manager has to focus on the brand identity to succeed customer satisfaction to make loyalty and faith among the customer about their product and utility.
- 8) M. Banu Rekha and K. Gokila (2015) analysed the purchaser understanding and of women towards cosmetics with a recommendation to Herbal Products. The major purpose of this study is to find the consumer understanding and gratification of the awareness of the herbal products within the purchaser and the number of consumers who uses the Herbal Cosmetics and who use the herbal cosmetics for their skincare.
- 9) Gurmeet Kaur (2016) examines customer satisfaction among selected cosmetic brands. The paper is based on primary data through from questionnaire on 100 female respondents utilizing cosmetic products. The study depicts that the major of the respondents are happy with the standard and rate of cosmetic products. First use experience, repeat purchase experience, and user experience also satisfy the respondents.
- 10) Gayathri, J., Kousika (2017), stated that the cosmetic industry has a large variety of brands, products and services, and quality. In the cosmetic industry innovation and diversity exists due to increasing demand from consumers. The present study reveals that stay permanently in the consumer's mind, factors such as pricing, quality, distribution network, etc., are considered most important.

7. Analysis, Explanation, and Findings

Collected data have been scrutinised, tabulated, analysed, and explained properly. Following are the Table and Graphical form of analysis and explained in a systematic manner.

Table 1: Awareness of Cosmetic Brands of the Respondents

S. No.	Cosmetic Brands	Number of Respondents	Percentage
1	Lakme	56	14%
2	L'Oreal	46	11.5%
3	MAC	48	12%
4	Biotique	35	8.75%
5	Maybelline	37	9.25%
6	Colorbar	40	10%
7	Revlon	34	8.5%
8	Himalaya	54	13.5%
9	VLCC	30	7.5%
10	Elle 18	20	5%
	Total	400	100%

Explanation

The above table shows that 14 percent of the respondents aware of Lakme, 13.5 percent of the respondents aware of Himalaya, 12 percent of the respondents aware of MAC, 11.5 percent of the respondents L'Oreal, 10 percent of the respondents aware of Colorbar, 9.25 percent of the respondents Maybelline, 8.75 percent of the respondents aware of Biotique, 8.5 percent of the respondents aware of Revlon, 7.5 percent of the respondents aware of VLCC and 5 percent of the respondents aware of Elle 18.

Findings: Most 14 percent of the respondents aware of the Lakme brand.

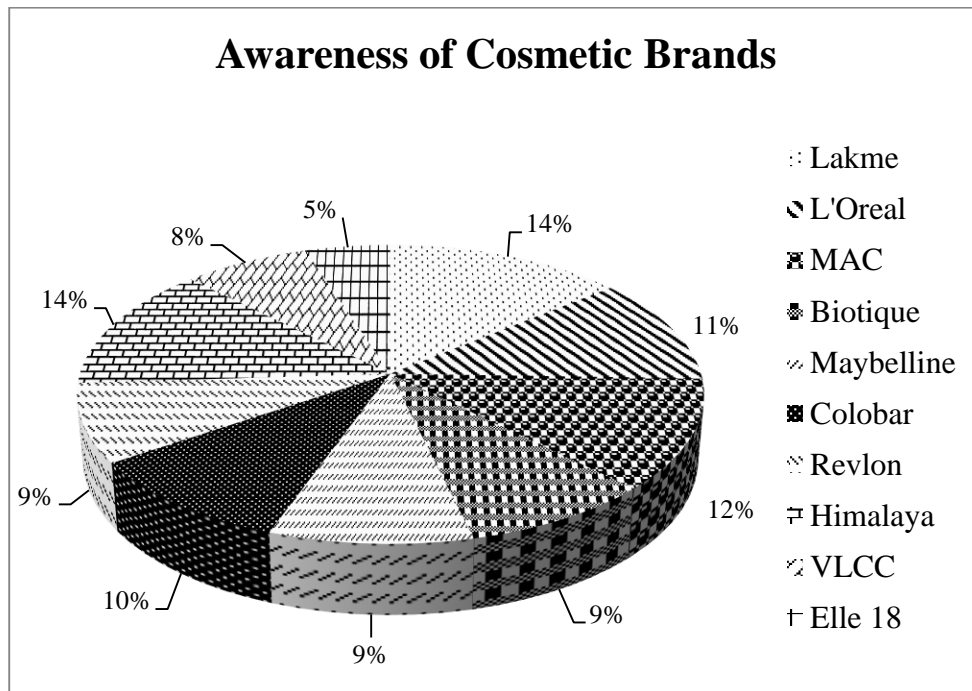


Chart 1: Awareness of Cosmetic Board

Table 2: Perception about the Brand of the Respondents

S. No.	Perception about the Brand	Number of Respondents	Percentage
1	Yes	39	39%
2	No	21	21%
3	May be	40	40%
	Total	100	100%

Explanation

The above table shows that 40 percent of the respondents said that may be advertisement change their perception about the brand, 39 percent of the respondents said that advertisement change their perception and 21 percent of the respondents said advertisement doesn't change their perception.

Findings

Most 40 percent of the respondents said that may be advertisements change their perception about the brand.

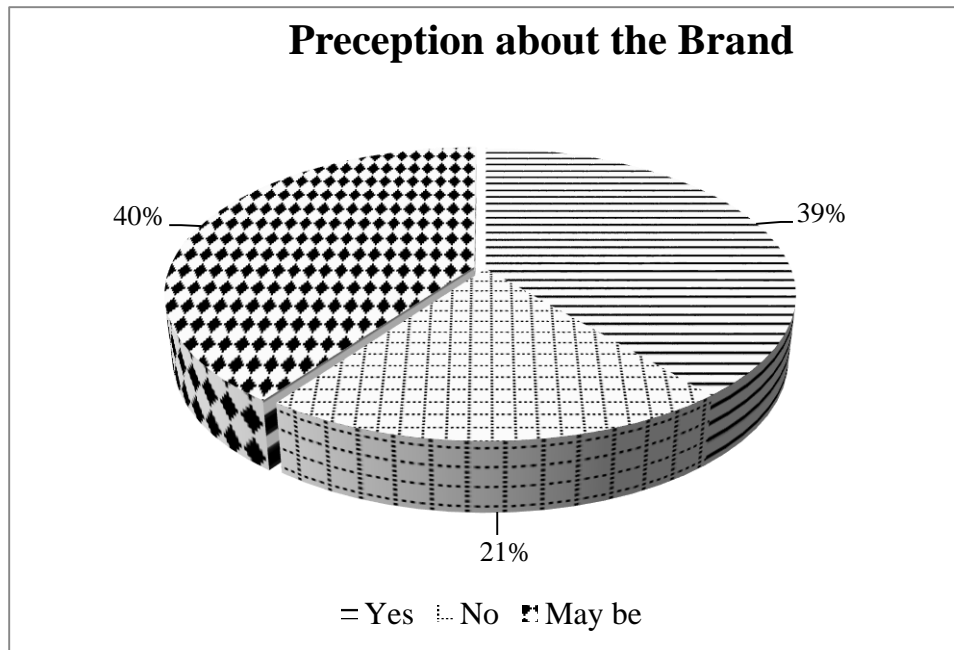


Chart 2: Perception about the brand

Table 3: Use of Cosmetic Brands of the Respondents

S. No.	Cosmetic Brands	Number of Respondents	Percentage
1	Lakme	21	21%
2	L'Oreal	13	13%
3	MAC	9	9%
4	Biotique	5	5%
5	Maybelline	10	10%
6	Colorbar	7	7%
7	Revlon	9	9%
8	Himalaya	17	17%
9	VLCC	5	5%
10	Elle 18	4	4%
	Total	100	100%

Explanation

The above table shows that 21 percent of the respondents use the Lakme brand, 17 percent of the respondents use Himalaya, 13 percent of the respondents use L’Oreal, 10 percent of the respondents use Maybelline, 9 percent of the respondents use Revlon and MAC, 7 percent of the respondents use Colorbar, 5 percent of the respondents use VLCC and 4 percent of the respondents use Elle 18.

Findings

Most 21 percent of the respondents use the Lakme brand.

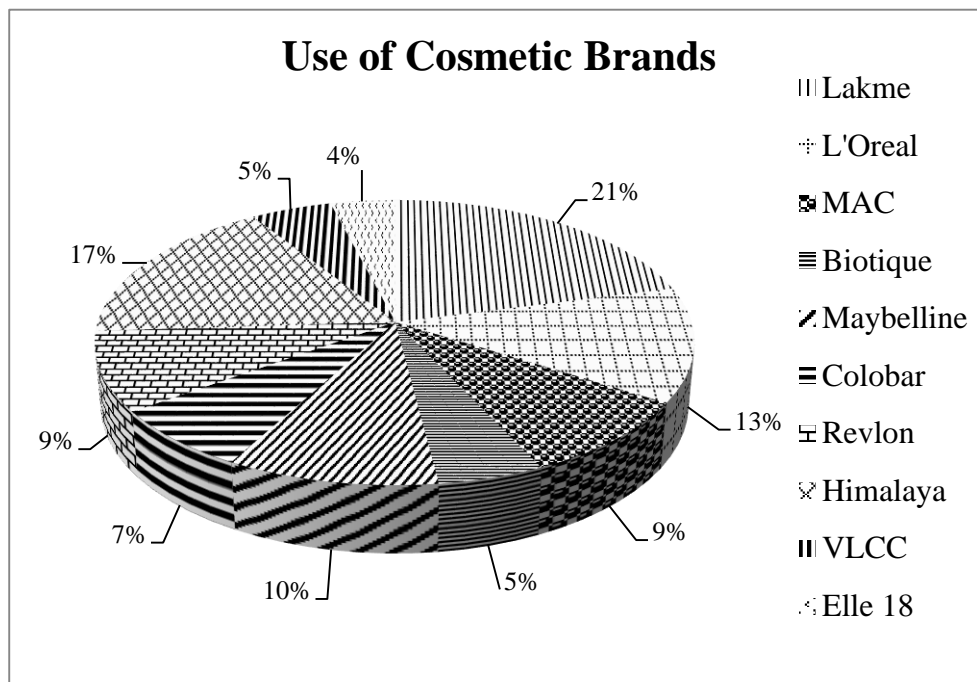


Chart 3: Use of Cosmetic Brands

Table 4: Satisfaction towards Various Attributes of the Respondents

S. No.	Attributes		Highly satisfied	Satisfied	Neutral	Dissatisfied	Highly dissatisfied	Total
1	Brand	No	81	19	-	-	-	100
		%	81	19	-	-	-	100

S. No.	Attributes		Highly satisfied	Satisfied	Neutral	Dissatisfied	Highly dissatisfied	Total
2	Quality	No	42	55	3	-	-	100
		%	42	55	3	-	-	100
3	Price	No	31	29	40	-	-	100
		%	31	29	40	-	-	100
4	Long lasting	No	33	34	23	10	-	100
		%	33	34	23	10	-	100
5	Glowing skin	No	19	41	30	5	5	100
		%	19	41	30	5	5	100
6	Natural look	No	20	35	38	7	0	100
		%	20	35	38	7	0	100
7	Confidence	No	23	45	24	5	3	100
		%	23	45	24	5	3	100
8	Self care	No	22	37	33	6	2	100
		%	22	37	33	6	2	100

Explanation

The above table shows that 81 percent of the respondents highly satisfied towards the a cosmetic brands, 55 percent of the respondents satisfied towards the quality in a cosmetic product, 40 percent of the respondents neutral towards price in a cosmetic product, 34 percent of the respondents satisfied towards long-lasting in a cosmetic product, 41 percent of the respondents satisfied towards glowing skin in a cosmetic product, 38 percent of the respondents neutral towards the natural look in a cosmetic product, 45 percent of the respondents satisfied towards confidence in a cosmetic products and 37 percent of the respondents satisfied towards self-care in cosmetic products.

Findings

The Majority 81 percent of the respondents highly satisfied with the cosmetic brand.

Table 5: Factor Influencing of the Respondents for a Cosmetic Brand.

S. No.	Factors Influence	Number of Respondents	Percentage
1	Family	24	24%
2	Workplace	15	15%
3	Friends	35	35%
4	Advertisement	26	26%
	Total	100	100%

Explanation

The above table shows that 35 percent of the respondents get influence through Friends, 26 percent of the respondents get influence through Advertisement, 24 percent of the respondents get influence through Family and 15 percent of the respondents get influence through workplace.

Findings

Most 35 percent of the respondents get influence through Friends.

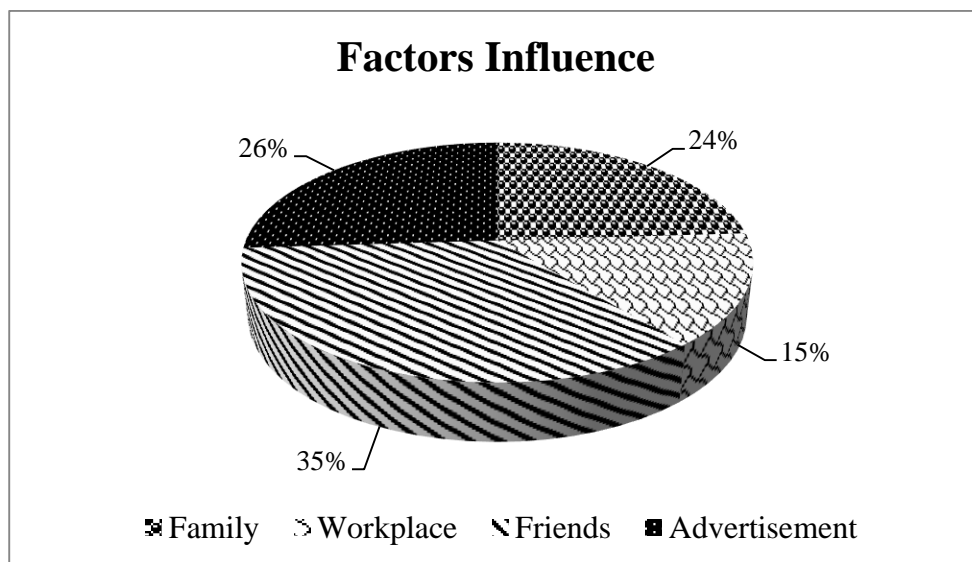


Chart 5: Factors Influence

Table 6: Problems Faced by Women Consumers on Cosmetic Brands in the Market.

S. No.	Problems	Number of. Respondents	Percentage
1	Duplicate product	61	61%
2	Less knowledge on usage	13	13%
3	Expiry date of the product	7	7%
4	Health issues	9	9%
5	More cost	6	6%
6	Non-availability	4	4%

Explanation

The above table clearly source that the problems of cosmetic product used by women consumers in the market out of the sample size 100.61 respondents (61 percent) are facing problem with the availability of duplicate product with substandard quality in the market. 13 respondents (13 percent) are facing problems with less knowledge on the usage of cosmetic products. 7 respondents (7 percent) are expressing that they face problem with expiry date or out dated cosmetic products in the market. 9 respondents (9 percent) are telling that they facing problem with health issues like skin problem and blood infection. 6 respondents (6 percent) are expressing that the cost of the branded cosmetics items is more. 4 respondents (4 percent) are facing the problem of non-availability of the product in the market.

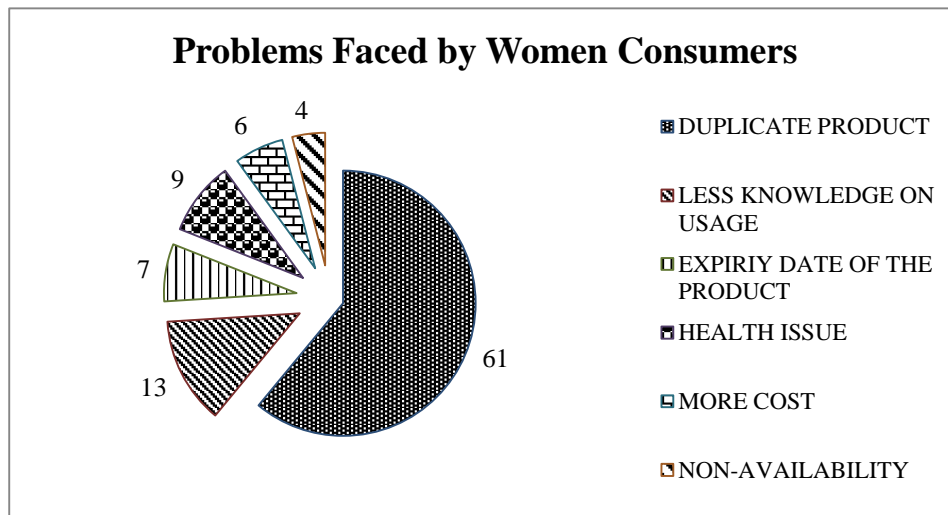


Chart 6: Problems Faced by Women Consumers

Findings

Majority of the respondents that is 61 (61 percent) have stated that they are facing problem with duplicate product available in the market and not able to identify the genuine right product.

8. Conclusion

The above study reveals that the cosmetics product market of Coimbatore receives a good response from women consumers. Out of the availability products in the market, Lakme has got the most preferred product by most of the women consumers and with a market share of 21 percent. It also cleared that out of 100 respondents 40 percent are influenced by an advertisement for cosmetic product. The level of satisfaction shows that the majority that is 81 percent have highly satisfied with cosmetic brand what they use. They have expressed that out of 100 respondents 61 percent that is the majority are facing problems with duplicate products available in the market and they are not able to find the perfect one among the available duplicate products. Hence it is concluded that as far as the perception of respondents toward cosmetic brands is concerned. The market is getting a good response from the women consumers and the level of awareness also increases which shows the market trend is positive and overwhelming.

9. References

1. Anjana.S.S, (2018), A Study on Factors Influencing Cosmetic Buying Behaviour of Consumers, Department of Management Kochi, International Journal of Pure and Applied Mathematics, ISSN:1314-3395.
2. Athulya, V, Ramy, M, (2019) Consumer Preference and Brand Awareness towards Cosmetic Product in Calicut City, Kerala, (vol-7), International Journal of Recent Technology and Engineering, ISSN: 2277-3878.
3. Deepak Kumar (2016), Impact of Brands of Cosmetics on Customers Satisfaction: A Study on Sirsa district, (vol-6), ISSN: 2231-4334.
4. Kajapriya, R, Surya. R, (2015) An Analysis on Insight of Women Consumer's towards Cosmetic Products, V.H.N.S.N College, Department of Management Studies, (vol-5), International Journal of Management Research & Review, ISSN: 2249-7196.

5. Miguel Gomez, Edward W. Mc Laughlin, Dick R. Wittink (2004), Customer satisfaction and retail sales performance: an empirical investigation, (vol-80), published by Elsevier Inc.
6. Dr. Martin, M. Rieger. (2000), Harry's Cosmeticology (8th edition), Chemical publishing.
7. Ms. Nishandini Ramesh, Mr. M. S. Siranjeev, (2017), The Determinants of Customer Satisfaction towards Cosmetic Products, Saveetha University Chennai, (vol-1), Indo-Iranian Journal of Scientific Research.
8. Poucher, W. A. (1993), Perfumes, Cosmetics, and Soaps, (8th edition.), Chapman and Hill.
9. Sushilkumar, M. Parmas (2014), A Study of Brand Loyalty for Cosmetics Products among Youth, Gujarat University.
10. Vishalakshi Viswanath, Vinay Gopalani, Cosmetic Dermatology: A Practical and Evidence-Based Approach, Vol -2 CBS publisher, ISBN:9788126558889.

Diversity Management in HRM for Socially Responsible and Sustainable Business

Aleena Ilyaz

Management Researcher
PaperPedia Private Limited
New Delhi, Delhi, India.

Abstract

With the increase in technological developments and advent of globalization, the work environment is undergoing a constant transformation. Globalization seems to affect every aspect of business including human, social, political, and financial. Pertaining to such global trends, the management has to deal with a diverse workforce having different backgrounds, origin, skills, and qualifications. Diversity Management becomes a very crucial component of HRM policies and programs so as to ensure just and fair work environment. Further, as the organizations operate on a global level, continuous profitability and growth becomes a challenge. In this regard, diversity management of employees help to develop competitive edge for the organizations by enhancing their innovation and collaborative decision making. Furthermore, it also helps to build a stronger foundation of organization's corporate social responsibility. This further highlights that HR department helps to fulfil the moral as well as financial objectives of the organization by developing diversity training programs. Human capital, being the most significant asset in the organization requires effective leadership and organizational support. For this, diversity management policies reflect anti-discriminatory framework to encourage employee inclusiveness. This has a positive implication on organization's productivity and enhances employee performance. Thus, globalization gives rise to the need of diversity management through HR activities and policies for ensuring long term profitability, social responsibility, and sustainability.

Keywords

Human resource, Diversity management, CSR, Globalization, Sustainability, Social responsibility, Workplace behavior.

1. Introduction

With the advent of globalization, every sphere in business related to social, economic, political, and human spheres is undergoing significant changes. Today, globalizations and technological advancements have resulted in the formation of a knowledge economy directly affecting the practices and policies pertaining to Human Resource Management (Sukolva & Ceniga, 2019). Consequently, diversity in workforce has entered the global business scenario bringing employees from different background, origin, race, or age to work together (Barak, 2016). A diverse workforce has a significant role to play as its values are integrated in the organization's culture. In this regard, HRM department is confronted with the challenge of devising such HR policies and programmes that help managing the diverse human capital and integrating it with organization's goals (Joshua, 2019). Further, the organizations today are facing the pressure to integrate socially responsible behavior for its sustainability and competitiveness (Dickie & Soldan, 2008). For this reason, it becomes crucial to manage the workforce diversity for maximizing the efficiency of employees.

Today, managing a diverse group of people in the organization has multi fold importance for enhancing the global sustainability of business. With respect to this, HR policies for diverse workforce reflect the fulfilment of social responsibility through employee's inclusiveness (Madera, Dawson, & Neal, 2016). It further strengthens the CSR of an organization by working towards employee justice, morality, and anti-discrimination measures (Madera, 2013). Abundance of research is present in diversity management and its related HR policies in the past (Choi & Rainey, 2010). However, a critical literature review highlights that there is only limited research done for examining how HR policies related to diversity management help in attaining CSR, sustainability, and competitiveness. Further, the organizations today are being more attracted to maintaining a multicultural and a dynamic workforce for managing its global operations. For this reason, the organizations are investing heavily in HR for devising diversity programmes to promote better employee learning and organizational attraction (Starostka-Patyk, Tomski, & Zawada, 2015). Thus, managing workforce diversity needs to be studied from both the moral and well as business perspective in the international business setting.

2. Objectives of the Paper

The main aim of the paper is to highlight the crucial role of HRM policies and framework in managing employee diversity that enhances organization's sustainability and competitiveness.

The objectives explored in the paper are outlined below:

- To critically review the research literature for understanding how globalization results in increased employee diversity. Further, to explore the concepts like sustainable HRM, EDM Framework, and integration of legislation and HR for diversity management.
- To examine the positive impact of managing a diverse workforce pertaining to both human and financial well-being of an organization.
- To analyze the concept of DM as a catalyst for social change by developing fair work places in the society.
- To study HR and DM policies as a measure of CSR for organizations.
- To highlight the implications for management for developing a collaborative framework for inclusive decision making.
- To outline the numerous challenges related to management, employee behavior, and organizational structures that restrict a well-developed diverse workplace.
- To highlight numerous recommendations for managerial action along with the scope for future research.

3. Review of Literature

3.1 Globalization of Economies

Managing the diversity among employees became a relevant subject of research due to increase in globalization and complexity in the knowledge economy. For attaining success at a global level, organizations need a diverse workforce to create a broader and dynamic global perspective through their organizational structure and hierarchies (Moeller, Harvey, & Maley, 2017). Further, as the business move towards new work cultures, the focus of the HR has gradually shifted to improving the efficiency of diverse human capital on a global level that can compete in the international labor market as well (Raco & Kesten, 2018). In addition to this, the business today is operating in distant regions and different time

zone which has transformed organizational culture into multicultural business domains (Nart, Yaprak, Yildirim, & Sarihan, 2018). Consequently, workforce diversity management helps to develop corporate social behavior for mitigating employee differences and work in a more collaborative environment (Karriker, Madden, & Katell, 2017). This reflects the significance of HRM for integrating the global business perspectives and work practices for strengthening sustainability (Oblizgin, et. al., 2016). Thus, globalization of economies has fostered the need of developing and managing a diverse workforce.

3.2 Sustainable HRM

In recent years, sustainable HRM has developed into a research concept for explaining new work concepts and management frameworks (Baum, 2018). Sustainable HRM is a broader term that covers various aspects of people's management to attract, retain, and develop the human capital in the most effective manner (Guerci & Pedrini, 2014). Organizations being open systems and centre for diverse resources, it becomes necessary to manage external and internal relationships among people at work (Muller-Christ, 2011). Furthermore, sustainable HRM further explains strategic HRM with new dimensions as it involves human and social objectives along with financial objectives (Kramar, 2014). Sustainable HRM Framework involves four perspectives that focus on integrating CSR with long term vision while strengthening the human capital. The framework involves psychological approach for developing people's skills and abilities to achieve competitive advantage; sociological approach for fulfilling responsibility towards stakeholders and society; strategic HRM approach to effectively manage employability aspects and work environment; Green HRM approach to minimize the negative impact on planet and environment (De Prins, et al., 2014). However, scarce literature is available on sustainable HRM which builds the need to further study its framework and business implications (Rompa, 2011). Thus, sustainable HRM is an umbrella concept that helps to fulfill both ethical and business motives.

3.3 Employee Diversity Management Framework

For understanding employee diversity management, organizations are required to analyze the factors and variables related to it (Guillaume, et al., 2017). Today, the organizational structures have transformed into flatter and more heterogeneous structures (Stark, 2001). This results in the need for developing an EDM Framework that can be implemented at firm level for managing people's diverse competencies (Carstens & De Kock, 2017). Consequently, EDM framework outlines HRM policies and programs that promotes hiring and management of a diverse human capital to compete globally (McGrandle, 2017). Such HR initiatives are resulting in developing more adapt and innovation-driven organizations (Teece, Pisano, & Shuen, 2004). Further, the framework enables the HR to outline the diverse competencies that needs to be inculcated in managers and leaders for driving business goals. Thus, the framework plays a crucial role in leveraging the uniqueness of employees and leaders to attain competitive advantage.

3.4 Integrating HRM and Legislative Framework for Diversity Management

HRM is also affected by the political regimes and legislative guidelines while operating in international business environment. With respect to this, it becomes crucial to constantly analyze macro and micro environment for studying global trends and formulating HR policies accordingly (Moeller, Harvey, & Maley, 2017). It helps to develop the organizational talent and build competitive flexibility and creativity in a strategic manner. Further, mandatory guidelines have been formulated by various bodies that must be incorporated in HR policies for ensuring anti-discriminatory work behavior (Reguera-Alvarado, Fuentes, & Laffarga, 2017). In addition to this, countries like Australia, US, Canada and many others focus on eradicating any social inequality arising out of multicultural diverse workforce (Jaime, 2018). Also, the federal HR laws are constantly being reviewed through further research on

diversity management to devise just and equitable labor laws and human capital theories. Thus, sustainable HRM has to integrate legislation acts and regulations for effective diversity management.

4. Positive Impact of Diversity Management

4.1 Business Profitability and Innovation

Managing employee diversity fosters innovation and creativity among employees that enhances organizational productivity (Mazibuko & Govender, 2017) Since the business reacts to social and environmental pressures, sustainable HRM helps to develop the skills and competencies of employees at a global level (Waite, 2014). Diversity management helps to understand employee behaviors and work ethics that improve employee commitment resulting organizational citizenship behavior (Moon, 2018). This implies that a heterogeneous work environment gives rise to a greater pool of skills and competencies that can be merged for profitable outcomes. For maintaining continuous growth and profitability, employee creativity and innovation is the key that can deal with global complexities (Sheppard, 2018). A diverse workforce results enhancing information sharing, collaborative decision making, and innovation-driven solutions that are directly reflected in firm's productivity. Thus, sustaining profitability and innovation is achieved through managing people at work and their diverse needs and behaviors.

4.2 Competitive Advantage and Sustainability

EDM strengthens the organization's competitive edge as HR policies are formulated in a just and equitable manner. This implies that HRM interventions like equal opportunity, inclusive work environment, fair accountability, performance measurement, diversity training, employee involvement, and other HR aspects improves employee growth resulting in improved organizational performance (Starostka-Patyk, Tomski, & Zawada, 2015). Further, human capital is the organization's core competency as it uses its abilities and expertise for accelerating business compatibility.

However, business transactions tend to ignore their negative consequences on neighborhood and environment (Hemet & Malgouyres, 2018). For this, HRM intervene in employee

management and business operations for preserving human, social, and financial growth in an effective manner. Keeping this in mind, HR helps to develop an open information culture for sharing human knowledge and skill resources. Further, it incorporates the idea of sustainability in corporate strategy that is practiced among leaders and people at work (Chou, Chen, & Conley, 2015). Thus, it results in better collaboration among business objectives, social, and environmental systems.

4.3 Talent Management and Employee well-being

Diversity management of employees is directly linked to people's recruitment and retention of diverse talents. This means that effective diversity is achieved when HR is able to recruit a globally diverse talent workforce to deliver the requirements in the international domain (Cukier & Smarz, 2012). For successfully developing competitive advantage, developing a diverse group of talent that reflects heterogeneous skills, qualifications, and problem solving capacity is very important. Further, HR outlines diversity training and employee education programs for enhancing social learning, communication, and trust (Grillitsch & Chaminade, 2018). Additionally, the diverse HR framework develops a heterogeneous climate that promotes employee involvement and work fairness. For this, strategies like open communication, continuous feedback, development opportunities, anti-discriminatory procedures helps in employee well-being (Broda, et al., 2018). Thus, it implies that DM helps business to comprehend CSR through just and equitable means.

5. Catalyst for Social Change

Diversity management works towards bringing a social change on a macro level. With respect to this, EDM programs are devised on concepts like enhancing employee worth and dignity and also developing employee's competency for better growth and career. In a globalized business network, employees from various communities, demographics, and minorities come together to work which might result in conflicts and tensions due to differences (Fujimoto & Hartel, 2017). However, diversity management is aimed at mitigating such differences and promoting a fair work place where respect is directly linked to performance. Furthermore, HR policies, education and training initiatives help in employee involvement and bringing everyone at par.

Additionally, sustainable HRM is recognized as a potential research topic for collaborating business and moral perspectives resulting in positive growth of society (Jolanta, 2018). Hence, diversity management enables HR to develop management framework that discourages inequality, discrimination, intercultural differences, and nepotism.

6. DM for Morality and CSR

With the transformation of work demographics and external environment, the organizations today are more responsive to managing their CSR score. Keeping this in mind, the HR department is devising diversity policies and practices as a mandatory part of their organizational structure for including a diverse workforce (Gundemir, et al., 2017). Further, diversity management is viewed with moral objectives to maintain peace and equality in both private as well as public sector organizations. Additionally, diversity management by HR directly measures CSR as it examines the intent of organizations to remain just and fair to employees and stakeholders (Ellemers & Rink, 2016). Not only this, such CSR framework including workforce diversity strengthens organizational and employee attractiveness (Avery & McKay, 2006). Consequently, it builds the market goodwill of the organization in the eyes of the current employees as well as the job seekers and other external partners (Backhaus, Stone, & Heiner, 2002). Thus, diversity management fosters a better CSR score and fulfils the moral obligations for the organization.

7. Managerial Implications

7.1 Ethical Decision Making

EDM requires the development of a management framework and business practices for handling diversity complexities in a sustainable manner. For this, HR, management and leaders are expected to conceptualize and implement inclusionary policies and structures for developing a heterogeneous workforce (Jordan, 2018). This can be achieved if open communication, transparency, collaborative participation, and democratic decision making is adopted. This means that HR must ensure that ethical decision making is done purely on merit basis without any bias related to color, gender, or race. Such an approach will help to maintain an employee-friendly

organization and promote overall productivity and competitiveness (Moeller, Harvey, & Maley, 2017). In addition to this, leadership training programs are needed to measure employee performance fairly. Hence, such managerial initiatives will help in improving employee satisfaction at work.

7.2 Investment in Diversity Management Programs

For continuous growth and organizational development, organizations need to invest in programs that promote diversity among employees (Madera, Dawson, & Neal, 2016). For this, the HR needs to integrate with management for understanding the dynamics of employee behavior and develop diversity strategies accordingly. Further, managers need to examine the key factors that enhance employee performance and what policies would develop such competencies among diverse group of employees (Wallace, et al., 2008). Investment in diversity management will symbolize the organization as the one with egalitarian values (Edelman, et al., 2011). It implies that investing in resources for promoting diversity will bring higher returns for the organization in the longer run (Yang & Konrad, 2011). Additionally, training and education programs will develop employee's intellect and aptitude towards a heterogeneous work culture. Hence, employee attitudes, and values must be analyzed to devise training programs and enhance organizational value.

8. Challenges in Workforce Diversity Management

8.1 Appreciation of employee differences

EDM does not only require managers to work collaboratively in diverse teams and promote fair employee treatment. Rather, it also imposes the challenge of recognizing employee uniqueness and their distinct contribution towards organizational goals (Mazibuko & Govender, 2017). However, managers tend to be bias and may unconsciously support a particular employee group that increase the workplace complexity.

8.2 Lack of diversity intelligence

Global business environment comprises of different class workers with different abilities and knowledge. However, managers in the HR might lack diversity intelligence due to which the capabilities of some workers remain unidentified and underdeveloped (Hughes & Brown, 2018). Consequently, some marginalized workers are left behind with no optimal development of their skills and talents.

8.3 Lack of communication

Open communication and trust are foundational mechanism for developing diversity management practices in the organizations (Olusegun, Abdurraheem, & Nassir, 2018). However, hierarchical complexities might hinder open communication and knowledge sharing among employees. Certain times, work places develop into stringent work zones where every worker prioritizes their personal motives to organizational goals. This further widens the gap between employees from different backgrounds and qualifications.

8.4 Ineffective leadership

Challenges arise when workforce diversity is handed over to ineffective leaders. In this respect, diverse employee teams express heterogeneity in terms of their opinion and decision making (Weberg & Weberg, 2014). With the absence of collaborative direction and high performing leadership, diversity results in conflicts and hinders employee performance. Thus, diversity training programs for management must be a crucial part of developing a diverse organizational culture.

8.5 Absence of supportive environment

Diversity Management for building sustainability and competitiveness is a transformational change which requires constant support and collaboration from employees and managers. The policies and diversity training programs by HR will prove fatal if the employees do not support them and develop positive attitude towards them (Madera, Dawson, & Neal, 2016). So, HR needs to develop diversity ideas in the work culture for tackling the challenge of employee resistance towards the same.

9. Recommendations and Scope for Future Work

To survive in a global market scenario, organizations are actively engaged in recruiting and maintaining a diverse workforce. For achieving this, the research helped in outlining some recommendations that could be implemented in the organizational culture. Management must begin with effective diversity collaboration while treating the people of the organization equally. Along with formal communication channels, informal communication and use of social media needs to be encouraged to increase employee inclusiveness. Furthermore, HR must focus in diverse recruitment for ensuring the required mixture of different backgrounds and qualifications. The HR framework for EDM must be established through mechanisms like knowledge sharing, transparency, and continuous feedback. For this purpose, comprehensive diversity training programs for both employees and managers will contribute towards developing right competencies. As discussed before, effective recognition policies for everyone's contribution should be implemented so as to bring employee satisfaction at work. Additionally, management should focus on bringing social change by developing an open organizational culture for different communities and unidentified minorities. Thus, such managerial initiatives will help in bridging the gap within diverse teams and will foster a path of longer business sustainability.

Current research focused on employee and managerial aspects of diversity management. Further, in-depth research is required to analyze the different factors that affect the moral as well as profit objective of any organization. Future research should also focus on the behaviour of external business partners and how they are affected while working in a diverse organization. Additionally, emerging work concepts like flexible work hours, freelancing, and work automation can be studied with respect to diversity management programs.

10. Conclusion

The purpose of the paper was to study the significance of diversity among employees in today's global organizations and how its management helps in building sustainability along with fulfilling the corporate responsibility. Through an in-depth analysis of literature, it was found that globalization of economies introduced a paradigm shift

in the composition of the workforce due to which people from different cultures and backgrounds could work together in a similar work environment. Furthermore, with the awareness in society, the pressure on organizations has increased for working towards effective people's management to fulfill social and financial objectives. This suggested the use of sustainable HRM framework that encompasses psychological, sociological, strategic, and green approach to HRM practices. Also, the literature highlighted the use EDM framework to implement diverse competencies among employees at different levels in the organization. It further enables HR to devise policies for developing diverse set of competencies among managers and employees. The affect on HR policies to confirm with the human legislations pertaining to particular regions leads to redesigning of HR programs and guidelines. This is done to ensure anti-discriminatory work behavior to remove any sort of social inequality among the employees from diverse cultures and minorities. The research in the report also concluded that HR practices promoting diversity helps in improving profitability, innovation, competitive advantage and sustainability in the longer run. Moreover, it is used as a driver for employee wellbeing and talent management. Programs concerning diversity management help in fulfilling the social responsibility and ensures that effective social practices are implemented that helps in societal development on a broader level. In order to achieve this, the management also needs to mitigate the challenges pertaining to lack of communication, diversity intelligence, appreciation of differences, ineffective leadership, and supportive environment. Thus, such practices will help in successfully managing the diversity among employees.

11. References

1. Avery, D. R., & McKay, P. F. (2006). Target Practice: An Organizational impression management approach to attracting minority and female job applicants. *Personnel Psychology*, 59, 10.1111/j.1744-6570.2006.00807.x.
2. Backhaus, K. B., Stone, B. A., & Heiner, K. (2002). Exploring the relationship between corporate social performance and employer attractiveness. *Business & Society*, 41, 10.1177/00076-50302041003003.x.
3. Barak, M. E. (2016). *Managing diversity: Toward a globally inclusive workplace*. California: SAGE Publications.
4. Baum, T. (2018). Sustainable human resource management as a driver in tourism policy and planning: A serious sin of omission? *Journal of Sustainable Tourism*, 26, 873-889.
5. Broda, A., Krueger, J., Schinke, S., & Weber, A. (2018). Determinants of choice of delivery place: Testing rational choice theory and habitus theory. *Midwifery*, 63, 10.1016/j.midw.2018.04.023.
6. Carstens, J. G., & De Kock, F. S. (2017). Firm-level diversity management competencies: Development and initial validation of a measure. *The International Journal of Human Resource Management*, 28, 10.1080/09585192.2015.1128460.
7. Choi, S., & Rainey, H. G. (2010). Managing diversity in US federal agencies: Effects of diversity and diversity management on employee perceptions of organizational performance. *Public Administration Review*, 70, 109-121.
8. Chou, C. J., Chen, C. W., & Conley, C. (2015). Creating sustainable value through service offerings. *Research Technology Management*, 58 (2), 48-55.
9. Cukier, W., & Smarz, S. (2012). Diversity assessment tools: A comparison. *International Journal of Knowledge, Culture & Change Management*, 11 (6), 49-63.

10. De Prins, P., Van Beirendonck, L., De Vos, A., & Segers, J. (2014). Sustainable HRM: Bridging theory and practice through the 'Respect Openness Continuity (ROC)'-model. *Management Review*, 25, 263-284.
11. Dickie, C., & Soldan, Z. (2008). *Diversity Management*. Prahan: Tilde Publishing.
12. Edelman, L. B., Krieger, L. H., Eliason, S. R., Albiston, C. R., & Mellema, V. (2011). When organizations rule: Judicial deference to institutionalized employment structures. *American Journal of Sociology*, 117, 888-954.
13. Ellemers, N., & Rink, F. (2016). Diversity in work groups. *Current Opinion in Psychology*, 11, 10.1016/j.copsyc.2016.06.001.x.
14. Fujimoto, Y., & Hartel, C. J. (2017). Organizational diversity learning framework: going beyond diversity training programs. *Personnel Review*, 46, 1120-1141.
15. Grillitsch, M., & Chaminade, C. (2018). Bridging the gap: citizenship diversity and global innovation networks in small and medium size companies. *European Planning Studies*, 26 (12), org./10.1080/09654313.2018.1520812.
16. Guerci, M., & Pedrini, M. (2014). The consensus between Italian HR and sustainability managers on HR management for sustainability-driven change—towards a 'strong'HR management system. *International Journal of Human Resource Management*, 25, 1787-1814.
17. Guillaume, Y. F., Dawson, J. F., Otaye-Ebede, L., Woods, S. A., & West, M. A. (2017). Harnessing demographic differences in organizations: What moderates the effects of workplace diversity? *Journal of Organizational Behavior*, 38, 276-303.
18. Gundemir, S., Homan, A. C., Usova, A., & Galinsky, A. D. (2017). Multicultural meritocracy: The synergistic benefits of valuing diversity and merit. *Journal of Experimental Social Psychology*, 73, 10.1016/j.jesp.2017.06.002.x.

19. Hemet, C., & Malgouyres, C. (2018). Diversity and employment prospects: Neighbors matter. *Journal of Human Resources*, 53 (3), 825-858.
20. Hughes, C., & Brown, L. M. (2018). Exploring leaders' discriminatory, passive-aggressive behavior toward protected class employees using diversity intelligence. *Advances in Developing Human Resources*, 20, 10.1177/1523422318778002.
21. Jaime, P. (2018). Recycling the idea of race: socio-political agenda, transnational business culture, and diversity management in Brazil. *Social Identities*, 24, 647-665.
22. Jolanta, M. (2018). Embedding diversity in sustainability reporting. *Sustainability*, 10, 10.3390/su10072487.
23. Jordan, K. (2018). Validity, reliability, and the case for participant-centered research: Reflections on a multi-platform social media study. *International Journal of Human-Computer Interaction*, 34, 10.1080/10447318.2018.1471570.
24. Joshua, F. A. (2019). Assessment of the role and functions of the human resources department in small and medium scale enterprise companies in Ile-Ife, Osun. *Journal of Human Resource Management* 7, 7, 32-40.
25. Karkiker, J. H., Madden, L. T., & Katell, L. A. (2017). Team composition, distributed leadership, and performance: It's good to share. *Journal of Leadership & Organizational Studies*, 24, 507518.
26. Kramar, R. (2014). Beyond strategic human resource management: Is sustainable human resource management the next approach? *International Journal of Human Resource Management*, 25, 10691089.
27. Madera, J. M. (2013). Best practices in diversity management in customer service organizations: An investigation of top companies cited by Diversity Inc. *Cornell Hospitality Quarterly*, 54, 24-135.
28. Madera, J. M., Dawson, M., & Neal, J. A. (2016). Why investing in diversity management matters: Organizational attraction and person-organization fit. *Journal of Hospitality & Tourism Research*, 1-29.

29. Mazibuko, J. V., & Govender, K. K. (2017). Exploring workplace diversity and organizational effectiveness: A South African exploratory case study. *South African Journal of Human Resource Management*, 15, 10.4102/sajhrm.v15i0.865.
30. McGrandle, J. (2017). Understanding diversity management in the public sector: A Case for Contingency Theory. *International Journal of Public Administration*, 40, 10.1080/01900692.2015.1136942.
31. Moeller, M., Harvey, M., & Maley, J. (2017). HR guidelines for mitigating cross-border regional differences: Creating the foundation for a global mindset. New Zealand. *Journal of Human Resources Management*, 17 (1), 54-70.
32. Moon, K. (2018). Examining the relationships between diversity and work behaviors in U.S. Federal Agencies: Does inclusive management make a difference? *Review of Public Personnel Administration*, 38 (2), 218-247.
33. Muller-Christ, G. (2011). *Sustainable Management: Coping with the Dilemmas of Resource-Oriented Management*. Berlin: Springer.
34. Nart, S., Yaprak, B., Yildirim, Y. T., & Sarihan, A. Y. (2018). The Relationship of diversity management and servant leadership with organizational identification and creativity in multinational enterprises. *Journal of Financial Politic & Economic Reviews*, 55 (637), 31-47.
35. Oblizgin, M., Tatli, A., Ipek, G., & Sameer, M. (2016). Four approaches to accounting for diversity in global organizations. *Critical Perspectives on Accounting*, 35, 88-99.
36. Olusegun, O. O., Abdulraheem, I., & Nassir, B. A. (2018). Workforce diversity management strategies and organisational performance in the food and beverage industries in Lagos State, Nigeria. *Scholedge International Journal of Management & Development*, 5, 1-14.

37. Raco, M., & Kesten, J. (2018). The politicization of diversity planning in a global city: Lessons from London. *Urban Studies*, 55, 891-916.
38. Reguera-Alvarado, N., Fuentes, P., & Laffarga, J. (2017). Does board gender diversity influence financial performance? Evidence from Spain. *Journal of Business Ethics*, 141, 337-350.
39. Rompa, I. (2011). *Explorative research on sustainable human resource management*. Amsterdam: Work and Organizational Psychology, VU University.
40. Sheppard, D. L. (2018). The dividends of diversity: the win-win-win model is taking over business and it necessitates diversity. *Strategic HR Review*, 17, 10.1108/SHR-03-2018-0017.
41. Stark, D. (2001). Ambiguous assets for uncertain environments: Heterarchy in postsocialist firms. In P. DiMaggio, *The Twenty-first Century Firm* (pp. 69-104). Princeton, NJ: Princeton University Press.
42. Starostka-Patyk, M., Tomski, P., & Zawada, M. (2015). Diversity Management as a Part of Corporate Social Responsibility. *Procedia Computer Science*, 65, 10.1016/j.procs.2015.09.055.
43. Sukolva, V., & Ceniga, P. (2019). Diversity Management in Sustainable Human Resources Management. *Globalization and its Socio-Economic Consequences*, 74, <https://doi.org/10.1051-/shsconf/20207401033>.
44. Teece, D. J., Pisano, G., & Shuen, A. (2004). Dynamic capabilities and strategic management. In M. L. Tushman, & P. Anderson, *Managing Strategic Innovation and Change* (2 ed., pp. 308-332). Oxford: Oxford University Press.
45. Waite, A. M. (2014). Leadership's influence on innovation and sustainability: A review of the literature and implications for HRD. *European Journal of Training and Development*, 38 (1), 15
46. Wallace, J. C., Edwards, B. D., Mondore, S., & Finch, D. F. (2008). The interactive effects of litigation intentions and procedural justice climate on employee-employer litigation charges. *Journal of Managerial Issues*, 20, 313-326.

47. Weberg, D., & Weberg, K. (2014). Seven behaviors to advance teamwork: findings from a study of innovation leadership in a simulation center. *Nursing Administration Quarterly*, 38, 230-237.
48. Yang, Y., & Konrad, A. M. (2011). Understanding diversity management practices: Implications of institutional theory and resource-based theory. *Group & Organization Management*, 36, 6-38.

Factors Responsible for Slowdown of Indian Economy 2020 and Methods to Mitigate Them

Pinky Jha

Managing Director
Socio-economic Research
and Development Foundation
New Delhi, Delhi, India.

Abstract

This is a narrative paper explaining about major causes of economic slowdown of Indian economy and methods to mitigate them. Among various previous related studies, majority of them focuses on lack of innovation and investment while some of them focus on sluggish demand and few blamed on unfavorable government policies as main reasons behind the economic slowdown. Overall in this conclusive paper problems and methods to cure economic slowdown are written simultaneously. In the paper, problem of economic slowdown is studied in depth and efforts being made to discover its causes in previous three decades (1990-2020). In this study, things like corruption, demonetization and inflation are also taken into consideration as causing factors of slowdown. Finally, the paper concluded that generating employment is not possible only through shifting to labour intensive technique. The special attention is given to services sector instead of agriculture and services sector but alone it won't do any miracle to uplift the economy. The collaboration of government policies and Private Capital as Public private partnership (PPP) will turn Indian economy into a super strong economy in the world.

Keywords

Restructuring economy, Sluggish consumer demand, Agro-mercantile, Less than 5 percent, Pandemic.

1. Introduction

Indian economy is a powerful economy (market) in the world. Indians has immense skills like Indian handicrafts, furniture's and services are highly demanded in foreign market which is helpful in making the country prosperous, but in the present scenario we are facing great economical slowdown. The situation is not only prevailing in India but

things are going almost same everywhere. Due to rising trade barrier and increasing geo-political tensions IMF downgraded global GDP estimate several times in 2019.¹⁷ Most of the Economists are worried about the current situation of Indian economy, as once India remain among the fastest mounting economy in the world.¹

The main causes of Indian Economic slowdown 2020 can be bifurcated into two major conditions:

- Neglecting the nature of India economy which is a labour intensive due to availability of large human resources. The negligence turns on the poverty, unemployment and many more macro economic problems.
- Sensitive nature of the Indian economy which gets influenced by many external and internal factors like gulf war, cold war, drought, flood, Border disturbances, global crises, Non-Performing Assets(NPA), Demonetization, Failure of Automobile industries, sluggish consumer demand, and many more. The percentage of influence depends on reliance of the economy on the respective factor.

During 1991, Economic reform was introduced in India focusing on-Liberalization, Privatization and Globalization (LPG), licensing was liberalized, industries were privatized and economy was globalised. Positive side of this economic activity known to everyone but we never gave much importance to the negative side. This negative side was meager but it was prevailing and was much more responsible for sowing the seed of slowdown of the economy in long run.

Elaborating the three terms separately we get, Liberalization- as above said licensing and other industry related government polices was liberalized. Lots of new fraud companies was opened on paper to attain easy loan, it raised the problem of loan defaulter. This all resulted into a new problem of shadow economy. There wasn't any special regulation to check on those loan defaulters.

Due to Privatization more resources were in the hands of private entrepreneurs. With the launch of the "New Industrial policy 1991" which states that "Government will fully protect the interests of labour, enhance their' welfare".¹⁸ It forced entrepreneurs to move towards capital

intensive technique instead of labour intensive technique. This movement of choice of technique started a disturbance in the economy and situation get in worst day by day; it raises the level of unemployment. The situation became so crucial that even in 2015 the NITI (National Institution for transforming India) Ayog Vice-chairman Arvind Panagariya charged companies with not investing in labour intensive sector. According to him, Every year, 12 million people enter the labour force market but the industry wants to invest in capital-intensive sectors such as auto parts, automobiles, machinery, chemicals or areas requiring special skills such as software, telecom, pharmaceuticals instead of labour-intensive sector such as food processing, electronic assembly, leather products,”⁶ and after ignoring the actual problem these entrepreneurs are now worried about fall in demand of automobile industry.²⁷

Then Indian government started a mandatory Corporate social responsibility (CSR) policy to incline them towards social uplift, private entrepreneurs has to invest their profit in areas such as education, poverty, gender equality and hunger.¹³

Globalization has opened Indian economy for the whole world. The inclination towards western culture made Indians copying western style and Indian goods were replaced by foreign goods. These blind practices made India a dumping ground for some foreign countries.¹⁹

Rich Indian entrepreneur's goes one step ahead and started buying foreign machinery and it took jobs of many industrial labours. In this way we started behaving like capital intensive country. The employment opportunities started shifting from industrial sector to services sector. India will become a nation with an estimated population of more than 1.3bn by 2021 ²² Its majority of population is youth which shows incredible human resource. According to Planning Commission / Niti Aayog, “In next 14 years 183mn aspirants are expected to join the workforce” that alone cannot be absorbed by the services sector.²² But still we are only focusing towards services sector and want to reach level of full employment. While maximum numbers of people are directly or indirectly employed in agriculture and allied sectors.²¹

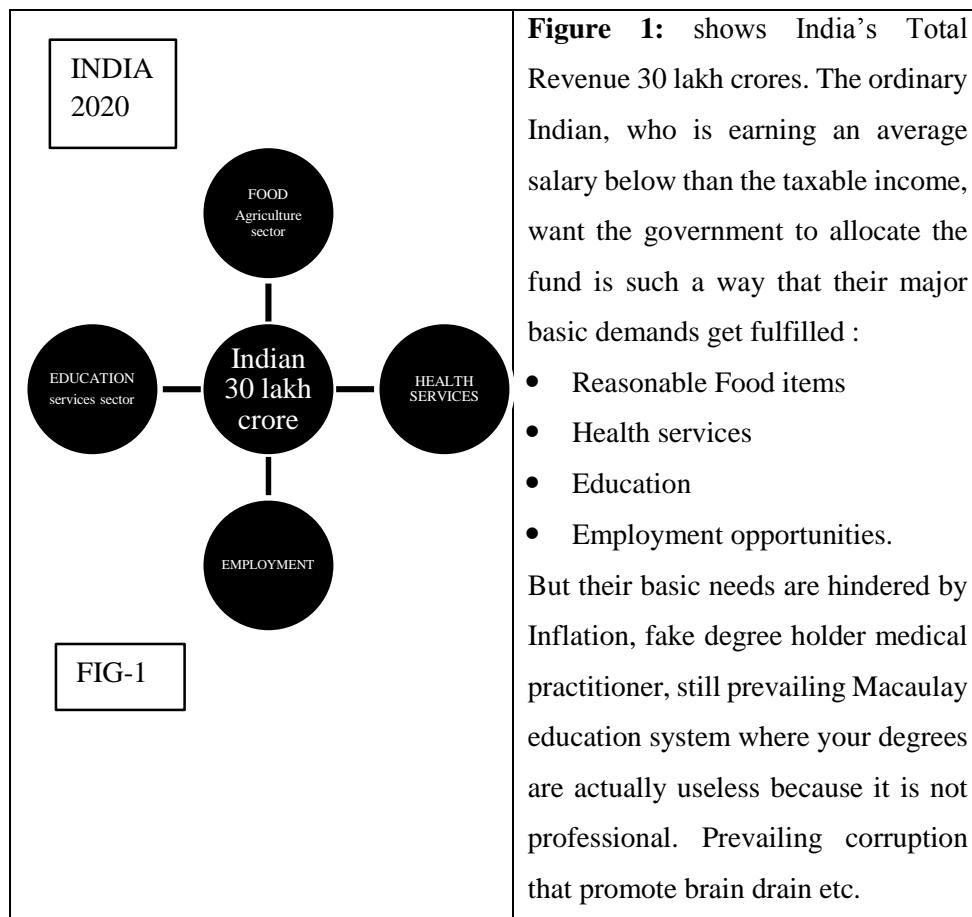
During world economical crises of 2008, Indian economy was sturdy sufficient to scrap the crises but suddenly indian workers were sent back from their working countries in the name of cost cutting. So India faced a post effect of the world economical crises. which gets more visible upto 2011. Economical slowdown of 2011 has other add-on factors like mounting inflation, decrease in investments and decrease in FDI due to investors doubting about the government's obligation to economic reform.⁸

In 2014, post-election economic reform, changed perception of investors resulting a rise in Foreign direct investments and the Indian exchange rate get stronger. In years 2014 to 2016 the Indian economy bounce back to normal. Despite having a higher economical growth rate, various national banks were struggling with Non-performing assets(NPA) results in very limited credit creation.⁸

Suddenly in 2016, demonitisation was announced by indian government. It acted as a major cause of imbalance in Indian economy because it influenced the incoming FDI alot. The benifit of Indian demonitisation was taken by stronger western economy, they worked well as a pulling factor to foreign investors, who were previously investing in the Indian economy, changed their mind and shifted towards western countries.²⁴

Introduction of GST in 2017 was a favourable move of the Indian government towards uplift of Indian economy and helped in rising FDI limits in various sectors. ⁸

2018 India emerged again as a strong economy, IMF ranked India 142nd based on GDP (nominal) and 119th based on Purchasing power parity (PPP) in 2018. In 2019 UNCTAD forecasted indian's growth rate to be 6 percent from 7.4 percent due to constant decline consumer demand.²⁸



2. Factors Responsible for Indian Economical Slowdown 2020

There are so many factors responsible for slowdown of Indian economy but it is very tough to accumulate each and every influential factor. So here, efforts have made to access the major factors responsible for economical slowdown like Agriculture, Manufacturing, Services, and various other factors are elaborated below-

Agriculture

India is a country with rich agriculture resources like best quality land, perennial rivers, abundant human resources but this sector is losing its importance due to lack of research work or investment in this field. We don't have proper cold storage for storing our surplus produce that leads us to running shortage at the end of the season. Presently very few

industries are there in food business due to its perishable nature of product. Although government is providing subsidies to the marginal farmers for losing their produced crop due to drought and flood but it won't work out at national level agriculture growth. Agriculture favoring policies like Green revolution mainly focuses on cereals production and we attain a satisfactory position in it, but we need to focus on Horticulture and Floriculture. We can boost our Agro exports via proper participation of government and private sector because, it has a huge employment opportunity and favorable for our structure of economy.

Manufacturing

Various studies clarifies that the decade of 70's and 80's was actually the revival period of manufacturing sector.^{26,2} Some studies picked the main cause behind impediment industrial growth of 60's and 70's as sluggish domestic demand.³ In present situation China and USA are two powerful economical competitor to each other but this wasn't in decade of 90's , the then China's manufacturing sector contribution to its GDP was about 40 percent while India's manufacturing sector contributing only 26 percent of its GDP at that time, but it was among highest contribution of manufacturing sector to India's GDP. China's example shows that we need to focus more on our manufacturing sector to give a strong base to our economy. In present scenario Indian manufacturing sector is giving just 15 percent contribution to the GDP, which is quite low. Ajay Sahai, Director General & CEO (FIEO) called it "ballooning trade gap," He said that free trade agreements too have impacted the country's trade balance. Rise in imports has contributed to rise in the country's trade deficit.²³ Industrial sector witnessed high rate of growth in 1991-92 and reached peak growth at 14.9 per cent in 1995-96. Then it slowed down to 7.9 per cent in 1996-97, 4 percent in 1997-98 and 3.6 percent in 1998-99.¹¹

Services

"IHS Markit India Services Business Activity Index" roses to 55.5 in January 2020, from 53.3 in December 2019.¹³ India's services sector covers a large range of activities such as trade, hotel and restaurants, transport, storage and communication, financing, insurance, real estate, business services, community, social and personal services, and services associated with construction and IT sector is just booming. But still we are lacking behind in innovation in Health care and Education sector to build a healthy and productive workforce as well as stabilize population.⁸

FDI

Before India's economic liberalization in 1991, there was no FDI in India, so there was a sudden high flow of foreign investment in the year of 1992. In the year 1992-1996 the flow of FDI was impending gradually. In 1997 Asian economical crises, FDI had a downward trend and faced a crash in year 2002 as a post effect of Kargil-war and then a overturn trend in year 2003. The global Economical crisis of 2008 was responsible for low FDI in year 2009,¹² but in 2008 when world economy was going through great economical crises, Indian economy was enjoying highest FDI.⁷ Main fall in India's own exchange led to the diminishing FDI in year 2012.¹² Make in India plan and FDI policy (2016) brought maximum number of sectors under the automatic approval route, with few exceptions in the negative list. FDI witnessed a growth of about US\$ 60.08 billion means near about 8 percent in the year 2016-17.¹⁵

Exchange Rate

Currency values fluctuation depends on several factors. It includes a nation's economic activity and growth prospects, interest rates, and geopolitical risk. It creates economic uncertainty and instability, which affects capital flow and international trade. Exchange rates keep on fluctuating in every quarter of the year. On yearly basis in 1990-91 it was \$17.94, in 1995-96 was 33.44, in 2000-01 weakened to 45.68, whereas in 2005-06 it was 44.27, in 2010-11 was 45.56, 2015-16 was 65.46 and in the year 2018-19 the currency weakens up to 69.92.⁵ According to basic rule of exchange rate states that weakening of home currency cause a favorable rise in exports of the country, but on the contrary India's imports are larger and exports are less, it is mainly due to lack of economic activities. Indian currency reached its all time low in the year 2018. It was insufficient foreign demand, lack of innovative idea towards the foreign market, lower returns, decreasing FDI and decreasing interest rate.

After economic reform Indian manufacturing industry has great influence over foreign market. There is a high demand of Indian goods (Drugs and furniture) in foreign markets.²⁰ It boost the Indian exchange rate and turns it into stronger exchange rate, whereas lack of demand cause weakening of exchange rate. There are so many other factors (Interest rate, Inflation rate, and government debt) which are harshly influencing the exchange rate.

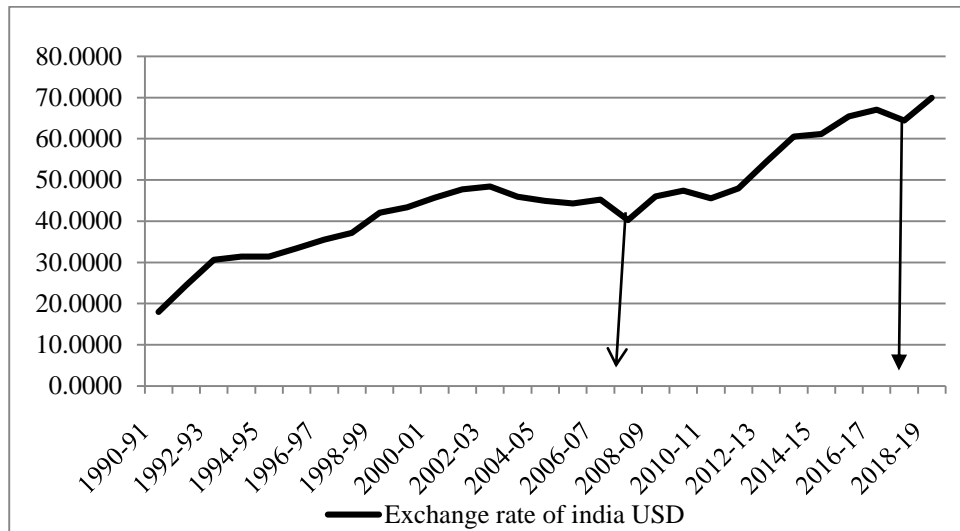


Figure 2: Exchange Rate of India USD

Source: RBI archives, computed

Fig. 2 Clearly illustrates the trend of fluctuation of Indian exchange rate with dollars in almost three decades. Within this period Indian currency cover a long distance from \$1= 17.94 to \$1 = 69.92.

Two major fluctuations in exchange rate was observed in past three decades. First fluctuation was observed in the year 2007-08, it was because of sudden increase in the FDI and other economical favourable factor and had made Indian currency strong, so in 2006-07 exchange rate was \$1= 45.24 it changed to \$1= 40.26 in 2007-08; Indian economy became so strong and was growing with such a speed that it once surpasses china in its first quarter. Second fluctuation was observed in the year 2017-18, this time it was due to launch of Good and services tax (GST) on 1st July 2017 which attracted the foreign investors and once again suddenly the currency get stronger. In 2016-17 it was \$1= 67.07 changed to \$1 = 64.45 in 2017-18.¹⁴

Non-performing assets (NPA)

It is also like normal loan and advances where principal or interest remain unpaid in their specific time period and it turn into NPA. It mainly rises due to aggressive lending practices, willful default, corruption and economical slowdown. The provision coverage ratio (PCR) of all SCBs increased sharply from 52.4 percent in September 2018 to 60.6 percent

in March 2019. The Gross non-performing assets (GNPA) ratio may decline from 9.3 percent in March 2019 to 9.0 percent in March 2020.¹⁶

It declined due to government 4R's (Recognition, Resolution, Recapitalization and Reforms) strategy to boost up the bank system. (IBC) and (SARFAESI) Act and stressed assets management vertical etc.²⁵

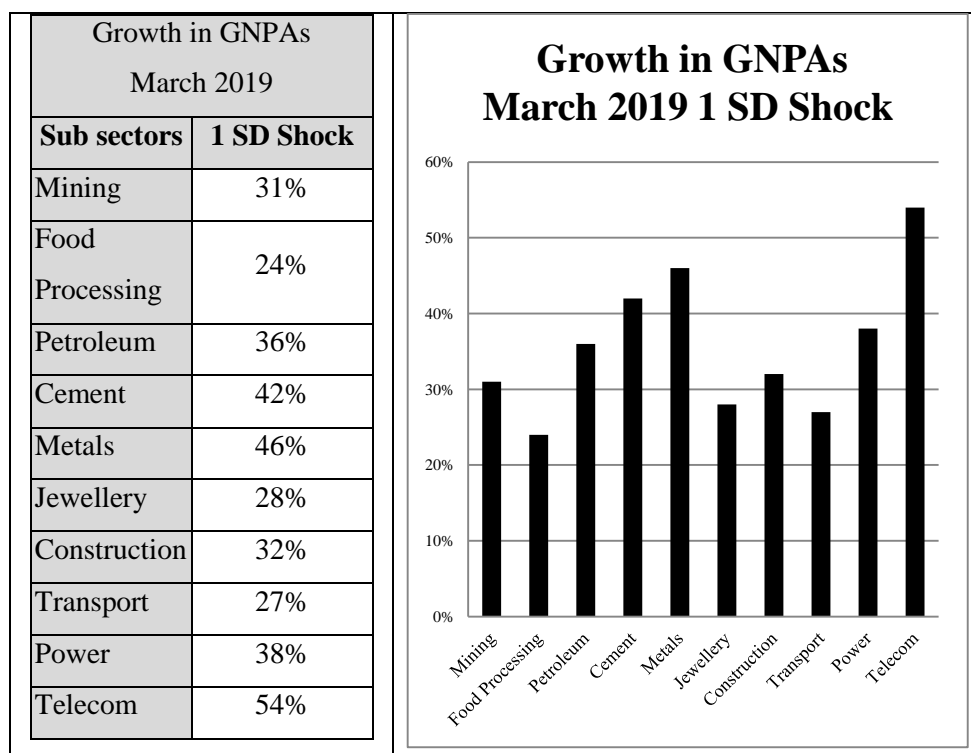


Figure 1: Growth in GNPA's March 2019

Source: RBI publication report

Table and graph clearly depicted that maximum 1SD (medium risk for loan advances) sub sectoral shock is in Telecom sector of around 54 percent, followed by Metals 46 percent and Cement 42 percent and so on. Although banking sector laxity turned into big jerk to the economy and to other investors.

Demonetization

Demonetization policy was announced near the ending of year 2016. Its Aim was to give a death blow to the black economy or shadow economy but the policy lead to contraction of economic activities and turns into a

big shock to the Indian economy. It had worst impact on SMEs, small traders, real estate, transport sector, consumer durable goods industry and many more. Demonetization of Rs 500 and Rs1000 had negative impact on rural areas and industries dealing in hardcore cash transactions. Demonetization had affected the standard flow of liquidity in short run and also worked as FDI push factor.²⁴ Demonetization had done some benefits to the peoples like trend of cashless transaction started, leakage of money shifted from household to bank and financial institution. Due to transparency in circulation of money increased resulted the government received more tax. For instance the sudden action of demonetization broke the channel of terrorism as most of the payment was performed in high denomination cash currency.

Goods and Services Tax (GST): GST was launched by government for the amalgamation of so many different Indirect taxes at various center and state level. Its purpose was also to ease the filling and collection method but unfortunately it raise the corporate tax and made the filling system more complicated. The revenue collections keep on decreasing because of proper implementation and prevalence of fake invoices and corruption. During September 2019, revenue collection has declined by 2.67 percent in comparison September, 2018.⁸

Corruption

According to assessment report India rank 80th among 180 countries. 80 percent Indians in their life time has given bribe for successful completion of their work. Its worst face has been seen in government policy implementation and government department. By 2016, India saw a reduction in corruption and its ranking improved to 79th place.¹⁰ So many steps were taken by government to curb this issue like helpline no. which connects directly to central vigilance department or S.P of the area. Previous few scams responsible for our negative image building at world platform are, 2019 PMC scam (73 percent of total bank loan to HDIL company worth Rs. 6226 Cr, 2018 Punjab Maharashtra cooperative Bank (PMB) scam of Rs. 11600 Cr,²⁹ 2015 Urban shelter scheme scam Rs. 1078 Cr was released and only 208 house built.⁴ and many more.

Sluggish Consumer Demand

Indian population is 2nd largest in the world and here sluggish demand is thinkable situation, According to economist, it is because of fall in purchasing power, demand postponement and demand leakage due to

import of goods. To find exact reason behind sluggish demand a proper elaborated research is needed. Demand of goods rises with rise in disposable income and decreases with decrease in disposable income. Inflation is also responsible for postponement and decrease of consumer demand. According to Periodic labour Force Survey (PLFS) salaried rural Indian earns between Rs. 8500 to Rs.14000 and salaried urban Indian earns between Rs. 14000 to Rs.18000. There is a general observation that consumers are more analytical towards purchase of those goods obtained by spending high proportion of their income whereas aren't very much analytical on purchases by spending less than 5 percent of their income. We call it "Less than 5 percent rule". China is following this important "Less than 5 percent rule" and brimmed the Indian market with those goods whose price are very low like kitchen products, gadgets, toys, garments etc. It results Chinese goods market is booming in India and destroying Indian goods market.¹⁹ In Indian imports Chinese goods surpasses the USA.

China's R&D team is not only working on their domestic demand but also working on neighbour countries present and future demands, so our functions and festival like Marriage and Deepawali has only Chinese crackers and decorative lights.

3. Unfavorable Balance of Trade

- **Unfavorable Balance of Trade = Total Import > Total Export**
- **Increasing Import:** Presently India has very good weather forecasting system that we get alarm before arrival of natural calamity result minimization of life and property losses, but we don't have any system to forecast or predict the future demand. It results immediate import of agriculture produces at very high prices like Onion, Tomato's, Pulses and Rice. It is a kind of useless expenditure burden to the economy due to lack of proper storage of agriculture produce.
 - At least India should behave agro-mercantile in terms of importing agriculture commodities; it means produce those commodities whose factor of production is abundantly available in India.

- Almost 50 percent of our population is engage in agriculture sector and business related to it and still we have to import agro goods is a matter of unconscious economic policy.
- **Decreasing exports:** Our exports are uncompetitive due to its low quality and lack of innovation. High tax rates are also responsible for being non-competitive in terms of price at international market. Proper innovation and research work is needed about consumer demands in home market and as well as various other nations. We have to focus more on their present and future demand. And then have to invest in that direction to attain maximum profit from export.
- **Research and Development sectors:** We never have abundant fund for our research work or our innovations. According to IBM and Oxford Economics, “90 percent Indian innovative startup gets failed within 5 year of their launch.”³¹ India is lacking people like Steve Jobs that had not only employed himself but also employed millions of others around the world directly and indirectly. Around the world in terms of Research and Development, China is the top most spenders (PPP) in (R&D) with 2.19 percent of its GDP, while USA 2.74 percent and South Korea 4.29 percent of GDP and India only 0.85 percent of GDP. India’s less spending towards R&D led to failure at many international frontiers.

4. Pandemic

The Covid-19 pandemic is termed as a worst disaster for the Indian economy. The economy was already suffering from a slowdown and corona going to degrade the economy to its lowest. Covid-19 influenced India late, in compare to other countries of the world, in the same manner as it was late influenced by recession of 2008. The pandemic lockdown period control most of the economic activities in any economy making most of the people unemployed. Every economy has to wait till the impact of pandemic eliminates. For uplifting the economic after elimination of pandemic recovery steps are more important.

For Post-pandemic recovery of the economy we have to do some needful:

- Private firms usually terminate their employees from their job or send them on LOP in the name of cost cutting. They should employ each staff at least for Ten days in a month and can be paid 1/3rd of their usual full salary. In this way if the firm maintain its cost-cut, in this

way employees are monthly left with some continuous earning, and this will have a positive influence on the economy because these employees will be able to keep on creating market demand cycle.

- “Necessity is mother of inventions”, so till the economy is not fully eradicating corona completely we have to promote “work from home”, e-commerce and video conferencing.
- Government should allocate its fund in its best manner, as the Covid-19 resembles with “Spanish flu of 1918” which lasted 2 years. If needed strict action should be taken towards restricting its spread and to eliminate it completely. Because then only the Economical recovery stage will begin.

5. Unemployment

World highest unemployment rate recorded in Burkino fasco (77 percent), Syria (50 percent), Senegal (48 percent), Haiti (40.6 percent), India (8.5 percent), and Pakistan (6 percent), Russia (5.2 percent), Nepal (3 percent). This is unacceptable that small neighboring country like Pakistan and Nepal has lower unemployment rate than India. Alas! India is bestowed with rich natural resources and on the contrary suffering from massive unemployment. Although, in Jan 2020 a slight fall in rate of unemployment recorded as 7.20 percent which was 7.60 percent in Dec 2019. The rate of jobless in urban areas was recorded at 5.97, while in rural areas at 9.7 percent. There is an immense divergence in rate of unemployment of different states: Tripura, Haryana, Jammu & Kashmir and Delhi having the rates above 20 percent, while unemployment in Odisha, Puducherry, Meghalaya and Tamil Nadu were recorded below 2 percent.²² One important reason behind the problem of unemployment is the craze of youth towards government jobs. This craze leads to the youth very unproductive during their most productive youthful time. Instead of enhancing their skills development, they are wasting their time and energy in preparing for various government exams.

To become an International economic superpower in the world, India needs more than 10 percent growth rate up to ten years. Higher sustained economical growth cannot be attained completely by service sector. It need a collaboration of manufacturing and agriculture sector, then the collaborated growth will take the economy forward to the next higher level and will create massive employment opportunities for the people.²³

6. Case

India is presently facing lack of opportunities and it is due unclear structure of economy. It has huge human resource but no proper idea to utilize them. Maximum industries are using capital intensive techniques. By restructuring the economy we can appoint double of our population in production process. The concept is further explained in a hypothetical manner.

We are using two constrain: first labour intensive and second is labour cum capital intensive. We have restructured an economy with only land and natural resource available there. 'N' numbers of people assumed are living in the economy.

It is a closed type of economy. The constrain shows that, if we go with proper division of labor then also in fulfilling only major necessary demands we will be in shortage of labour force.

$$EG = X_a + X_t + X_h + X_m + X_e + X_o + \dots + X_n \quad (1)$$

Here,

EG1 = Village economical growth based on labor intensive technique.

X_a = People engage in Agriculture sector

X_t = People engage in textile sector

X_h = People engage in housing sector

X_m = People engage in Health sector

X_e = People engage in education sector

X_o = People engage in other activities

X_n = People engage in Nth activities

The condition of closed economy with abundant labour resource, each and every activities taking place only through labour's and as it is a closed economy leakage of demand is not possible here. So, full employment could be easily attained in such type of economy.

As Marshall said, "Wants are Unlimited", shows that we have tremendous scope of innovation to produce goods and employ labours. Generally, the economy working completely on capital intensive technique are actually ruled by machines and the economy completely running on labour intensive technique is not viable in speedy present time. In practice, there are no completely closed economies existing in world. ⁹ so, the above constrain is not very much viable.

Hence the second constrain,

$$EG2 = X_a Y_a + X_t Y_t + X_h Y_h + X_m Y_m + X_e Y_e + X_o Y_o + \dots + X_n Y_n \quad (2)$$

Here,

EG2 = Economical growth based on labor cum capital intensive technique.

X_aY_a = labor cum capital engage in Agriculture sector

X_tY_t = labor cum capital engage in textile sector

X_hY_h = labor cum capital engage in housing sector

X_mY_m = labor cum capital engage in Health sector

X_eY_e = labor cum capital engage in education sector

X_oY_o = labor cum capital engage in other activities

X_nY_n = labor cum capital engage in rest of the prevailing demands

We can innovate and add as many numbers of sectors to fulfill maximum requirements of living population because demands are unlimited that only need to be followed by purchasing capacity. Employing the people will raise their purchasing power, it will result raise in demand and the cycle goes on. In this way the problem of Unemployment will be eradicated.

7. Conclusion

Reason of slowdown:

1. Under Utilization of huge Indian population which is a best market – here people believe in fashion, luxury, social media trends. Make them spend more towards fulfilling their demands.
2. Lacking of manufacturing units make us prone to import maximum to fulfill need of huge population.
 - Export to china 16.34 percent while Import from china 63. It is not because of good quality product or we are attracted (Fashion) towards it but because we are left only with it as our home market is full of such Chinese products.
 - People of India majorly constitute middle and lower income group and they spend more in goods which has less money value. This less money goods market is totally being covered by the Chinese goods.
3. Lack of proper allocation of resources in Agriculture results huge demand followed by less supply which results huge inflation.

- This force the home government to buy product (like onion, tomato etc) from foreign market and avail them at subsidized rate in home market. It leads to huge unnecessary loss to National Income.
- It also promotes the injection of duplicate and bad quality products supplies into home market. In milk production: Around 68.7 percent of milk and milk products sold in the country is against (FSSAI) standard. WHO advisory states that, “If adulteration of milk and milk products is not checked instantly, 87 percent of Indian population would be ill with from serious diseases by 2025.”³⁰

8. Suggestions

With the above known list of reasons of slowdown, we can now look ahead and able to formulate number of steps that are needed immediately to eradicate the problem of slowdown of Indian economy. We can broadly classify these into three groups:

1. Governmental action: Few immediate government action are needed to accelerate the slowdown Indian economy:

- No more profitable firm’s disinvestment like LIC for instance it looks like a profitable deal but in long run it will act like another jerk to the job market as craze of government job is highest in India. Reducing government jobs will lead to rise in competition among jobseekers and also enlarge the list of unemployed. On the other hand government just on the trend of following western world culture won’t able to let the economy run by only few industrialists.
- For the betterment of the economy government have to take 50 percent compulsory stake in all middle and high level manufacturing and services industries. It will fruitful in both ways. Company will be bound to obey few social welfare rules and on the other hand government job craze will be minimized.
- Government should initiate more towards food processing industries, mobile health care facilities and many more industries on public private partnership.

2. **Operational improvements:** In terms of innovation, research and development. Mainly we have to learn it from the leading exporter's countries of foreign trade. As mentioned above India is spending very less portion of annual budget on research and development, need to be increased. Some renowned industries are personally involved in research work. Their results are only limited to their websites. Their research works need to be authenticated and generalised to the people. Different awards need to start in various area of research to enhance the quality of research and it will also help in spreading awareness about the opportunities to other people.
3. **Strategic Decisions:** We as a citizen of India has some responsibility towards our own nation. We are equally responsible for the slowdown of our nation.
 - Don't we feel proud of having Lenovo (Chinese brand) instead of having Micromax (Indian brand).
 - If Indian version of some foreign goods is available in the market, we term it as local, replica, cheap quality. But we love to have Indian versions of foreign published books.
 - We have to think before buying anything because purchasing a foreign brand will directly sending your country earnings to other country. There are number of Indian people who are spending their hard core earned money on foreign goods just to show off their lavish status and lifestyle.

This economical slowdown is temporary and will be eradicated by taking small steps towards making our economy strong.

9. References

1. Aditi Verma. (October 28, 2019). Raghuram Rajan Says Stop Blaming Global Slowdown, Look Inwards for Why India's Struggling. Bloomberg Quint. Retrieved from <https://www.bloomberg-quint.com/economy-finance/raghuram-rajana-on-indian-economy-raghuram-rajana-says-stop-blaming-global-slowdown-look-inwards-for-why-indias-struggling>
2. Ahluwalia I 1 (1991):Productivity and Growth in Indian Manufacturing, Oxford University Press, Delhi

3. Ahluwalia IJ (1985): *Industrial Growth in India: Stagnation since the Mid-Sixties*, Oxford University Press, Delhi.
4. Amit Anand Choudhary. (April 25, 2015). SC calls urban shelter scheme 'a big scam'. *The Times of India*. Retrieved from <https://times-ofindia.indiatimes.com/india/SC-calls-urban-shelter-scheme-a-big-scam/articleshow/47045765.cms>
5. Annual Handbook of Statistics on Indian Economy. (Sep 15, 2017). Reserve Bank of India. Retrieved from <https://www.rbi.org.in/scripts/PublicationsView.aspx?id=17923>
6. B. S Reporter. (April 8, 2015). Panagariya questions industrialists on avoiding labour-intensive sectors. *Business Standard*. Retrieved from https://www.business-standard.com/article/economy-policy/why-are-you-not-investing-in-labour-intensive-sectors-panagariya-asks-industrialists-115040700909_1.html
7. Bandyopadhyay K (2017), M.sc Economics, "What are the FDI trends in India before and after the Make in India."
8. Business Portal of India. Industry and Services Sector. Retrieved from https://archive.india.gov.in/business/Industry_services/services_sector.php
9. Christina Majaski. (Mar 20, 2020). Closed Economy. Investopedia. Retrieved from <https://www.investopedia.com/terms/c/closed-economy.asp>
10. Corruption Perceptions Index 2016. (January 25, 2017). Transparency International: the global coalition against corruption. Retrieved from <https://www.transparency.org/en/news/corruption-perceptions-index-2016#>
11. CSO, (2000), Government of India: Ministry of Statistics and programme implementation, pp-15. Retrieved from <http://mospi.nic.in/data>
12. Deepak Kumar, Dr. S. Srinivas Rao, Ms. Shweta Shriwas (2019): "Recent Trends of Foreign Direct Investment in India: A Review" *IJRT*, Vol.7, No.2, February 2019.
13. Dezan Shira. (March 23, 2020). Corporate Social Responsibility in India. *India Briefing*. Retrieved from <https://www.india-briefing.com/news-/corporate-social-responsibility-india-5511.html/>
14. Exchange Rate Policy and Modelling in India. (Feb 25, 2010). Reserve Bank of India. Retrieved from <https://m.rbi.org.in/scripts/PublicationsView.aspx?id=12252>

15. FDI Policy & Process. FDI INDIA Foreign Investment Facilitators. Retrieved from <https://www.fdi.finance/guidelines/fdi-policy>
16. Financial Institutions: Soundness and Resilience. (June 27, 2019). Reserve Bank of India. Retrieved from <https://m.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=931>
17. Gita Gopinath. (October 15, 2019). The World Economy: Synchronized Slowdown, Precarious Outlook. IMFBlog. Retrieved from <https://-blogs.imf.org/2019/10/15/the-world-economy-synchronized-slowdown-precious-outlook/>
18. Government of India Ministry of Industry Statement on Industrial Policy. (July 4, 1991). Retrieved from https://dipp.gov.in/sites/default/files/IndustrialPolicyStatement_1991_15July2019.pdf
19. India a dumping ground for some foreign countries. Google Books. Retrieved from <https://books.google.co.in/books?id=SdPGDwAAQBAJ&pg=PA31&dq=India+a+dumping+ground+for+some+foreign+countries&hl=en&sa=X&ved=0ahUKEwiLiJS1h7TpAhUt7XMBHRF8DuQQ6AEIQzAD#v=onepage&q=India%20a%20dumping%20ground%20for%20some%20foreign%20countries&f=false>
20. India Furniture Market Size, Demand, Opportunity & Growth Outlook 2023. Research and Markets. Retrieved from <https://www.research-handmarkets.com/reports/4326520/india-furniture-market-size-demand-opportunity>
21. India has a workforce of 47.41 crore: Government. (Jul 16, 2014). The Economic Times. Retrieved from <https://economictimes.indiatimes.com/news/politics-and-nation/india-has-a-workforce-of-47-41-crore-government/articleshow/38486047.cms?from=mdr>
22. India Unemployment Rate. (2018-2020). Trading Economics. Retrieved from <https://tradingeconomics.com/india/unemployment-rate>
23. India's trade deficit jumps 22 times since 1990-91. (December 25, 2014). The Economic Times. Retrieved from https://economictimes.indiatimes.com/news/economy/indicators/indias-trade-deficit-jumps-22-times-since-1990-91/articleshow/45640529.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

24. Macroeconomic Impact of Demonetisation-A Preliminary Assessment. (March 10, 2017). Reserve Bank of India. Retrieved from <https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/MID10031760E85BDAFEFD497193995BB1B6DBE602.PDF>
25. Money & Banking: IBC boosts NPA recovery. (December 24, 2019). Business Line. Retrieved from <https://www.thehindubusinessline.com/money-and-banking/ibc-boosts-the-recovery-of-stressed-assets/article30390240.ece>
26. Raj 1984, Structure of Manufacturing Work force, Economic and Political Weekly, Vol. XIX, Annual Number, 1984. 7.
27. Sharmistha Mukherjee. (August 14, 2019). July auto slump worst in 20 years. The Economic Times. Retrieved from <https://economic-times.indiatimes.com/industry/auto/auto-news/auto-slump-turns-bad-sales-fall-across-categories-in-july/articleshow/70654361.cms?from=mdr>
28. UNCTAD sees India growth moderating to 6% in 2019. (September 26, 2019). The Economic Times. Retrieved from <https://economictimes.indiatimes.com/news/economy/indicators/unctad-sees-india-growth-moderating-to-6-in-2019/articleshow/71300635.cms>
29. Vishwanath Nair. (February 14, 2018). The Nirav Modi Case: How The \$1.8 Billion Fraud Detected At PNB Unfolded. Bloomberg Quint. Retrieved from <https://www.bloombergquint.com/pnb-fraud/the-nirav-modi-case-how-the-18-billion-fraud-detected-at-pnb-unfolder>
30. 68% milk & milk products in India not as per FSSAI standard: Official. (Sep 05, 2018). The Economic Times. Retrieved from https://economic-times.indiatimes.com/industry/cons-products/food/68-milk-milk-products-in-india-not-as-per-fssai-standard-official/articleshow-/65689621.cms?utm_source=contento-finterest&utm_medium=text&utm_campaign=cppst
31. 90% Indian Startups Fail within 5 years of Inception: Study (Jul 09, 2018). Money Control. Retrieved from <https://www.moneycontrol.com/news/business/90-indian-startups-fail-within-5-years-of-inception-study-2689671.html>