



THE CURRENT SCENARIO OF CROSS-CULTURAL ISSUES IN MULTINATIONAL COMPANIES

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ABSTRACT

Effective management of cross-cultural issues can provide a source of experience and innovation thinking to enhance the competitive position of an organization. However, cross-cultural differences can interfere with the successful running of any organization in today's multicultural global business community. To achieve business standards and avoid cultural misunderstandings, top management should be culturally sensitive, promote creativity, and promote creativity and motivation flexible and effective leadership. This paper describes the most well-known and accepted cross-cultural management theories. These theories consider relations between people, motivational orientation, orientation towards risk, definition of self and others, attitudes to time and attitudes towards environment. The paper concludes that every business can succeed through culturally aware leadership, cross cultural communication and mutual respect.

KEYWORDS

Cross-Cultural, Issues, MNCs, Challenges and Strategies etc.

INTRODUCTION

Cross culture is the interaction of people from different backgrounds in the business world. Cross culture is a vital issue in international business, as the success of international trade depends upon the smooth interaction of employees from different cultures and regions. A growing number of companies are consequently devoting substantial resources towards training their employees to interact effectively with those of companies in other culture in an effort to format a positive cross-cultural experience. An employee who is transferred to a location in another country can experience cross culture. The employee must learn the language and culture of those around him, and vice-versa. This can be more difficult if this person is acting in a managerial capacity. Someone in a position who cannot effectively communicate with or understand their employees' actions can lose their credibility. In an ever-expanding global economy, cross culture and adaptability will continue to be important factors in the business world.

CROSS CULTURAL ISSUES IN HUMAN RESOURCE MANAGEMENT

Because of globalization, companies across the world are forced to restructure their business in order to meet the constant change in demand. A global workforce is created due to companies in various countries merging. This becomes a vital and complex issue for HR personnel to manage with the increase in diversity of cultures within companies. India is no exception and has recently become a favorite spot for many of the foreign companies to invest in, in order to utilize the high skilled labor force of India at a cheaper rate when compared to other countries in the world. This paper investigates the cross-cultural issues faced by Indian managements due to differences in culture caused by current liberalization of economic policies in India. A research carried out by David and Victoria (2007 cited in Bhatti, 2009) discovered major HRM problems within a cross-cultural context faced by major Swedish Multinational Companies operating in India.

IMPORTANT FINDINGS FROM THIS STUDY

Communication Misunderstanding: There was a huge language gap between Indian and Swedish managers in both companies because Swedish managers lacked English skills whereas Indian managers had good English skills. As a result, there was several misunderstanding between the managers. Furthermore, the nature of Indian employees who do not use negative responses and who do not often say "no" to manager's questions resulted in frustrations and annoyance.

Leadership Style: Both companies faced similar types of problems in leadership style because of Indian's hierarchical approach to managing employees whereas Swedish management style was based on consensus leadership, allowing employees to respect their managers without being intimidated by them.

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Motivation: Main motivational factors for Indians working in both companies were money and titles; whereas Swedish employees are motivated by the task itself.

Conflict: Major conflict arising between Swedish and Indians are task related conflicts. This occurs because of Indian employees demanding detailed and clear task descriptions from their Swedish managers. However, Swedish managers are unable to explain the task clearly to their Indian subordinates.

The Key findings from the above research is that conflicts are faced by major Multinational Companies operating in India because of the cultural differences between foreign managers in these companies and the Indian employees working for them. In addition, Indian employee's performance can be negatively affected by certain characteristics in their behavior, placed by their upbringing. For instance, Indians are brought up where they have utmost respect for older and senior people. Therefore, they often hesitate to question or disagree with things said by seniors, even though it may prevent them from performing a task to the best. One major cultural aspect that the author has not highlighted in his is regarding the low context of Indian culture where developing trust is a critical step in business. Further, in Indian culture, words as well as context (tone of voice, facial expression, gestures, status) of conversation are important.

MULTINATIONAL CONTEXT OF MANAGEMENT AND CROSS-CULTURAL COMMUNICATION

Management and communication scholars (Chaney & Martin 2011; Harris & Moran, 2000) agree that international management skills are needed for the increasing scope of global trades and investments over the past decade. A number of the major multinational corporations have expanded their operations throughout developed and developing nations. Some of the businesses are direct investments and others are partnership arrangements and strategic alliances with domestic operations. Studies indicate that independent entrepreneurs and small businesses have started investing and competing in global marketplaces. Therefore, the current global trend of business competitiveness strongly indicates a need for the development of strategic framework for managing, negotiating, and communicating across cultures in order to achieve the investment objectives of corporations. Indeed, as Chaney & Martin (2011) pointed out, awareness and cultural differences is increasingly significant to the success of multinational corporations. A good understanding and appreciation of the culture in which business is conducted can make international managers both effective and productive. Hodgetts and Luthans (1997) noted the concerns of some organizations when internationalization began in the 1970s that it would be exceedingly difficult to conduct business in the same fashion around the world because of cultural variations and differences. Indeed, the attempt to manage people the same way across cultures presented serious challenges to many global businesses.

Studies conducted over the past decade stressed the importance of training managers on cross-cultural negotiation skills as well as cross-cultural communication competence. Globalization has become a megatrend in the present business environment, making it extremely critical that management teams be equipped with the appropriate global mindset and cross-cultural values in order to effectively lead a diverse workforce.

Deresky (2006) stressed the concept of cultural convergence, the shifting of individual management styles to accommodate the styles used in other environments and total elimination of parochialism, stereotyping, and ethnocentrism in managing multinational operations. An analysis of the growth of multinational corporations in the wake of globalization identified several factors that have been instrumental to the inability of managers to succeed in a global context. Chief among these factors are ethnocentric predisposition, cultural imperialism, and parochialism in managing a diverse or multicultural workforce. Essentially, it is counter-productive to lead international organizations with a mindset characterized by these types of negative values.

Recent developments show that many businesses are cultivating a global focus by sourcing, producing, importing, or exporting their goods and services around the globe, which makes intercultural communication and negotiation gain substantial prominence in the international business management. Further, international business etiquette has become increasingly important because of the mobility of people. As stated, some behavioural rules are formal and specifically articulated and others are informal and learned over time, which influences the overall behaviour of majority of people in a society most of the time. It is noted that as managers appreciate, value, and respect cultural differences, they develop a better understanding of people's behavioural patterns, which gives them a much better understanding of how to properly interact while conducting business.

The most common factors contributing to managers' failure to perform effectively in international business assignments are the inability to understand and adapt to foreign ways of thinking and acting as opposed to technical or professional incompetence. As interest in participation in the global marketplace increases, managers are required to adapt to new cultures and to become sensitive to differences among people.

Bovee and Thill (2011) added that supervisors face the challenge of acknowledging the expected behaviour of diverse employees, multinational teams face the problem of working together closely, and businesses have the difficult task of peacefully negotiating



with international business counterparts. Thus, the suggested strategic globalization imperative for international business undertaking requires a practical analysis and application.

CROSS-CULTURAL COMMUNICATION: CHALLENGES AND STRATEGIES

Challenges in cross-cultural communication indicate a strong correlation between effective international management and cross-cultural communication. It is stressed that a sound intercultural communication is vital for international managers as well as for domestic managers of multicultural and multinational businesses. Miscommunication, misinterpretation, or misunderstanding is more likely to take place among managers and employees from different ethnic backgrounds and nationalities than among the managers and people from homogenous backgrounds.

The ability to communicate cross culturally is required for managers who aspire to succeed in global assignments. Managers preparing to work in a domestic business with a diverse workforce or who are preparing to work in foreign environments should be adequately flexible and trained to adjust their communication pattern to the intended audience. The increasing emphasis on workforce diversity in recent years makes it extremely important that domestic and global managers should devote more time to learning appropriate communication strategies, especially for effective management of a diverse organization.

Communication is an essential part of a manager's duty and it takes up much of his or her time either interpersonally or with a group of employees. Effective intercultural communication largely determines the success of international transactions or the performance and productivity of a culturally diverse workforce. Communication scholars have determined that culture is the foundation of communication, and essentially communication conveys culture. As Deresky explained, effective cross-cultural communication explains whether the receiver is from a country with a monochronic or a polychronic time system, high-context or low-context environment.

Furthermore, managing intercultural communication effectively in organizations requires that managers develop cultural sensitivity, be careful in encoding their messages, thoughtful in decoding and analyzing content and context, selective in choosing channels for transmission of messages. The increasing mobility of workers in global markets, expansion of international joint ventures and strategic alliances, and the presence of global entrepreneurs in developing nations makes cross-cultural communication competence inevitable.

As businesses strive to achieve competitive advantage both domestically and globally, equipping managers with the critical communication skills enhances performance and improves the quality of relationships. A number of studies indicate that cross-cultural communication skills or behaviour can be learned to increase the effectiveness of managers with host nationals. Improved cross-cultural communication in organizations reduces the challenges in international management.

CROSS-CULTURAL TRAINING TRENDS AND ISSUES

Trends

- The use of screening surveys to find ideal expatriates;
- The use of local trainers to create training materials;
- Storytelling as a classroom method of instruction; and
- A push to provide expatriates with some minimal amount of training before departure, preferably including language training.

Common Issues

- Convincing policymakers cross-cultural training is important for every person, not just long-term assignments;
- Overcoming prejudice and stereotypes;
- Identifying communication problems before they create other problems; and
- Identifying expatriates with the highest likelihood of success in cultural training and adaptation in the host country.

CONCLUSION

Effective cross-cultural management contributes to high effectiveness of global corporations. Organizations with learning orientation are able to face cross-cultural management challenges. Relevant managerial challenges are cultural awareness, culture sensitivity and flexibility to deal with diversity.



Cross-cultural management is positively linked to corporate profitability in the global business arena. The cross-cultural management stems from the needs and requirement of the business community. The companies that will not embrace the notion of intercultural management and will not promote cultural understanding and develop skills necessary to succeed in the cross-cultural environment are risking becoming a second tier companies.

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CONCEPTUAL STUDY ON BUSINESS CONTINUITY CONSULTING AND DISASTER RECOVERY (BCP-DR) PLANNING IN CORPORATE COMPANIES

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ABSTRACT

In a disaster, lives can be lost, property and equipment destroyed and business operations come to a standstill. Natural disasters disrupt business through technology failures or criminal acts can threaten the very survival of a company. Such disruptions cannot always be predicted or prevented, but sound planning can dramatically reduce the damage they cause. Disaster planning describes measures that minimize the adverse effect of a hazard on life, property and livelihoods. However, effective preparation for disaster recovery planning and business continuity is a job for the entire company.

KEYWORDS

Business Disruptions, Disaster Recovery Planning, Business Continuity etc.

INTRODUCTION

Disaster management involves a continuous and integrated process of planning, organizing, coordinating and implementing. It is often said that “disasters are a local phenomenon”, however their impact can be global in today’s world. Disaster means a catastrophe, a mishap, a calamity or a grave occurrence in any area, arising from natural or man-caused causes, or by accident or negligence, which results in a substantial loss of life or human suffering or damage to and destruction of property, or damage to and degradation of environment, and is of such a nature and magnitude, which is beyond the coping capacity of the community of the affected area. The local communities are the first stakeholders and the first responders.

The fact remains that response in the first few hours, minutes and seconds can save many precious lives. The increase in disasters and the losses that follow have created a lot of awareness and disaster management consequently is studied and practiced at all levels, whether it is at the national, state, district or at the community level. It is possible to reduce the impact of disasters by adopting suitable disaster mitigation strategies. Disaster reduction is a systematic work which involves different regions, different professions and different scientific fields, and has become an important measure for human, society and nature sustainable development.

OBJECTIVES

- To help organization continue their operations using business continuity management.
- To analyze if BCP/DR framework helps to meet their recovery on time.
- To find if methodology along with consultants help to achieve BCM successfully.

REVIEW OF LITERATURE

Susan M. Cischke, Ford Motor's group Vice President for sustainability, environment and safety engineering and a member of CEO Alan Mulally's core team, shares the automaker's global perspective (2015): "The financial crisis of 2008 taught us a few things. We also learnt to know our suppliers better; we came to know more about a supplier's operation than the supplier itself did. This came in handy when the earthquake and tsunami hit Japan. Our operations have not been affected so far."

Mr. Nirankar Saxena, Director, FICCI and Mr. Surender Kr. Verma, Deputy Director, FICCI (2011) have mentioned that Corporate sector involvement in disasters in India have focused largely, if not totally, on disaster response. Recent high impact disasters saw considerable corporate responses in the form of food and medicines aid, cash aid, medical camp, tents, construction materials etc. While this is commendable, it is also important that pre-disaster preparedness and mitigation activities be also taken up. It is only by enhancing the resilience of the communities before disaster strikes that the risk of disasters can be reduced and the business continuity can be maintained.

This paper provides a review of disaster-tolerant Information Technology (IT). The state of traditional disaster recovery approaches is outlined. The risks of IT application downtime attributable to the increasing dependence on critical information technology operating in interdependent, interacting complex infrastructure systems are reviewed.

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General disaster tolerance techniques are summarized. While content-specific approaches currently undertaken to understand and avoid cascading failures in systems are extant, opportunities exist to extend this complex systems independence analysis to the private business sector in the form of disaster tolerance. The high level of complexity of relationships between IT application availability and numerous secondary and tertiary effects of a disaster on systems that are dependent on other systems for availability has not yet been fully explored.

A lot of research has been done on business continuity planning and disaster preparedness with many revelations of increase in awareness about the issues in recent times. Typically the Insurance Information Institute (2010) indicated forty percent (40%) of small businesses never reopen after a disaster; Symantec (2012) showed that only 26 percent of medium-size businesses have a disaster preparedness plan, whilst 75 percent of the largest segment of business, do not have an emergency plan.; Business Continuity Management Survey (2006) showed that, less than fifty percent(50%) of UK organizations have business continuity plan in place and Swartz (2003) revealed that only twenty percent (20%) of businesses have a plan which they believe will be effective in the event of an emergency. From this array of studies, the review of literature is presented in an effort to determine the need for further study in the area of factors that hinder effective Business Continuity Planning.

DISASTER MANAGEMENT CYCLE

Disaster management involves a continuous and integrated process of planning, organizing, coordinating and implementing measures, which are necessary for:

- Prevention of danger or threat of any disaster.
- Mitigation or reduction of risk of any disaster or its severity or consequences.
- Capacity building including research and knowledge management.
- Preparedness to deal with any disaster.
- Prompt response to any threatening disaster situation or disaster.
- Assessing the severity or magnitude of effects of any disaster.
- Evacuation, rescue and relief.
- Rehabilitation and reconstruction.

The disaster management cycle consists of seven stages: Response, Rehabilitation, Reconstruction, Development, Prevention, Mitigation and Preparedness, as shown in the figure-1.

Figure-1: Disaster Management Cycle



Sources: Authors Compilation

In Corporate Companies there is a department to control disaster management called as Business Continuity and Disaster Recovery is a service Governance Risk and Compliance (GRC) practice to help organizations ensure the continuity of their business operations and adhere to industry-specific regulatory compliance as well as improve system availability along with integration of IT operational risk management strategies.

BCP/DR consulting framework not just helps organizations to Assess - Plan - Design - Test, their resilient business infrastructure but also provides a wide range of proactive and event driven managed services to meet their recovery time and recovery point objectives in event of any disaster. The BCP/DR framework undertakes consulting, green field implementation as well as

assessment and review of BC/DR Services. The tested and proven methodologies coupled with the experience of our seasoned and qualified consultants have helped organizations throughout the business continuity management lifecycle, which includes:

- Development, implementation, testing and maintenance of the plan.
- Recommendation and proof of concept for recovery options.
- Assessments and audits for BC/DR.

BC/DR consulting is synergized by partnerships with various profound technology vendors and our deep domain industry knowledge has allowed us to develop solutions that help organizations to have an effective and efficient BC/DR plan.

Figure-2: Business Continuity and Disaster Recovery Methodology



Sources: Authors Compilation

Assessment Services: Detailed assessment of existing business continuity controls, undertaking policy and plan reviews, risk and threat assessment and conducting business impact analysis based on industry best practices and standards. Review/Design of DR solution architecture also forms a part of our assessment services.

Implementation Services: The company provides detailed recovery solution design and implement technology infrastructure required for a continuous & seamless operation of critical business functions. This service includes design and development of a customized BC/DR plan that outlines the people, processes, and technologies required to recover and continue your critical business functions after a business interruption or disaster.

Audit Services: Company undertakes internal audits for BC/DR as per the BS25999 and SAS 70 standards. Facilitation for external audits is also a part of this service offering.

IT and Data Continuity Services: IT and Data Continuity Services helps to maintain IT continuity and recovery of data at the time of disaster.

CONCLUSION

Effective disaster preparedness of businesses is affected by four key factors of perception of high cost, lack of staff, inadequate information, low priority, whilst surprising, apathy had less effect on effective disaster preparedness contrary to many belief. Further research will be required to analyze the Apathy factor in Disaster preparedness and obtain an appropriate explanation. Addressing these four important factors would provide a good basis for an effectiveness disaster preparedness of businesses.

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E-ADVERTISING IN SOCIAL NETWORKING SITE

R. Menaka⁴

ABSTRACT

Our research is about the impact of e-advertisements on social networks that reveals the fact that how far it conveys the actual information. Social networking is a place where people can use networks of online friends and group memberships to keep in touch with current friends, reconnect with old friends or create real life friendships through similar interests or groups and share their social experiences. Social network advertising is a term that is used to describe a form of e-advertising that focuses on social networking sites.

KEYWORDS

Social Networking Site (SNS), E-Advertising, Online Friends etc.

INTRODUCTION

In the last decades of the 21st century world saw the rapid advancement of information and communication technologies. Social Networking Sites are a type of virtual community that has grown tremendously in popularity. Through social networking, people can use network of online friends and group memberships to keep in touch with current friends, reconnect with old friends or create real-like friendships through similar interest or groups. Besides, establishing social relationships, social networking member can share interests and their ideas with other like - minded members by joining groups or forums. They can also participate in discussions through SNS. Members will be updated instantly about their friends and groups. It also offers micro blogging facility. In short, a SNS is a hub for communication, entertainment and information.

The affordability and the wide spreading of the Internet became one of the main reasons for appearance of a large number of the Social Networking web sites. The ease of access to these web sites generated interest to the possibilities of the advertising in these web sites. The study is very indicative of the way the majority of marketing researchers approach these web sites. The amount of traffic, demographic figures and the past potential, gauged by the frequency of brand advertising, are used to create the forecast for the future advertising success.

The uniform approach to the advertising in social networking web sites (SNS) results in the use of standard techniques without any differentiation between the content and the background of SNS. While this approach may, work for the small variety of uniform web sites, such as Face book it may not be as successful in the advertising in the specialized networks. With the increasing variety and volume of the Social Network Websites, it becomes increasingly important to create a proper typology of these sites. It is also as important to align the potential and the modes of advertising with the types of the existing web sites.

SOCIAL NETWORKS

Social network as a group of people, joined by virtue of kinship, trade, occupation or habits. Social network based on the distribution network of Tupperware or so-called "Tupperware Parties" find similar social networking tendencies in the groups of university and college students. The first significant attempts of the social networking on the Internet are so-called Internet Bulletin Boards. According to (Garton, Haythornth Waite, & Wellman) they can be considered the first internet social networks. It is stated that any virtual internet community acts in the same fashion as a social network. Virtual social networks, which started to appear at the end of the 21st century lacked many features of today's social network web sites.

Ten years passed from the realization of the similarities between the virtual communities and social networks to the creation of Social Network Site. The new generation of the Internet tools, also known as Web 2.0 has become an engine behind the new Social Network Sites, which fully conform to the definition given earlier. The technical concepts of Web 2.0 have enabled the creation of the new set of technology, called Social Media, which allows sharing information, profiles and context in the real time thus allowing creation of true Social Network Sites. The first generation of the social networking websites was completely open to all members of the web community. The registration model accepted in this sites followed similar model used in the communication networks such as ICQ4, Skype5, etc.

The users can register a practically infinite number of profiles with different information about themselves. The verification of user profiles was very limited. The lack of control over the registration profiles was instrumental in creating the phenomenon of

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trolling an uncontrolled publishing of the information harmful or offensive for a person or group. The inability to match the harmful message to a person has prompted the attrition of the users from the uncontrolled web sites. At the early days of the social networks, the advertisement was created in two different ways. The owners of the social network website sold the advertising space on the web site pages. The value of the advertising was created by signing up an increasing number of users and by demonstrating the ability to generate traffic (access to the web site pages). Since the owners were not able to verify the authenticity of the profile information, the authenticity of any statistics on such web site was questionable. Moreover, the users of the social networks were not willing to provide the extended information about them due to the threat of identity theft.

Present day Social Network Sites inherit many features of the first sites. They still adhere to the definition of SNS provided earlier. At the same time, the owners of these sites learned from the previous mistakes. Social networks, such as Six Degrees require invitations from the existing members. The information, listed in the profiles of the users in LinkedIn and Face book web sites is voluntary. The users are willing to provide this information in order to receive the messages and the advertisement content they are interested in the present social network relationships. They are the extensions of the 'real-life' relationships transposed into the web.

CATEGORIES OF SOCIAL NETWORKS

Despite the abundance of the Social Network Websites, they appear to be very similar to one another. The users choose these sites based on the spoken language, the community and provided content. Often the new sites mimic the features and the appearance of the more popular and established sites. Another notable category of SNS is the sites, which attempt to gather users based on their previous and/or present affiliations. The websites, such as Classmates.com provide a large community, where people can find past classmates from all levels of education. We can consider a very popular LinkedIn web site to belong to the same classification group because users of LinkedIn can find and connect to their past colleagues and classmates as long as they are members of the LinkedIn web site.

The web sites based on the profession or hobby are still very popular destination for those, who want to find people sharing similar occupation or hobby. Craft network web sites, such as Ravelry are very popular destinations for those want to discuss their craft, exchange ideas and receive and advice from the seasoned professionals, show that such sites are now more than just a gathering of people of the same occupation. These sites have become a marketplace for the professionals, who are willing to sell their products and their skills (in the form of the lessons and how-to sessions) to the members of such sites. Another group of sites, which is often discarded, is the sites, offering media content, such as YouTube, Flickr, etc. Even though they fashion very limited profile information, they are still considered a valid point of information exchange. Recently these sites started adding the capability of commenting the exposed material. The capability of exchange of opinions within these sites has placed them in the same category as Face book, which also offers content publishing with a possibility to comment on this content.

CLASSIFICATION OF TYPES OF SNS

- Pure Social Network Sites such as Face book which facilitate the communication between the members of the site, connecting them into a network.
- Grouped Social Network Sites such as LinkedIn, Revelry, etc., which connect users based on their preset or past affiliations to a company or a circle. These sites can aggregate people based on their hobbies, professions, crafts and hobbies.
- Content Social Networks such as Flickr, YouTube, etc. offer their users the possibility to expose the content in the form of photos and movie clips, providing also a possibility to comment on all aspects of the content. The recently added features of subscribing to the content published by a certain provider places these sites into the same categories with blogs and social network sites.
- Broadcast Social Networks such as Twitter or Live Journal that allow users of these networks to publish the content, which may be of interests to a number of subscribers and followers of this network. Twitter does not have immediate feedback on the published messages. In order to have two-way communication on a network the users must subscribe to each other is content.

ADVERTISING IN SOCIAL NETWORKS

Each of the types of the social networks is geared for its own mode of context exchange. The mode and the content of advertising should reflect the purpose of the network, its demographics and the mode in which this content is delivered. Pure Social Networks, such as Face book attracted the most research in the recent years. Face book offers extensive profile where users can provide information about their interests, hobbies, affiliations, etc., state that marketing on Face book must start from creating a



concise and trustworthy profile. Pure Social Networks attract advertisers because of their enormous size. According to their own statistical data, Face book encompasses over 700 million users. However, this data must be taken with a serious amount of caution. Face book does not require from its members to have only one profile hence the number of real users with the real buying power can be much less, than the number of the users announced by the site owners.

The buying power in these countries is significantly less than in North America and Europe. The executives of Ford claim that Face book advertising was 200 times more effective than the Super Bowl advertising of the same year, although, the success of the Ford Ads on Face book cannot be denied. Ford Explorer advertising campaign previously targeted the same demographics with the TV ads, creating the image of Ford Explorer as a car suitable for exact same demographic. Without denying the success of few advertising campaigns targeting Face book it has to be noted that all of them targeted the proper demographics both with their offers and with their content.

GROUPED WEB SITES

Grouped web sites are not targeted as heavily as the Pure Social Network sites. These sites have users, which are grouped by their professional and hobby affiliation. This fact underscores that the users of the Grouped Sites are more knowledgeable in the subject, which categorizes them. The advertising on the sites of this type must be significantly more prepared than the advertising in Pure Social Networks. Grouped Web Sites offer one significant advantage over marketing in the other types of social networks. The advertising of the products to much more knowledgeable and uniform consumer group yields much faster results. On the other hand, the same group of users is much more likely to reject the products if they do not suit their needs or are considered to be of inferior quality. Smaller number of users in these sites makes them a weaker advertising target.

CONTENT OF WEB SITES

Many marketing professionals do not think about the Content Web Sites as advertising venues.

They would use the advertising space provided by the owners of the site and limit all marketing efforts to using this feature. Despite being fairly static these web sites have several advantageous options, the use of which provides extra opportunities for marketing. Using Content Web Sites as a replacement of the traditional marketing efforts, such as communication of product price and features will not work as well as by using traditional means of advertising. However, it is possible to build and strengthen a brand by posting a number of videos featuring the brand name, how-to instructions and tips. One of the notable examples of brand promotion on YouTube is an effort by Headwater Wool to promote the brand, called "Russian Knitting". The creators of the set of videos placed visual which featured completely different knitting elements, connected together by the brand name only.

BROADCAST NETWORKS

Broadcast networks or micro-blogging websites like Twitter cannot serve as an advertising channel. The owner of the product will not be able to track the effectiveness of the brand related messages. A large number of subscribers follows widely known brands. The owner of the content messages is interested only in the feedback to their own content. They will have to obtain it by using other channels of communication. If Broadcast Social Networks are viewed only as a vehicle for broadcasting the advertising messages, they are of little use to the owners of a product or a brand. However, these networks may be used for broadcasting the messages, which do not require a direct feedback. The messages of the new product features and/or updates, the messages connected to the product recalls, can be 'tweeted' to the large number of users. The broadcast network thus becomes a suitable replacement to a mail list.

CONCLUSION

For many companies using social network web sites for marketing activities is new and somewhat unfamiliar effort. The outcome of this effort cannot be measured with the same ease as the outcome of the traditional advertising campaign. Despite this fact, the brand owners and the product manufacturers should not ignore the Social Network Sites. Using these sites can yield the following benefits: Social Networks have very distinct demographics. Products, fitting into these demographics can be marketed on Social Network Sites with ease. SNS can also be used as a vehicle for educating the users of SNS on the products, which are not frequently used by their demographic groups.

Social Network Sites provide the marketing professional with the opportunity to deliver non-advertising messages about the product. These messages may serve as a tool of strengthening brand awareness. The product manufacturers can use these messages to provide additional information about the product features thus creating add-on value for the product. Despite their availability and affordability, SNS cannot be used as the sole advertising mechanism for any product. Any marketing or advertising campaign for a product or service must consider other advertising channels. The strengths of SNS turn into their weaknesses when the product does not fit the demographics of Social Network Sites. The abundance of information posted on the



Internet makes any web advertising campaign much slower as the product related message is delivered together with multiple other messages related to similar products and services.

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STRATEGIC LEADERSHIP AS A STRATEGIC TOOL IN MANAGING WORKFORCE DIVERSITY WITH SPECIAL REFERENCE TO IT SECTOR

Jesintha S.⁵ Dr. R. Rajendran⁶

ABSTRACT

Successful companies keep the secret formula for survival as effective leadership at all levels of their business. Due to the challenging work environment, the conventional leadership practice is not more effective in managing the workforce diversity. Strategic leader are one who focus on the root cause of the problem rather than the symptoms. In IT sector, people need to work in teams to complete their projects. The team members may be from cross-locations and so the leader has to integrate the work from all the team members. Leaders with clear vision, idealism, independent action, ability to anticipate the change can achieve the cohesive team effort. They have a significant role in sustaining harmonious work environment of the organization. This research article aims to identify the variables that most influence the strategic leadership.

KEYWORDS

Strategic Leadership, Workforce Diversity, Cohesive Team Effort etc.

INTRODUCTION

Strategic leadership is the leader's ability to anticipate, envision, maintain flexibility and empower others to create strategic change as necessary. Strategic leaders develop and nurture the culture among the team members that promotes focused learning and human development. These leaders view mistakes as the learning opportunity, leaders face the challenge of managing the diversified workforce and so it is complex to achieve a common set of standards. However, as a strategic leader they have social intelligence and shrewdness to lead the team successfully.

Diversity can be defined as the individual differences due to age, gender, cultural background, geographical location, educational background, work experience, spiritual practice, age group, marital status, parental status etc. A higher level of "diversity awareness" from affirmative action is known as valuing diversity. Valuing diversity emphasize the awareness, recognition, understanding and appreciation of human differences. By valuing diversity employees feel valued and accepted in that they are recognized as a valuable resources that contribute directly an organization's overall success. The strategic leaders form the team in such a way that the workforce can have an opportunity for self-grooming. These leaders value the uniqueness of each individual. Heterogeneous population in the team helps to enhance the creativity and better solutions to the problems.

RESEARCH PROBLEM

Today's work environment has more complexity due to technological change and increase in global competition. One of the greatest challenges for teams is the tension that arises from a group of individuals coming together to work as a team towards a common purpose. Each person has their own skills, values, biases, interests and style of communicating and working; which they then have to set aside, in order to work together as a group. The team members may belong to different geographical location, educational background, age group and so on. Being part of a team requires members to involve others in making important decisions, to share critical information openly and at times, to sacrifice personal agendas for the good of the team. Most successful team based organizations have been transformed from a traditional leadership environment to a strategic and collaborative leadership environment where the importance of empowering team members is recognized. Such transformation creates challenges to leaders in the effective management of diversified workforce. The leaders require specific skills and traits in managing the team.

OBJECTIVES

- To study the various strategic leadership skills that is used for managing workforce diversity.
- To check if strategic leadership contribute positively.

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REVIEW OF LITERATURE

Jooste C & B Fourie (2009), the research study aims to investigate the perceived role of strategic leadership in strategy implementation in South African organizations. The target population for the study was the strategic leaders from top 200 companies of South Africa. The sample chosen for the study was five randomly selected directors of these companies. The study is carried out with 930 respondents. It is evident from the study that majority of the respondents have the opinion that strategic leadership of the organization is the most important driver of strategy implementation. The respondent's perceive specific strategic leadership actions contribute positively to effective strategy implementation. The strategic leadership actions are development of human capital and exploration and maintenance of core competence.

Omar Rabeea Mahdi & Mahmoud Khalid Almsafr (2014), the study examined the strategic leadership capabilities and sustainable competitive advantage in the academic environment. The conceptual framework for the study attempts to explain an integral view of strategic leadership and sustainable competitive advantage to provide guidelines for private Universities. Strategic leadership is the independent variable, which includes the main variables developing human capital and social capital. The dependent variable is sustainable competitive advantage. The research finding shows that positive relationship exists between strategic leadership capabilities and competitive advantage. Even more the competitive advantage is improved when strategic leadership is applied. Developing human capital and social capital has strong and significant effect on competitive advantage. The combination of organizational resources, capabilities and deployed knowledge needs to be developed and produced in order to enhance a sustainable competitive advantage.

Lorraine Wandy Lear (2012), the research was conducted to examine the relationship between strategic leadership and strategic alignment on high performing companies of South Africa. The companies investigated in the study represent diverse industries and economic sectors including manufacturing, transportation, construction and communication. The study further explores six critical criteria for strategic leadership. They are determining strategic direction, exploring and maintain core competencies, developing human capital, sustaining effective corporate culture, emphasizing ethical practices, and establishing strategic control.

RESEARCH METHODOLOGY

The Research design of the study is descriptive in nature. It identifies the different qualities of the strategic leaders and how it is significant in managing workforce diversity. In this study, strategic leadership is assumed as dependent variable in managing workforce diversity. Both primary and secondary data were used for the study. The researcher had collected the data with the help of structured questionnaire. The questionnaire was sent to the respondent through e-mail. The target population for the study are the workforce of IT industry. The sample size of the study is 60 respondents who are working in IT companies. The sampling technique used for the study is simple random sampling. The study was conducted for a period of 1 month. The data collected were analyzed and interpreted with statistical tool like ANOVA.

DATA ANALYSIS

Null Hypothesis (Ho): There is no significant difference exists among the respondents opinion towards the strategic leadership skills in managing workforce diversity.

Alternate Hypothesis (H1): There is significant difference exists among the respondents opinion towards the strategic leadership skills in managing workforce diversity.

Table-1

		Sum of Squares	d.f.	Mean Square	F	Sig.
Anticipatory Skills	Between Groups	14.304	4	3.576	1.065	.383
	Within Groups	184.680	55	3.358		
	Total	198.983	59			
Ability to Challenge	Between Groups	46.276	4	11.569	1.768	.148
	Within Groups	359.908	55	6.544		
	Total	406.183	59			
Ability to Interpret	Between Groups	24.556	4	6.139	2.453	.057
	Within Groups	137.627	55	2.502		
	Total	162.183	59			
Decision Making Skills	Between Groups	4.813	4	1.203	.566	.688
	Within Groups	116.920	55	2.126		
	Total	121.733	59			

Ability to Align	Between Groups	13.022	4	3.255	.765	.552
	Within Groups	233.961	55	4.254		
	Total	246.983	59			
Ability to Learn	Between Groups	22.096	4	5.524	.188	.944
	Within Groups	1616.887	55	29.398		
	Total	1638.983	59			

Sources: Authors Compilation

From the ANOVA analysis, it is inferred that there is significant difference exists among the respondents opinion towards the strategic leadership skills in managing workforce diversity. The opinion of respondents differs based on their age, gender, years of experience and soon.

CONCLUSION

The study has significant implications for the IT industry. Leadership has the potential that provide great benefits for the team members. Strong leadership provides team members with confidence and satisfaction. Strategic leaders have certain qualities, which greatly influence the team performance. The study addressed the qualities like anticipatory skills, ability to challenge, ability to interpret, decision-making skills, ability to align and ability to learn. The study reveals that majority of the strategic leadership qualities have positive influence in managing workforce diversity. All the team members agree that the leader with the above mentioned qualities influence the team and its performance largely.

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THE ART OF TACKLING THE DISASTROUS EFFECT OF CARBON-DI-OXIDE ON HUMANS

B. Sakthisaravanan⁷ Dr. R. Meenakshi⁸

ABSTRACT

Pollution is a major predicament faced by the entire world. This is taking our globe to a foremost disaster. Emission of CO₂ is one of the most important factor contributing to this disaster. This not only affects the globe but also the humans. In this paper, a detailed elaboration has been made as to how to minimize the negative effect of the CO₂ on human beings. The methods suggested are easy to implement and when done will be saving the earth from the greatest disaster global warming.

KEYWORDS

Pollution, Emission, Negative Effect of CO₂, Global Warming etc.

INTRODUCTION

With INDIA becoming a global village, pollution also has become a global problem. Pollution in general means contamination or in other word making things dirty. Any slight change in the atmosphere be it biological, chemical or physical is termed as pollution. Pollution has a wide wing in all forms i.e. in air, water and land. Here in this paper we consider only air pollution. The causes of air pollution are numerous. The main sources are from the emissions from industries, vehicles, air conditioner, refrigerators etc. Pollution affects the biosphere in total. i.e., it affects the plants species, the animal's species and the humans.

The human beings inhale the polluted air. The effect of pollution on humans is sometimes fatal. The air that humans inhale affects all parts of the body but heart is mainly affected. Human heart is the part where blood is scrutinized. From here goes the blood carrying oxygen to all parts of the body and comes in through the veins the blood carrying carbon-di-oxide. This process is most affected when the air inhaled is polluted.

CAUSES OF AIR POLLUTION

The result of Air pollution is due to both nature and human beings. The events that happen in nature like forest fires, radioactivity, volcanoes, evaporation of organic compounds, wing erosion, etc., cause air pollution. The fact to be understood regarding these natural activities is that they do not occur very frequently. Therefore, it is understood that the pollution caused due to these natural calamities are very less. The classification of air pollution is done as visible (pollution that is seen by naked eye) and invisible (pollution that is not seen by naked eye). Both these types can be caused by nature or by human. The nature's effect is minimal but the human effect is harmful.

The following are the human activities that cause air pollution.

- The industries in general and those having manufacturing units-The fumes that are emitted by these industries into the air cause air pollution.
- Fossil Fuels being burnt in various ways – all the vehicles burn fossil fuels including airplanes. They emit dangerous gases, which cause air pollution. The emitted gases react with the atmospheric gases where further toxic gaseous are produced. 70-75% of the carbon dioxide is emitted.
- The chemicals used in farms and hose holds – the paints and the products used for cleaning the household cause air pollution. The insecticides, the pesticides and the some fertilizers used in farms cause air pollution.

EFFECTS OF AIR POLLUTION

- **Acidification:** The pollutants in the air sometimes dissolve with water to form acids. This further may come as acid rain damaging the crops, trees, land, water etc.
- **Eutrophication:** Nitrogen when is dissolved in water will affect the water and land.
- **Ground-level Ozone:** The pollutants react chemically among themselves to form ozone which is hazardous to the whole biosphere

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- **Particulate Matter:** Insoluble particles in the air affect the humans. They may have an adverse effect on the human body and cause chronic respiratory disease, lung cancer, heart disease etc.

The following are some of facts, which are basics of Air Pollution

- Air pollutants can be particles or gases.
- Every human breathes in an estimated amount of 20,000 liters of air.
- Air pollution is not outdoors but also indoors like smoking and use of Tobacco.
- In 1952, the Smog Disaster in London killed 4000 people, which was due to pollution.

EFFECTS OF CARBON-DI-OXIDE ON HUMAN BEINGS

Carbon-di-oxide cuts off the oxygen supply in confined spaces. More than 10% exposure to it may prove fatal. This gas is not affected by air temperature. In medical terms, excess amount of CO₂ in the blood is called *hypercapnia*, which may cause health disturbances.

Environmental Problems - The Greenhouse Effect

From 1850 when the industrial revolution started the emission of carbon dioxide increased causing environmental problem. The emissions have increased from 280 ppm to 364 ppm causing 50-60% increase in global warming.

Cardiovascular Effects

The increased CO₂ affects the pH level of the blood increasing its acidity and flattens the heart functions. In the metabolic process, O₂ is used by the cells, which give out CO₂ as a waste product. If this waste product is accumulated in the blood then body starts reacting to remove it. Controlling of CO₂ is important in order to maintain pH level of the body. CO₂ when accumulated in the body activates fast as well as deep breathing. High or level of CO₂ may cause chest pain. Putting it in other words oxygen lack may cause permanent damage organs like heart permanently.

METHODS FOR HANDLING THE DISASTROUS EFFECT OF CARBON-DI-OXIDE ON HUMANS

- As a measure to handle the effect of CO₂ on heart when it has stopped, trained persons can be asked for cardiopulmonary resuscitation (CPR) as a first aid. The person may be taken to the hospital.
- Renewable resources can be used for consumption like solar energy, wind energy, energy from water.
- Reduction in release of greenhouse gases.
- Political policies must be made in order to reduce the emission of CO₂.
- Avoiding or eating less red meat.
- The household can be made energy efficient. This can be done by switching off all the electrical gadgets whenever not in use. This reduces the emissions of CO₂ by a large extent.
- The household must have energy efficient appliances. All the electrical appliances that are used in the household must be energy efficient. With the development in technology, this is possible. This will reduce the effect of CO₂ levels.
- Reduce the use of vehicles. We can reduce the use of vehicles by walking, cycling, taking public transport. For example instead of using four cars each one, we can use only car for four people. This will have even monetary benefits.
- Reduce unnecessary purchases – We need to avoid or reduce the purchase of things, which are not needed so that they are not used, and thereby reducing the CO₂ emissions.
- Recycle whatever is possible – plastics, papers and metals can be reused.
- Reuse whatever is possible.
- Use of teleconference - The technology development has made it possible to talk to more one person through teleconference mode. This reduces the travel time even through airplanes, reduces the traffic and therefore reduces the emissions of CO₂ from vehicles.
- Buying of things, which are locally, produced- The vegetables and fruits and other food items, which are produced locally, must be used. This will help people have fresh food and reduce the use the emission of CO₂. This is because the use of vehicles is reduced and will have a positive impact on climate.
- Last but not the least some breathing exercises also will help in reducing the effect of CO₂ on heart.

CONCLUSION

This paper had an overview of the disastrous effect of carbon-di-oxide on humans and some possible measures to reduce its emissions, which will save human life.



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A STUDY ON DISASTER MANAGEMENT IN INDIAN AGRICULTURE SECTOR

R. Raja Ramya⁹ Dr. R. Meenakshi¹⁰

ABSTRACT

Agriculture plays an important role in Indian economy. Agricultural productivity causes a great impact on a country. Agricultural productivity can be affected by various natural disasters like flood, climatic change, drought and natural catastrophes pest and diseases. The effect can be minimized with the help of technological tools. In this paper, a detailed elaboration has been made as to how to minimize the negative effect of the natural disaster on agriculture. Disaster management support system provides the information about the prediction of disaster and how to manage and recover from the disaster.

KEYWORDS

Disaster, Agriculture Productivity, Natural Catastrophe, Negative Effect etc.

INTRODUCTION

India on one hand is vulnerable to natural disasters but on the other hand has 60% of land is used for agriculture. Agriculture is at greater risk to natural disasters. The damages caused by natural disaster may leads to catastrophic. The disasters in the form flood, drought, or pests attack affect the agricultural production each time when they occur, which results in loss of agricultural crops worth millions of rupees each year. India being a nation of varied climatic condition and land area has 68% of land that could be affected by drought, 60% by earthquake, and 12% by Floods, 8% by Cyclones. About 85 percentages from 60% of agricultural land is vulnerable to natural disaster. The majority of natural disasters occurs in India are floods, earthquakes, droughts, and cyclones. The most of the Indian states experience more than one type of the above disaster. So a coordinated, holistic and participatory approach is needed to handle the disaster.

OBJECTIVES

- To study the causes for disaster that affects agriculture sector.
- To learn the forecasting system to safeguard agriculture sector.
- To offer suggestions to protect agriculture when disaster occurs.

DISASTERS FACED BY AGRICULTURE IN INDIA

Flood: The monsoon plays avital role in deciding the outcome of the harvest. The 75% of rainfall occurs during the monsoon months from June to September and as a result, almost all the rivers convey heavy discharge of water during this period. The huge rainfall leads to the flooding of rivers, streams, and lakes. This excess amount of water fills low-lying fields and creates a flood situation. Floods destroy the whole crop production work did in the summer. Certain types of crops cannot withstand in excess water and they die, leaving the farmer with a burden of debt.

Cyclones: The cyclone is one of the major natural disasters, which affect the coastal regions of India. India has about 7516 km of coastline. Nearly 10 percent of coastline exposed to tropical cyclones. Every year, nearly five to six tropical cyclones form in the Bay of Bengal and Arabian Sea hit the coastal region. From these, two or three are severe. When a cyclone approaches the coast, a danger of huge loss or damage arises from strong winds, heavy rainfall, and river floods. The ratio of cyclone occurs from Bay of Bengal and Arabian Sea is approximately 4:1.

Drought: Drought is one of the major natural disasters. Drought occurs when a monsoon fails to rain or rainfall is insufficient. Drought results in inadequate irrigation to crops, deficiency of drinking water, extreme hardship to the urban and rural peoples. Agricultural drought is described as inadequate or unavailability of water to support crop growth. When the water availability goes below the ideal level, the stages of crop growth will get affected. This results in the poor yield of crops. Agricultural drought can be defined as variance in the water content of the soil. During the growing season, other factor can also affect the plant growth, such as the degree of evaporation, water holding capacity and crop water requirement etc., The above factors largely depend on the rainfall.

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DISASTER PREDICTION METHODS

Disaster prediction methods for agriculture need the interaction between the weather and the agricultural production. The implementation is very complex process. Therefore, we cannot develop a solution and asking farmer to implement the solution. Because each year farmers are in different set of circumstance, so the farmers have to make the decision based upon the situations. The approach has to be developed by involving the representatives of the NMHSs (National Meteorological and Hydrological Services), the agricultural extension agencies, and the farmers. One basic requirement is the awareness of the influence of weather and climate parameters on sustainable agricultural production. The farmers always look for intelligent, low-risk solutions.

Forecasting System: The forecasting system should able to forecast the weather variables for crop prediction. The key variables are rainfall, temperature, solar radiation, humidity and wind speed. Seasonal climate forecasts provide information about the future climate evolution on timescales of seasons and longer because slowly evolving variability in the oceans significantly influences variations in weather statistics. The forecast system is very essential in the field of agriculture, forestry, and land management. It can able to potentially forecast the heavy rainfall, drought or heat waves. The forecast system helps to plan about reduce the impact of flood and drought, lessen the food shortages and provide distribution of energy.

Early Warning Systems: Observation and measurement of meteorological parameters with sufficient density in time and space has led to development of monitoring and forecasting systems with sufficient lead period in India. Successful predictions by IMD (India Meteorological Department) on the movement of tropical cyclones (Laila, Thane, Nilam, Phailin, Helen, Lehar and Hudhud) that struck east coast during 2010-2014 resulted in the minimization of human and agricultural losses. Much progress has been made on the agro meteorology front in identification of areas prone to drought, floods, heat and cold waves, frost and hailstorms. The remote sensing techniques, crop modeling and GIS "Geographic Information System" are making a headway to gain adequate insights on the crop responses to extreme weather and delineating regions that are likely to get affected.

DISASTER MANAGEMENT METHODS

The methodologies must be seen at the different time like scales short, medium and long- term. The short-term measures add contingency crop planning, strengthening input chain and other management aspects. Medium term measures include planning the natural resources, addressing the problems and long-term measures mostly involve socio-economic development measures. We present here mostly the short-term measures to be adopted for different weather extremes.

Droughts: Drought is monitored by observing the rainfall. The progress of seed sowing is crucial for effective management of droughts and minimizing the unfavorable effects on crop production. Early season drought due to postponement in onset of monsoon is directly responsible for shortfalls in crop production in the area sown under major crops compared to a normal situation. Additionally, delay in onset frequently prompts to poor inflows into reservoirs, water bodies or poor recharge of groundwater and contributes to delay in sowing.

Crop Based: In the southern peninsula, Tumkur district, Karnataka is one of the most drought prone districts of the region. Prolonged droughts cause near complete loss of yields of finger millet, which is the staple food crop of this region, threatening the food security of the rural population. Although finger millet requires very little water for cultivation, distribution of the rainfall determines its yield, as the crop is mostly rainfed. Farmers generally cultivate long duration finger millet in this region. As a result, the crop is more prone to intermittent dry spells. Demonstration of a short duration finger millet variety (ML365) that can be sown late when the onset of monsoon is delayed helped farmers to minimize their loss due to prolonged drought. It also ensured the food security of the farm families. The farmers have retained the seeds and are using them in subsequent seasons.

In low lands of Saran district, Bihar, aberrant rainfall situation prevailed in five out of previous 10 years and very low rainfall in July has led to delayed transplanting of paddy. Farmer preference for long duration varieties often lead to delayed transplanting and even up to end of August, which severely lowered the productivity. A resilient technology establishment of community nurseries, for this specific situation was developed. In this technique, staggered community nursery at an interval of two weeks involving varieties of different durations (140, 125-135 and <110 days) under assured irrigation was raised at the village level. During 2013-14, deficit rainfall conditions (~70%) in July and first fortnight of August has led to delayed transplanting. However, farmers who adopted resilient technology were benefited with an additional yield of 4-5 q/ha (13% yield increase) compared to farmers who transplanted over aged seedlings in August.

Management Based: Transplanted rice in Punjab requires about 130 ± ha-cm water and an estimate puts 10% of global methane emissions from the flooded rice fields. In case of delay in monsoon, farmers resort to excessive exploitation of ground water, which is leading to a decline quality of land and water. Direct seeded rice cultivation is identified as a resilient technology for this situation wherein nursery raising is done away. This allows timely sowing of succeeding *rabi* wheat. It also leads to a saving in water up to 25% compared to transplanted rice. It further saves 27% of diesel used as pumping energy, 35-40 person-days per hectare and reduction in methane emissions.

Drum seeding technique is another resilient technology in which direct seeding of pre-germinated paddy seeds is done. This technology was found advantageous in the predominant transplanted rice areas of Andhra Pradesh, Telangana and Kerala states that are increasingly facing water shortages due to deficit rainfall, declining ground water table due to insufficient recharge, late and limit release of canal irrigation water due to poor inflows into tanks/reservoirs. Apart from increased benefit cost ratio (0.8-0.9), this technology facilitates about 30% saving in seed, fertilizer and at least two irrigations.

Resource Based: FIRB (Furrow irrigated raised bed) and BBF (Broad bed and furrow) are some soil and water protection practices that proved beneficial across the country. Zero until drill of wheat is another climate resilient practice to overcome the terminal heat stress as it facilitates early sowing of wheat compared to conventional method. Small-scale water harvesting structures like farm ponds at individual farm level enable reuse of harvested water during critical periods of crop growth stage and for providing pre-sowing irrigation to *rabicrop*. Large potential exists for up scaling this technology for Indian conditions. Even in high rainfall areas like Dimapur, Nagaland, where the annual rainfall is around 2500 mm, a problem persists in the form of unavailability of adequate amount of water during the dry season. Field experiences indicate that this intervention allows farmers to shift to cultivation of vegetables/high value crops, resort to integrated farming system.

Desiltation of existing tanks/water harvesting structures is another smart practice in drought prone regions. This practice was found promising in Namakkal (Tamil Nadu), Kurnool (Andhra Pradesh), Rajkot (Gujarat) and Kullu (Himachal Pradesh), where prolonged dry spells at critical stages during *khari* often lead to low productivity and sometime even to total crop failures. Renovation and up-gradation of existing runoff structures like check dams resulted in improving the cropping intensity, recharge of open/tube wells, crop diversification and increase in crop productivity at several NICRA (National Innovations in Climate Resilient Agriculture) villages.

Rainwater harvesting in dugout ponds helped farmers in the South 24 Parganas district of West Bengal to harvest fresh water and start cultivating small patches of land. The east coast district of India is inclined to cyclones and seawater intrusion during high tides and often suffers from high rates of out migration of farmers. The KVK (Krishi Vigyan Kendra) of the district demonstrated to the farmers how to harvest rainwater and use the same for cultivating vegetables in a small scale. This prevented en masse migration of farmers from the village by ensuring a reasonable economic activity to earn their livelihood.

Flood Management: The district of Srikakulam, Andhra Pradesh located on the East coast is prone to floods. Located in the delta of two minor rivers, it is often prone to inundation of croplands thereby causing large-scale loss to farmers who predominantly cultivate rice in this region. One of the major interventions of NICRA (National Innovations in Climate Resilient Agriculture) was to first look at the possibility of improving the drainage so that the period of crop inundation can be reduced.

Secondly, introduction of submergence tolerant varieties of rice like Indra (MTU- 1061) to minimize loss to farmers. This strategy proved very successful when cyclone Neelam (28th October to 1st November 2012) hit the east coast and resulted in wide spread crop damage.

DISASTER RECOVERY METHODS

Crop Insurance: The crop insurance can help the farmers, agricultural producers to protect themselves from the loss of crops. The crop loss occurs due to the hail, heavy rainfall, floods, pest attack and lowering the price of agricultural commodities. In order to support the farmers, government of India introduces crop insurance schemes. The schemes are as follows:

- National Agricultural Insurance Scheme (NAIS).
- Modified National Agricultural Insurance Scheme (MNAIS).
- Weather Based Crop Insurance Scheme (WBCIS).
- Coconut Palm Insurance Scheme (CPIS).

Plant Protection: The government of India run a pest management scheme called [Integrated Pest Management Scheme \(IPM\)](#). This scheme goes for the best blend of all known pest control measures. It helps to keep the pest population below the economic optimal level. The scheme gets hundred percent sponsors from Central government. The Central Government likewise runs a plan to screen and control the pest population.

CONCLUSION

The study of disaster management system was able to analysis the various disasters which affects the agricultural and various measures taken to predict, minimize the impact and recover from the natural disaster. By following the recovery and preventive measures the productivity of agriculture can be improved and lose for farmers can be reduced.



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ROLE OF HR IN DISASTER MANAGEMENT: AN INSIGHT ON BUSINESS CONTINUITY PRACTICES BY COMPANIES

V. Santosh Karthikeyan¹¹ Dr. N. Muthu¹²

ABSTRACT

Natural disasters are unpredictable and it has lethal effect on human lives. It is observed that natural disasters are occurring every year across the globe leaving behind painful memories. These calamities include flood, fire, and earthquakes etc., which affect every nation. There are standard guidelines adopted by IT companies to manage these situations. We will discuss on the HR's role in disaster management and business continuity practices to run the business operations with minimal disruption. Flood, fire, earthquake, tornado and windstorm are some 'Natural Disasters' that affect thousands of people every year.

We need to be prepared to protect ourselves; our family and our organization from these risks. HR team should consider the employees as their top most priority as they are essential for business recovery. Not only that, employers have a moral duty to protect their employees as well as the integrity of the business. The recent flooding in Chennai and some of the key actions taken by IT companies during floods to engage the employees at work is also highlighted in this paper.

KEYWORDS

Disasters, HR, Technology, Business Continuity etc.

INTRODUCTION

"We cannot stop natural disasters but we can arm ourselves with knowledge: so many lives wouldn't have to be lost if there was enough disaster preparedness." - **Petra Nemcova**. Flood, fire, earthquake, tornado and windstorm are some 'Natural Disasters' that affect thousands of people every year. We need to be prepared to protect our family and our organization from these risks.

What is all about Disaster Management?

Figure-1



Sources: Authors Compilation

Service based IT companies operate their business across the globe and it is important that they have strong business continuity plan as part of their business operations strategy and meet the customer needs as per contractual agreements. Effective disaster planning is constructed to manage the crisis and ensure availability of service along with employee's safety. Human Resources play a key role in planning and execution of such events. They have to keep the business intact and help the employees to manage the crisis keeping in mind on the safety measures. Effective emergency management procedures enable successful business as part of business continuity operations.

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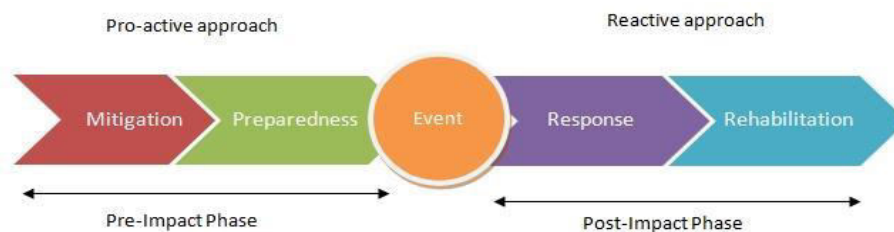
Figure-2: Issues in Environment and Disaster Management [EDM]



Sources: Authors Compilation

Prevention and Mitigation plans are proactive ways to handle the disasters in a diligent way. Therefore, companies engage emergency response team with extensive trainings and mock-drills to ensure the safety of their employees. The preparedness as part of business continuity plan helps to manage the disasters with minimal disruption and human safety. It is expected from all companies to respond on any critical situation quickly with all measures aligned with safety of the employees. After the disaster has happened, recovery should also be quick to ensure operations are back to normal. Human safety should be given due importance during all these phases of before, during and after disaster has happened to claim that the business continuity plan has worked really well.

Figure-3: Approach to Disaster Plan



Sources: Authors Compilation

HR ROLE AND RESPONSIBILITIES

HR team plays an important role in companies in the event of a crisis, starting from designing the crisis management strategy, and work with all the stakeholders to support the employees during crisis with effective communication. There are various responsibilities for HR, which are listed below:

- Work with emergency response team and other support vendors to review the business continuity plan.
- Liaise with employees and leadership team to understand and develop the system for establishing manageable situation during crisis.
- Develop the recovery plan for employee's safety before, during and after the crisis.
- Create awareness among employees on ways to handle emergencies and ensure cooperation from them.
- Assess the risks involved and enable a strong business continuity strategy for the company.
- Develop employee assistance programmes to support the employees during crisis.

Some of the real time practices adopted by IT companies based on the recent floods in Chennai, Tamil Nadu. It was one of the painful moments, which affected the normal life of people. Employees working in Chennai where unable to commute to office and communication network were shut down. There were many challenges, which affected them personally. As companies having global presence, there were various measures taken by them to ensure business operations are not affected and wanted to make sure the safety of the employees as well.



They rotated the employees to support the critical systems from other places and they encouraged them to support the business with monetary benefits through additional allowances. The companies initiated interest free loans for their employees termed as "Flood relief loan" to support them during crisis. HR team organized a systematic process to avail such loans, a separate flood relief policy was created within the system on repayment, and other supporting policy items were defined. They facilitated free medical camps for employees and their families to avail the services to address any health issues. Emergency relief kits were distributed among employees to help them with important accessories for safety, hygiene. Communication was a crucial factor during crisis, sent to all employees from HR to keep them informed on the latest updates on the crisis, and influence of social media played its role on this situation. There was additional support from the external sources like NGOs, which fulfilled the needs of the affected people with food etc. HR contributes to the critical capabilities of disaster management in IT companies and support from all concerned help to overcome this crisis enabling sustainable development of the companies.

SOLUTIONS DURING DISASTER

Listed below is some of the issues organizations face across the globe after a natural disaster occurs and some quick solutions, which HR can adopt to manage the disaster well.

- First issue is "**Establishing Communication with Evacuated Workers**" [ECEW].
- '**Business Continuity Plan [BCP]**' is necessary to be maintained by the HR team to continue the business operations from different locations that are safe.
- '**ECP**' is the foremost job of the HR when the communication lines are down.
- "**Medical Insurance Coverage**" is yet another important aspect, which the HR team has to focus on.
- "**Employee Assistance Programs**" [EAP] can also be planned.
- Most of the employees who have been a victim of the natural disasters would have gone through both physical and mental trauma.
- To help them overcome the trauma and return to normalcy in their personal as well as professional life, the assistance program will be of great help.
- "**Shifting of employee place**". Employers should consider shifting the affected employees to safer work locations, so that valuable skills and experience are not lost.
- "**Medical insurance**" Many affected employees use medical insurance to assist them with the recovery after disaster.
- "**Maintenance of Database**" One way could be to maintain a database of the primary, secondary, and other contact "numbers of your employees.
- "**Leave Policies**" crafted by the HR should be 'Flexible' enough considering the physical and mental trauma the employees must have undergone during the natural disaster.
- "**Creation of awareness**" The HR folks should ensure that their employees are aware of such facilities in their organization.
- "**Communication hub/Networking**". The HR team could make the important benefit information easily accessible to all the employees by flashing the information in their company website or make it available through communication centers in places where the employees are working.
- "**Clear communication**" The HR team should clearly communicate the terms of such payment to the employees to avoid confusion.
- "**Creation of employee confidence**" The leave policies should be crafted with extreme care so as to provide the employees the confidence that they will not miss their job if they are not able to return to work immediately soon after they are affected by a disaster.



- **'Payment of Wages'**. The employers could choose to continue their payment of wages to the employees or they could also make a fixed one-time payment to the affected employees.
- The organization could decide to give the pay as charity during time of distress or an advance amount from the future wages. Whatever it is, communication of the terms is very essential to clear misperceptions, as wages are very important to the employees now than any other time.
- **"Establishing a toll-free phone line"** through which the employees can obtain updated information regarding the company's status during an emergency.
- They will have to identify ways to keep the lines of communication open with the employees even if power is out in the local community.
- **"Boosting employee morale"**. When employees are forced to shift to different work locations away from their family just to support the business requirements, an additional pay as perk to the employee should be considered, as such, a gesture will definitely boost the employee morale and employee engagement with the organization.

ROLES AND RESPONSIBILITIES OF HR

- Cooperating with safety, engineering, risk management and operations to both address-contributing factors and to implement best practices.
- Coordinating communication between insurers and benefit providers.
- Crafting internal and external communications.
- Evaluation of contractor relationships.
- Handling compliance questions related to travel, relocation, remote-work and temporary employees.
- Handling discipline issues and the evaluation of the legality of employee responses and retaliation concerns.
- Integrating work with legal counsel.
- Managing pay and benefits for disrupted employees.
- Obtaining medical information about injured and killed employees.
- Overseeing and regulating social media and electronic communications.
- Participating in the investigation and root cause analysis.
- Protecting and calming employees, updating them, and addressing grief issues.
- Providing documentation of training, procedures, personnel and other records to investigating agencies (including documentation of job safety analyses, mandatory training, employee action plans, emergency response plans, fire prevention plans, etc.).
- Responding to union contract and "turf" concerns about investigations, work rules, job descriptions, temporary employees and discipline.
- Working with emergency responders.

CONCLUSION

All companies take various measures to ensure safety of the employees aligned with the business continuity plan. HR team holding the employee's data play an important role to communicate both internally and externally with the crisis and the best practices needed to face any crisis. Employees should also support the organization being socially responsible to ensure they have awareness and be diligent to handle this situation efficiently. We cannot escape from natural disasters but with overall support from everyone with proactive emergency management procedures, we can avoid major loss and continue the business operations seamlessly. Studies show that organizational leaders' perceptions of risk and their ability to deal with it have a direct influence on an organization's plans for crisis preparation, prevention, and reactions (e.g., Pearson & Claire, 1998, as cited in Hutchins & Wang, 2008). Human Resources can prepare their organizations to respond better to the complexities and ambiguities inherent in today's crisis events by taking a systematic and capability-driven approach. It helps to shape a common goal and integrate efforts towards crisis management, create a crisis-prepared culture, and develop organizational readiness and capabilities to survive in crisis.

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**SOCIAL MEDIA PARTICIPATION AT WORKPLACE: A REVIEW OF LITERATURE**V. Sasikala¹³ T. Poorani¹⁴**ABSTRACT**

The arrival of communication in the form of social media has connected individuals throughout the world together (Bennett, 2010). Some of the most popular platforms in social media are Twitter, LinkedIn, and Face book, which give people the ability to easily connect with friends, relatives, and co-workers (Bennett, 2010; Sherman, 2009). Social media, which has become very popular, has infiltrated the workplace and most employees are utilizing social media in the workplace. Employees are utilizing social media in the workplace. However, organizations are also facing the adverse side of social media, which is the distraction of employees while performing their jobs (Mastrangelo, Everton, & Jolton, 2006; Sherman 2009). The purpose of this paper is to investigate the research that was already done regarding social media use in the workplace.

KEYWORDS**Social Media, Facebook, Workplace, Distraction of Employees etc.****INTRODUCTION**

Social media can be defined as where people communicate, utilizing online platforms while they are connected to the Internet (Cox & Rethman, 2011). In earlier days, communication was done using landline telephones, which had limited features. People also contacted others by sending written correspondence using postal services. However, this medium also has lost popularity because of its slow speed and limited accessibility.

Employees are considered one of the most important assets of any organization. Success of any organization depends on the productivity of employees. Social media has infiltrated the workplace. Employees are utilizing social media in the workplace. Social media offers employees the opportunity to share knowledge and collaborate with each other (Skeels & Grudin, 2009; Stafford & Mearns, 2009). Social media can be utilized as a training tool allowing for flexibility of employees' time and location (Cox & Rethman, 2011; Ferreira & du Plessis, 2009). However, organizations are also facing the adverse side of social media, which is the distraction of employees while performing their jobs (Mastrangelo, Everton, & Jolton, 2006; Sherman 2009). Some of the concerns managers must deal with are the time employees spend with social media while ignoring their work duties (Wang & Kobsa, 2009), and the attention employees devote to their technical gadgets (Ferreira & du Plessis, 2009). The challenge for managers is to control excessive use of social media during work hours.

Authors were attracted to investigate social media use at the workplace because of the casual observations they made about employees' behavior when they were using social media on a computer or a smart phone. However, the observations were not used for an empirical study because the goal of the authors intended to investigate research that was already done regarding social media use in the workplace. The authors did an extensive literature review using ERIC, JSTOR, and Google Scholar databases. Only researches regarding the use of social media in the workplace was used. Articles, which did not, that have social media in the workplace, or work distraction as their focus were rejected.

REVIEW

Assa Gakui Munene and Ycliffe Misuko Nyaribo (2013) found that if not well managed, social media participation in Nairobi might lead to a loss of productivity. The findings also indicate that social media offers a new medium for knowledge creation and offers organizations the potential to enhance productivity. Social media like other revolutionary technologies before it such as e-mail and the telephone has both potential and challenges on productivity in the workplace. Employees and the employers can only address these challenges and opportunities in the right way through solutions that are agreeable and participative. Due to the integrated abilities of social media to attract and divert attention from work, the study recommends that organizations develop vibrant, participative and agreeable policies to guide social media participation at work when trying to deal with challenges that arise from such participation so as employees understand implications of their actions concerning the boundary between personal and work boundaries.

Warnakula and Manickam (2010) found that 98.9% of the employees surveyed in Sri Lanka visited their social networks at the office. Employees are supposed to perform the tasks assigned to them, but often their electronic social connections become a

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means of distraction (Mastrangelo et al., 2006; Sherman, 2009). Warnakula and Manickam (2010) found that more than 60.8% of study participants said they checked Face book at work. Furthermore, because employees may be focusing on responding to the social media, the tasks they are executing may be done inadequately, leading to productivity losses (Warnakula & Manickam, 2010) or safety issues (Sherman, 2009). However, part of the problem of excessive use of social media in the workplace may be that employees feel entitled to use this form of communication during work because they may believe it helps balance their job input with their job outcome (Adams, 1963). Using social media would be one of the ways to reduce the input, if they perceive they are putting more efforts into their jobs than they receive from it.

Michael Diercksen and Susan Bosco (2012) found ninety-one of the 115 (79%) respondents use social media on their cell phone in US. Most of the respondents, 87.5 percent, who use social media more than eight hours a week fell into this category. Only five people, however, agreed that it is okay to use social media at work; although 90 said it could sometimes be used for emergencies only. As to whether they would accept a job that bans the use of social media at work, 89 of the participants said yes. Another 96 said that they could work nine hours a day without using social media. Responding to questions asking whether an employee should be fired for excess use of social media, the majority, and 73 percent agreed that they should. When responding to questions asking whether their employers based on their social media activities, the majority, should judge an employee 70 percent, found this acceptable.

Tabassum Siddique (2015) found that a large number of respondents in Bangladesh (74%) use social networking at the workplace for communicating with their family and friends, spending time with chatting, sharing and uploading photographs and passing comments. Therefore, they were wasting productive work hours. Whereas, 16.7% sample employees use social networking sites only as part of their office communication. And 9.3% use both corporate and personal sites simultaneously. Most of the respondents (78%) were found to use their personal mobile and other handheld devices to visit social networking sites when they are in office. Only 21.7% of sample employees use office LAN, Office Computer, Laptop and Mobile those were provided by the company. The study also reveals that 38% of the respondents indicated that their organization does not have any policy regarding the use of Social network by its employees at the workplace. While 32% responded that their organizations effectively implement the policy. While this is also mentionable that 25.3% of the sample employees' organizations have policies regarding the use of Social network by its employees at the workplace but failed to implement effectively.

Ioannis Leftheriotis and Michail N. Giannakos (2013) studied the use of Social Media among the employees in the insurance sector in Greece. Contrary to previous researches (e.g. DiMicco et al., 2009; Efimova & Grudin, 2007), data was collected from a large pool of companies in the insurance sector (the active members of the IIS are thirty-three companies) rather than a single company. They found that two out of three employees make occasional use of social media for their work. Surprisingly, it seems that the use of social media for work does not follow the general use of social media by adults in US (Chou, Hunt, Beckjord, Moser, & Hesse, 2009) or EU (Eurostat, 2010) since there is no decline in the use of social media by age. Notably, the fact that age has insignificant impact on the use of Social Media for work (in contrary with older works – Skeels & Grudin, 2009) shows that during the last few years, older employees perceived the importance and usefulness of Social Media as a tool of their daily workload and adapted to this novel type of communication. The results show that higher use of social media for work is related to better work performance, or alternatively, more productive employees make larger use of social media in their work.

RECOMMENDATIONS

Andrea Broughton et al., (2009) offer nine recommendations to employers on how to manage the issue of employee use of the internet and social networking sites which are mentioned below.

- All employers should have a policy on internet / social media use.
- An internet/social media use policy must set out clearly and explicitly the organisation's expectations of and definitions of acceptable and unacceptable behaviour, and the consequences of violation. These should be consistent with disciplinary procedures and cross-refer to them.
- The policy on internet / social media use need not be complicated – the main message that online conduct should not differ from offline conduct, with reference to existing conduct guidelines, may suffice.
- The policy on internet / social media use should be drawn up in consultation with staff, either through their representatives, if present, or directly, if no representatives are present.
- A policy on internet use needs to be communicated.
- Organisations should make sure that there are adequate mechanisms for employees to raise formal and informal grievances.
- Organisations may wish to consider how they can reap the business benefits of social networking.
- Employers will need to keep up to date in developments in employment law relating to social media.
- Employers need to consider reviewing policies on internet use / social media on a regular basis.



Myrian Herlle and Vivian Astray (2013) proposed with Adam's Equity Theory, managers might be able to control excessive use of social media by striving for more balance in employee input and outcome. It would be essential to link excessive social media use with a reduction in employee input and employee work productivity. For instance, managers can meet the challenge of controlling social media at work (a) during the hiring process, (b) at new employee orientations, (c) through employee recognition programs, (d) through the use of visual aids in the work environment, and (e) through ongoing training programs.

CONCLUSION

When considering social media and its impact at the workplace, use of social media can be promoted as a tool where employees could exchange information with other members about common interests, policies, services and products. A safe and collaborative work environment should be created where employees undergo enriching learning experience. There are various other angles of social media use, which need to be further researched, that could contribute, preserve or enhance knowledge.

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ROLE OF ICT IN DISASTER MANAGEMENT

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ABSTRACT

Disasters are unexpected events, which not only claim the lives of human beings and animals, but also result in huge damage to both natural and man-made properties. Disasters can be categorised as natural disaster, man-made disaster and environmental disaster, which are the products of poverty, over population and environmental degradation. A disaster may be an event that concentrates in time and space in which a society undergoes severe damages in respect of natural resources and incurs losses in social resources. A disaster affects the vital functioning of a society that includes biological survival such as subsistence, shelter, health, reproduction, and social survival such as the system of meaning and values. Disaster situation always differs in the nature of precipitating agents about, sources of origin, degree of predictability, probability, controllability, speed, scope and destructive effects on people and physical objects.

KEYWORDS

Disaster, Degradation, Subsistence, Destructive Effects etc.

INTRODUCTION

Natural Disasters in India, many of them related to the climate of India, cause massive losses of life and property. Droughts, flash floods, cyclones, avalanches, landslides brought on by torrential rains, and snowstorms pose the greatest threats. Earthquakes, flooding, volcanic eruption, landslides, hurricanes etc might cause a natural disaster. In order to be classified as a disaster it will have profound environmental effect and/or human loss and frequently incurs financial loss. Other dangers include frequent summer dust storms, which usually track from north to south; they cause extensive property damage in North India and deposit large amounts of dust from arid regions. Hail is also common in parts of India, causing severe damage to standing crops such as rice and wheat.

Table-1

S. No.	Name of Event	Year	State & Area	Fatalities
1	Floods	October-14	Jammu & Kashmir	
2	Cyclone Hud Hud	September-14	Andhra Pradesh & Odisha	
3	Odisha Floods	October-13	Odisha	21
4	Andhra Floods	October-13	Andhra Pradesh	53
5	Cyclone Phailin	October-13	Odisha and Andhra Pradesh	23
6	Floods/Landslides	June-13	Uttarakhand and Himachal Pradesh	4,094
7	Cyclone Mahasen	May-13	Tamil Nadu	8
8	Cyclone Nilam	October-12	Tamil Nadu	65
9	Uttarakhand Floods	August-September 2012	Uttarkashi, Rudraprayag and Bageshwar	52
10	Assam Floods	July-August 2012	Assam	---
11	Cyclone Thane	December-11	Tamil Nadu, Puducherry	47
12	Sikkim Earthquake	September-11	Sikkim, West Bengal, Bihar	60
13	Odisha Floods	September-11	19 Districts of Odisha	45
14	Sikkim Earthquake	2011	North Eastern India with epicenter near Nepal Border and Sikkim	97 people died (75 in Sikkim)
15	Cloudburst	2010	Leh, Ladakh in J&K	257 people died
16	Drought	2009	252 Districts in 10 States	-----
17	Krishna	2009	Andhra Pradesh, Karnataka	300 people died
18	Kosi Floods	2008	North Bihar	527 deaths, 19,323 livestock perished, 2,23,000 houses damaged, 3.3 million persons affected

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19	Cyclone Nisha	2008	Tamil Nadu	204 deaths
20	Maharashtra Floods	July-05	Maharashtra State	1094 deaths 167 injured 54 missing
21	Kashmir	2005	Mostly Pakistan, Partially Kashmir	1400 deaths in Kashmir (86,000 deaths in total)
22	Tsunami	2004	Coastline of Tamil Nadu, Kerala, Andhra Pradesh, Pondicherry and Andaman and Nicobar Islands of India	10,749 deaths 5,640 persons missing 2.79 million people affected 11,827 hectares of crops damaged 300,000 fisher folk lost their livelihood
23	Gujarat Earthquake	2001	Rapar, Bhuj, Bhachau, Anjar, Ahmedabad and Surat in Gujarat State	13,805 deaths 6.3 million people affected
24	Orissa Super Cyclone	1999	Orissa	Over 10,000 deaths
25	Cyclone	1996	Andhra Pradesh	1,000 people died, 5,80,000 housed destroyed, Rs. 20.26 billion estimated damage
26	Latur Earthquake	1993	Latur, Marathwada region of Maharashtra	7,928 people died 30,000 injured
27	Cyclone	1990	Andhra Pradesh	967 people died, 435,000 acres of land affected
28	Drought	1987	15 States	300 million people affected
29	Cyclone	1977	Andhra Pradesh	10,000 deaths Hundreds of thousands homeless 40,000 cattle deaths
30	Drought	1972	Large part of the country	200 million people affected

Sources: Authors Compilation

CHALLENGES IN PREDICTING IN ADVANCE

There are challenges providing a warning or providing information to all people. Persons with disabilities fail to respond or act upon warnings of disaster, the question of how to deliver effective messages to persons with disabilities. During emergencies, people who are Deaf or have a hearing impairment cannot obtain information broadcast audibly, such as via radio, automated telephone messages, loudspeakers, etc. Information on evacuation, shelter, access to food, etc. are only part of the information transmitted in pre and post disasters. A range of different ICT system needs to be developed that is able to operate even in times of natural disasters, so that it is capable of operating with limited power.

There is a need to have a variety of different communications system in play: radio works for people who can hear and is often more sustainable in an emergency. ICT communication technologies during times of disaster and emergency include cell phones, which provide text and audio but are subject to the collapse of the system, television relies on having power, having designated information points that are well publicized before a disaster can be effective.

Disaster Preparedness and ICT

New Zealand- "Get ready Get Thru" New Zealand Government has a website 'GET READY GET THRU' that contains useful information on the natural disasters and provides advice on how to be better prepares in case of natural disasters, <http://www.getthru.govt.nz>. The website is providing a range of disaster preparedness information in accessible formats, such as mp3 files, e-text, DAISY talking books, audio CDs and cassettes, and Braille. The website contents are available in different languages.

JAPAN - "Plus Voice", a Japanese company (<http://www.plusvoice.co.jp>) is offering a free remote video relay service for people who are deaf or have a hearing impairment in areas hit by last year's massive earthquake and tsunami in Japan, in which sign language interpreters help people in Iwate, Miyagi and Fukushima gain access to information via videophones, shortly after the disasters struck.

***Accessible Preparedness and Early Warning Systems***

Persons with disabilities in an area of risk for disaster must be trained for natural disaster; DAISY and Get Ready Get thru are good examples of disaster preparedness for persons with disabilities. For people who are deaf, deaf blind, or have learning disabilities and sensory disabilities, emergency early warning systems messages may not be understood. In order to effectively reach people with disabilities in case of disaster, well-designed accessible alerts have to be developed. Lessons learned from design of accessible information standards can be applied to the design of emergency early warning system. The main approach is to create accessible early disaster warning alerts to meet the needs of people who are deaf, learning disabilities and cognitive disabilities, or people who may not be familiar with the local language. Smartphones, Satellite, GPS, mobile phones and early warning disasters apps can help persons with disabilities greater way in case of disasters and to be used by officials to keep track of persons with disabilities so that they can be assisted. Radios and satellite phones are very useful during disasters.

ICT Application for People with Disabilities**Smart Phones**

The use of smartphones is now prevalent worldwide, and many countries are exploring means to harness the power of ICT technologies, apps and smartphones. There are real life case studies and experiences from disasters in Taiwan and Japan to be explored and determinations of how ICT systems can be improved. "In recent practice, when a disaster is coming, the alert apps can be sent through a cell broadcasting system or mobile internet connectivity to every subscriber and grasp more valuable time for response. Obviously, the demand of constant communication is directly related to safety status reporting among people in emergency, their parents and friends.

However, during a disaster emergency, communication traffic to the disaster-stricken area increases and is difficult to get through as well. When the phone lines were overwhelmed by people's panic for making sure of others' safety, mobile social network apps can help to keep the lines available for emergency crews, and help people to post and acquire important information. Location apps and maps on the cell phone can help users understand the geographical information about disasters inflicted area and the rescue situations. And other Interactive apps or mobile services, the mobile version of web news, and updated news of some charity or rescue organizations also could be references and information hubs for people to follow up the sequel of the disaster, real demands of disaster-stricken areas and relief process."¹

Alert Notification

During the early post-disaster phases, there are calls to immediately establish mobile text messaging (SMS) capacity to send out warnings and updates about disaster to the public (Sponberg, 2010). In the Tōhoku earthquake and tsunami [in] March [2011], that mobile alert notification has been recognized by news media that it does help people to get awareness in time and respond to the disaster in a more caution manner. In fact, Earthquake Early Warning systems (EEW) in Japan :Three major mobile phone carriers in Japan, *NTT docomo*, *au* (KDDI and Okinawa Cellular) and *SoftBank Mobile*, have developed the simultaneous broadcast systems to receive EEW and provided phones with this service since 2007. [But overseas manufacturers (Nokia, Apple, HTC, LG, Samsung, etc.) are not forced to support the service in Japan.]"²

Technical Concerns

Most mobile networks are not designed to support very public dissemination. The wireless connection and infrastructure are essential to make most mobile apps workable. Incorporate cloud computing skill, apps can be helpful in a situation where internet is still working despite no mobile connectivity. Mobile apps often work with an active internet connection, if the cloud goes down, so will the application."³ "For disasters such as floods, storms, or tsunamis, delays are unacceptable. Cell broadcast technology does provide a way to disseminate geographically targeted very public alerts. Cell broadcasting is a more advanced technology than SMS text messaging, and it enables a government entity to securely transmit an emergency alert of natural or manmade disasters to cell phones in an affected area within minutes, regardless of the size of the area and regardless of the subscriber's carrier. The message through cell broadcasting has greater efficiency than a two-way call or a SMS text message, and without overloading the network."⁴

"Even though the use of mobile network has become popular utilizing high-speed wireless network systems covering wide areas, many residents might lose the means of communication including cell phone and they would be isolated from other areas if catastrophic disasters occurred over broader regions and the telecommunication infrastructure were destroyed in the regions. Therefore, the development of mechanism of securing alternative communication means for mutual help in the community will be one of the issues to be examined in the future. There is a study conducted focusing on this issue. This study is called as "R&D on ICT environment based on e- ARK (Electronic/Emergency ARmyKnife)* device for securing the safety of community at emergency" lead by professor Hiroyuki Ohno of Kanazawa University.(8)"⁵



Furthermore, there are number of smartphones apps available providing information on disasters and disaster watches, for example: Disaster Alert (by Pacific Disaster Center) provides a listing and an interactive map of Active Hazards occurring around the globe. **Earth Quake Display** has now added Tsunami's to the application. You can view the Tsunami alerts from any of the four alert feeds around the world. You can view the actual broadcasted alert or the NOAA webpage and even show the alerts location on a map all from within the Earth Quake Display application. Earth Quake Display - shows the last 200 earthquakes that happened around the world. The data is sent by the USGS.

ICT TRENDS IN ASIA AND PACIFIC

ICTs have proven to be an accelerator of economic and social progress. ICTs have contributed to economic growth by enhancing access to information and services, and by driving process efficiency and cost cutting in businesses. Empirical studies on the impact of ICTs have found a positive correlation between the use of ICTs and business performance measured by labour productivity.¹⁰ Innovative use of ICTs in various development sectors have also contributed to more effective delivery of services in agriculture, education, energy, government and health care.

Access to adequate infrastructure is a prerequisite for organizations and individuals to adopt and use ICTs. Over the past decade most countries have put in place some form of ICT infrastructure, and have allowed various ICT tools to become more accessible for many developing countries. Moreover, the convergence¹¹ of these technologies is leading to greater possibilities for use by different sectors and stakeholders. Different digital technologies and their use to reduce disaster risks are briefly highlighted below. This is not meant to be an exhaustive list of ICTs but provide highlights of some key ICTs that have proved indispensable to DRR. They include mobile technology, the Internet and Web 2.0 tools, space-based technologies such as geographic information systems (GIS), remote sensing and satellite communications, and different types of radios, including amateur radio and satellite radio.

- Mobile Technology,
- Cell Broad Casting,
- Radio => Amateur Radio, Satellite Radio, Broadcast Radio,
- Space Based Technology => Remote Sensing, GIS, Satellite Communications,
- The Internet Technologies.

Technology convergence and Social Media

The convergence of telecommunication, computing, and multimedia applications have further opened up new potential for its use in DRR and other aspects of development. Mobile phones, , are not only used for phone calls and messaging, but also used to capture and distribute images and videos, access the radio and television, and download music and news from the Internet. Digitization has enabled the transmission of all kinds of communication signal, including voice, data, video, graphics and music over a network, and has contributed to the rapid rate of convergence. This has led to the growth and popularity of social media or Web/Mobile 2.0 tools.³⁸ Social media provides an unprecedented level of user control and interactivity. Companies like Facebook, Yahoo! and You Tube offer platforms on the Internet for user-generated content. These platforms allow users to share and receive text and audio-visual content from a computer or mobile phone. As a result, social media has broadened access to diverse and previously unavailable data and analysis. For DRR, avenues for receiving disaster-related information, particularly after a disaster, are increasing. Previously people relied on the mainstream media or government authorities for information, but a number of online social media tools have facilitated an increase in 'citizen journalism' that provides independent reporting and analysis on many areas of public interest, including post-disaster situations.³⁹ The Internet has become one of the first places that people now go to for the latest news updates. This trend was most evident after the 2004 Indian Ocean Tsunami disaster. One particularly well known site that emerged following the Tsunami was the South-East Asia Earthquake and Tsunami (SEA-EAT) Blog, launched within hours of the Tsunami. Initially intended as a site to aggregate news and information, it evolved into an interactive platform with calls for help and offers to assist.⁴⁰ See case study below that looks at how volunteers from different parts of the world came together to form and develop SEAEAT.

In most disaster events, the very first responders are not the relief workers and search and rescue teams, but regular people who happened to be at the site of the disaster. Accounts of these regular people in the local community getting together quickly to coordinate response are common. With the advancement of ICTs, offers of assistance have been extended to the global community in creating online platforms for information sharing and coordination of activities on site. Organizations and volunteers are making innovative use of existing tools available on the Internet to save lives, particularly through social media. Some recently used tools for DRR include blogs (e.g. Word press), wikis (Wikipedia), web mapping (Google Maps), web-based instant messenger and voice calls over the Internet (in Skype and Yahoo!), image and video sharing sites (Flickr, YouTube), and social networking sites (Facebook, Twitter). Many of these sites are accessible via mobile phones that are connected to the Internet. Microsoft is beta-testing Vine, which is similar to Twitter, and allows users to receive real-time emergency updates from media outlets nationwide. More recently, in the aftermath of Typhoon Ondoy and Typhoon Pepang in September/October 2009, a



group of volunteers set up a site using Google Maps to document flood updates and persons needing rescue. Users will need to complete the online form, which is then sent to the group's main database for posting on the map. This, however, does not mean that mainstream media no longer plays a key role in disseminating information; they do. In fact, mainstream media agencies such as BBC and CNN have embraced citizen journalism and often provide links to these 'alternative' media from their websites. The examples above demonstrate the collective power of people and their effectiveness in disaster response when they are given the space and tools to collaborate. As shown in Table 2, different ICT tools have different advantages and limitations, but now there are increased choices, and they in most cases complement each other, filling each other's gaps, and thus the information has a higher possibility of reaching more people faster. Because information through social media is not coming from one central and authoritative source, a common concern regarding reporting from citizens is the accuracy and reliability of the information provided. To counter these concerns, a study by Jeannette Sutton of the Natural Hazards Center in Boulder, Colorado found citizen information remarkably accurate in the aftermath of a number of disasters in the United States. She stated:

CONCLUSION

It is necessary to ensure that early warning systems are accessible for persons with disabilities and meet universal design principles, including provisions for access to alternative communication systems. ICT communication capabilities are quickly evolving and alternatives to traditional cell and computing networks are being developed with cloud computing and satellites.

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ASSESSMENT OF TRAINING IN PRIVATE AND PUBLIC BANK WITH REFERENCE TO CHENNAI CITY

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ABSTRACT

Banking today is not concerned with acceptance of deposits or lending of funds. Nowadays banks offer a variety of products and services. Today the word bank does not merely refer to a brick and mortar bank, but includes anywhere and anytime banking, Internet banking, use of ATMs and so on. Technology is also being inducted into our banks in a big way, with improved customer service and operational efficiency being two important objectives. These developments underline one very important area for attention: training. While the utility of training for bank employees cannot be overemphasized, there is a necessity to address the issues pertaining to training holistically, so that the right type of training is provided by competent and committed faculty when and where it is required, resulting in an effective transfer of learning from trainer to trainee, from the classroom situation to the trainees environment.

KEYWORDS

Technology, Utility of Training, Competent Faculty Transfer of Learning etc.

INTRODUCTION

In Indian banking sector after the liberalization of the licensing policies by the Reserve bank of India (RBI), eight new banks were appeared in a shorter period as a new trail. The new arrivals were conveyed with the great publicity and they have integrated the IT with banking operations. These banks were introduced the virtual branches rather than the mortar and brick branches. They installed number of Automatic Teller Machines (ATM) than the public sector banks, which is present everywhere. They were popularising the ATM and credit cards in much efficient way than the older banks. This awareness about productivity is bound to catch on faster. The coming years are going to be very crucial for Indian banking. During the next four or five years, most bank customers are expected to be dealing with their banks sitting within the comforts of their homes. Consider these findings One, most cash transactions are already handled by ATM's. In the case of new private sector banks, as much as 75 percent of all cash withdrawals are through ATM's. And Two, various bank marketing surveys show that customers have begun to realize that telephone banking is cost-effective and internet banking is more cost effective. The burgeoning business world is undergoing a tough period due to economic recession in development and training, which plays a major role in business strategy. This enables the firm to build the competence in both domestic and international status. Thus training can be efficiently be used as a tool for resource development. The firms have to use a pro-active training system focused on the future changing environment to convey the future of the employees are safe when they were willing to relearn. Further, Kanungo discussed that there is an essential to create the theories related to training and development practices and the organizational behaviour. The necessity to give training based on needs rather than targets has been understood from the study of Yadapadithaya's on Training and Development. In India, there are only limited researches that focus on training and their effectiveness in private and public banking sector, which is the focus of this study.

REVIEW OF LITERATURE

For scheduling experimental design, further consideration should be given. Casico pointed out that pre or posttest control design should allow for minimum calculations related to measures of chance. Changes in training or some other factors may be responsible for the creation of barriers with these designs. Sadri and Snyder identified that this procedure is mostly utilized for evaluating the training program. Here the previously mentioned procedures are often not successful in providing the need for changes in training evaluation. However, this is not related to true effect but may be due to various experimental concerns.

Sims proposed that the barriers in training evaluation may sometimes be defeated with the help of excellent planning but in many cases they are more difficult to overcome. Goldstein noted that the evaluator sometime may not be more trained in evaluation techniques and principles for example techniques utilized for data collection. Bernthal and Sims explained that the projected organizational advantages couldn't be obtained from most of the training programs.

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Kurosawa proposed that several training programs are not succeeding in providing required benefits for organizations . Availability of a clear measuring system will help find out exactly where the trouble lies. It is important that the main decision makers of an organization be prepared to spare more resources in order to clearly demonstrate the real and considerable benefits of training needs evaluation system.

OBJECTIVES

- To assess the training and development process adopted by banks in general.
- To study the difference in the training and development process adopted by Public and Private Banks.

RESEARCH METHODOLOGY

As the main aim of the study is to Assess training and development programme in selected cooperatives, public and private sector banks in Chennai, 680 respondents who were full-time employees and working on different managerial and non-managerial positions were selected by stratified random sampling method from the chosen banks with the population of 2720 employees. Both male and female employees of all age level with their respective experience level were included for the study. This study is based on both primary and secondary data. Primary data were collected through a well-structured close-ended questionnaire, which was administered personally to the banks' employees. 5-point Likert scale consisting of highly satisfied, satisfied, neutral, dissatisfied and highly dissatisfied dimensions measured various responses. The secondary data used in the study were also collected from related journals, books, magazines, websites and bank records. Cronbach's alpha coefficient method, descriptive analyses, ranking and linear regression were used to determine the relationship between independent and dependent variables. Analyses of data and testing of hypotheses were performed using the Statistical Package for Social Sciences (SPSS) software version 17. The fieldwork was conducted from July to October 2016.

FINDINGS

T-Test

H₀: The perception of various constructs is same across the sector type.

H_A: The perception of various constructs differs across the sector type.

Table-1

Constructs	Sector	Count	Mean	Std. Dev.	t-value	Sig.
Learning Objectives	Public	350	3.78	0.71	-2.059	0.040
	Private	330	3.90	0.79		
Material Facility	Public	350	3.79	0.82	-3.441	0.001
	Private	330	4.01	0.79		
Role Supervisor	Public	350	3.94	0.94	1.117	0.265
	Private	330	3.86	0.92		
Pre training Act	Public	350	3.93	0.78	1.873	0.061
	Private	330	3.81	0.87		
Behavior	Public	350	3.78	0.90	-0.697	0.486
	Private	330	3.83	0.99		
Report	Public	350	3.75	0.83	-1.348	0.178
	Private	330	3.84	0.91		
Perceived Out	Public	350	3.83	0.94	1.086	0.278
	Private	330	3.75	1.01		
Post training Act	Public	350	3.83	0.84	-1.104	0.270
	Private	330	3.90	0.79		
Training Effectiveness	Public	350	3.78	0.92	-2.997	0.003*
	Private	330	3.99	0.91		
Growth	Public	350	3.86	0.91	0.077	0.939
	Private	330	3.85	0.98		
Attitude	Public	350	4.00	0.92	1.351	0.177
	Private	330	3.90	1.01		

Note: *Significant at 5% level

Sources: Authors Compilation

- **Learning Objectives:** The respondents from public sector gave this construct a mean score of 3.78 while those from private sector gave it a mean score of 3.90. An analysis of the above table brings out that the t-value is -2.059 and significance is 0.040. Since the significance value is less than 0.05, the mean difference existing for this construct across the sector type is significant at 5% level. Hence, null hypothesis is rejected and alternate hypothesis is accepted. Hence, the perception of learning objective differs across the sector type.
- **Material Facility:** The respondents from public sector gave this construct a mean score of 3.79 while those from private sector gave it a mean score of 4.02. An analysis of the above table brings out that the t-value is -3.441 and significance is 0.001. Since the significance value is less than 0.05, the mean difference existing for this construct across the sector type is significant at 5% level. Hence, null hypothesis is rejected and alternate hypothesis is accepted. Hence, the perception of material facility differs across the sector type.
- **Role Supervisor:** The respondents from public sector gave this construct a mean score of 3.94 while those from private sector gave it a mean score of 3.86. An analysis of the above table brings out that the t-value is 1.117 and significance is 0.265. Since the significance value is more than 0.05, the mean difference existing for this construct across the sector type is not significant at 5% level. Hence, null hypothesis is accepted. Hence, the perception of role supervisor is same across the sector type.
- **Pre training Act:** The respondents from public sector gave this construct a mean score of 3.93 while those from private sector gave it a mean score of 3.81. An analysis of the above table brings out that the t-value is 1.873 and significance is 0.061. Since the significance value is more than 0.05, the mean difference existing for this construct across the sector type is not significant at 5% level. Hence, null hypothesis is accepted. Hence, the perception of pre training act is same across the sector type.
- **Behavior:** The respondents from public sector gave this construct a mean score of 3.78 while those from private sector gave it a mean score of 3.83. An analysis of the above table brings out that the t-value is -0.697 and significance is 0.486. Since the significance value is more than 0.05, the mean difference existing for this construct across the sector type is not significant at 5% level. Hence, null hypothesis is accepted. Hence, the perception of behaviour is same across the sector type.
- **Report:** The respondents from public sector gave this construct a mean score of 3.75 while those from private sector gave it a mean score of 3.84. An analysis of the above table brings out that the t-value is -1.348 and significance is 0.178. Since the significance value is more than 0.05, the mean difference existing for this construct across the sector type is not significant at 5% level. Hence, null hypothesis is accepted. Hence, the perception of report is same across the sector type.
- **Perceived Out:** The respondents from public sector gave this construct a mean score of 3.83 while those from private sector gave it a mean score of 3.75. An analysis of the above table brings out that the t-value is 1.086 and significance is 0.278. Since the significance value is more than 0.05, the mean difference existing for this construct across the sector type is not significant at 5% level. Hence, null hypothesis is accepted. Hence the perception of perceived out is same across the sector type.
- **Post training Act:** The respondents from public sector gave this construct a mean score of 3.83 while those from private sector gave it a mean score of 3.90. An analysis of the above table brings out that the t-value is -1.104 and significance is 0.270. Since the significance value is more than 0.05, the mean difference existing for this construct across the sector type is not significant at 5% level. Hence, null hypothesis is accepted. Hence, the perception of post training act is same across the sector type.
- **Training Effectiveness:** The respondents from public sector gave this construct a mean score of 3.78 while those from private sector gave it a mean score of 3.99. An analysis of the above table brings out that the t-value is -2.997 and significance is 0.003. Since the significance value is less than 0.05, the mean difference existing for this construct across the sector type is significant at 5% level. Hence, null hypothesis is rejected and alternate hypothesis is accepted. Hence, the perception of training effectiveness differs across the sector type.
- **Growth:** The respondents from public sector gave this construct a mean score of 3.86 while those from private sector gave it a mean score of 3.85. An analysis of the above table brings out that the t-value is 0.077 and significance is 0.939. Since the significance value is more than 0.05, the mean difference existing for this construct across the sector type is not significant at 5% level. Hence, null hypothesis is accepted. Hence, the perception of growth is same across the sector type.

- Attitude:** The respondents from public sector gave this construct a mean score of 4.00 while those from private sector gave it a mean score of 3.90. An analysis of the above table brings out that the t-value is 1.351 and significance is 0.177. Since the significance value is more than 0.05, the mean difference existing for this construct across the sector type is not significant at 5% level. Hence, null hypothesis is accepted. Hence, the perception of attitude is same across the sector type.

Regression

Regression analysis was used to find the effect of Learning Objectives, Material Facility, Role Supervisor, Training Effectiveness, Pre training Act, Post training Act and Behavior on Perceived Out.

Table-2

Dependent Variables	Independent Variables	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
Perceived Out	Learning Objectives	0.895	0.802	0.800	0.435	388.507	0.000
	Material Facility						
	Role Supervisor						
	Training Effectiveness						
	Pre training Act						
	Post training Act						
	Behavior						

Sources: Authors Compilation

ANOVA, Regression test were used in the investigative procedure for examining information and study the hypotheses.

Table-3

Model		Sum of Squares	df	Mean Square
1	Regression	515.092	7.000	73.585
	Residual	127.279	672.000	0.189
	Total	642.372	679.000	

Sources: Authors Compilation

Table-4

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-0.109	0.089		-1.217	0.224
	Learning Objectives	0.117	0.051	0.090	2.296	0.022
	Material Facility	-0.153	0.049	-0.129	-3.120	0.002
	Role Supervisor	0.319	0.037	0.306	8.542	0.000
	Training Effectiveness	-0.058	0.034	-0.055	-1.686	0.092
	Pre training Act	-0.084	0.044	-0.071	-1.919	0.055
	Post training Act	0.328	0.053	0.277	6.154	0.000
	Behavior	0.549	0.033	0.533	16.807	0.000

Sources: Authors Compilation

It is seen from the tables that the correlation coefficient value (R) is 0.895 for Model1, which exhibits a very good amount of correlation between Learning Objectives, Material Facility, Role Supervisor, Training Effectiveness, Pre training Act, Post training Act and Behavior and dependent variable (Perceived Out), with the F-ratio being 388.51 and its associated significance level being small ($P < 0.01$). The R square value gives us the goodness of fit of the regression model. That is, the amount of variability explained by the whole of the selected predictor variables in the model for 80.2% ($R^2 = .802 * 100$) of variation in the dependent variable (Perceived Out).

Hence, with Learning Objectives, Material Facility, Role Supervisor, Post training Act and Behavior, it has a linear relationship (as the signs between variables are also expected).

Table-5

Dependent Variables	Independent Variables	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
Perceived Out	Learning Objectives	0.848	0.718	0.716	0.518	344.000	0.000
	Material Facility						
	Role Supervisor						
	Pre training Act						
	Post training Act						

Sources: Authors Compilation

Table-6

Model		Sum of Squares	d.f.	Mean Square
2	Regression	461.520	5.000	92.304
	Residual	180.852	674.000	0.268
	Total	642.372	679.000	

Sources: Authors Compilation

Table-7

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	-0.153	0.106		-1.443	0.149
	Learning Objectives	0.196	0.057	0.152	3.440	0.001*
	Material Facility	-0.175	0.058	-0.147	-3.007	0.003*
	Role Supervisor	0.302	0.044	0.290	6.828	0.000*
	Pre training Act	-0.046	0.051	-0.039	-0.899	0.369
	Post training Act	0.744	0.055	0.628	13.630	0.000*

Sources: Authors Compilation

It is seen from the tables that the correlation coefficient value (R) is 0.848 for Model1, which exhibits a very good amount of correlation between Learning Objectives, Material Facility, Role Supervisor, Pre training Act and Post training Act and dependent variable (Perceived Out), with the F-ratio being 344.00 and its associated significance level being small ($P < 0.01$). The R square value gives us the goodness of fit of the regression model. That is, the amount of variability explained by the whole of the selected predictor variables in the model for 71.8% ($R^2 = .718 * 100$) of variation in the dependent variable (Perceived Out). Hence, with Learning Objectives, Material Facility, Role Supervisor and Post training Act, it has a linear relationship (as the signs between variables are also expected).

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IMPACT OF NATURAL DISASTERS ON BANKING SERVICES IN INDIA

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ABSTRACT

Natural disasters affect firm activities in a various ways. They disrupt business operations directly through the loss of lives and the destruction of buildings and equipment, and indirectly through the impact on firms' transaction partners such as their customers, suppliers, and providers of finance. The indirect damage through transaction partners can be substantial. Among firms' transaction partners, suppliers of funding - especially banks - play a particularly important role in the process of economic recovery from natural disasters. When banks suffer physical or capital damage because of a natural disaster, they may not be able to provide sufficient funds at the same interest rates as before. In frictionless financial markets, firms should be able to offset such a negative shock to their funding by switching from a damaged to an undamaged bank, or raising funds from the financial markets. This paper aimed to provide the information about the impact of natural disasters on banking services in Indian Scenario.

KEYWORDS

Natural Disasters, Banking Disruption. Financial Markets etc.

INTRODUCTION

Damage to banks undermines their lending capacity that leads to financial constraints, and investment. Due to such financial constraints, firms may not be able to do capital investment. Financial constraints may also restrict the volume of exports of firms that have already started exporting due to a reduction for finance.

The theoretical predictions on the relationship between financial constraints and firm activities are straightforward. Lending by banks affect the performance of borrowing firms, but also borrowing firms' performance may have a significant impact on lenders' financial health and lending. Furthermore, there may be assortative matching between firms and banks. Specifically, better-performing firms may be more likely to transact with better-performing banks. Both of these issues mean that it is difficult to clearly identify the direction of causality between bank lending and firm performance.

LITERATURE REVIEW

Amiti and Weinstein (2013), in his study matched bank-firm loan data to identify idiosyncratic bank shocks and to examine the impact of loan supply shocks on firms' capital investment. Using Japanese data, they showed that idiosyncratic bank shocks have a large impact on firms' investment. They found that banks' financial health, measured by their market-to-book ratio, has a significant impact on the intensive margin of firms' exports, which suggests that bank financial health affects firm exports through the availability of trade finance. They also show that their results are not contaminated by a reverse causality.

Paravisini (2011) who showed that a decline in credit due to the reversal of capital flows during the 2008 crisis reduced the intensive margin of exports, but had no effect on the extensive margin.

EFFECTS OF BANK DAMAGE ON FIRM INVESTMENT

Hosono (2012), focused on the effects of damage to banks on firms' investment activity. In the study, two alternative definitions of bank damage were used:

- Damage to a bank's headquarters, which is a dummy that takes value of one if the bank was headquartered in the earthquake-hit area, and aims to capture the decline in the bank's managerial capacity to process loan applications at the back office; and
- Damage to a bank's branch network, which is the ratio of the number of branch offices located inside the earthquake-affected area to the total number of branches and aims to capture the decline in the bank's financial health and risk-taking capacity.

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The results of the study summarized as follows:

First, firms located outside the earthquake-affected area, but associated with a main bank located inside the area, have a significantly lower investment ratio than firms outside the affected area associated with a main bank that was also located outside the area, indicating that bank damage has a negative impact on firm investment.

Moreover, this negative impact is not only statistically significant, but also economically significant. For example, in the case that bank damage is defined as damage to banks' headquarters, the investment ratio of undamaged firms whose main bank was damaged is 8.2 percentage points lower than that of undamaged firms whose main bank was not damaged. This impact is economically significant, given that the average investment ratio for undamaged firms in FY1995 was 13.1%. This result clearly implies that the exogenous damage to banks' lending capacity has a substantial adverse effect on firm investment.

Second, the finding above is robust to the two alternative definitions of bank damage. We interpret these results as evidence that financial constraints play an important role in the observed relationship between bank damage and the investment of firms outside the unaffected areas.

Finally, bank damage, to either headquarters or branch networks, does not last for very long – three years after the earthquake the effect had dissipated.

EFFECTS OF BANK DAMAGE ON FIRM EXPORTS

Miyakawa (2014), examined the effects of damage to banks on firm exports. Specifically the study focused on firms that were located outside the area affected by the 1995 Kobe earthquake and that were hence undamaged, and divided these firms into those whose main bank was located within the affected area and was damaged, and those whose main bank was not located in the affect area. The results of the study summarized as follows:

First, as for the extensive margin of exports, we found that firms whose main bank is damaged are less likely to start exporting or expand the regions to which they export than firms whose main bank is unaffected. Moreover, the impact of bank damage on undamaged firms is not only statistically but also economically significant. For example, the probability of starting exporting is 4.5 percentage points lower for firms whose main bank is damaged than for firms whose main bank is unaffected. This impact is substantial given that the average probability of starting exports of firms in unaffected areas in FY1995 was 4.4%. The negative impact increases to 6.7 percentage points for FY1996 before declining to 3.3 percentage points for FY1997. This finding suggests that the exogenous damage to banks' lending capacity has a substantial adverse effect on the extensive margin of firm exports.

Furthermore, the finding holds regardless of which of the two alternative measures of bank damage, i.e., damage to a bank's headquarters or damage to a bank's branch network, is used. Thus, our results imply that deterioration in banks' lending capacity has an important adverse impact on the extensive margin of exports. However, it is also interesting to note that although both measures of bank damage yielded significant results, there are some differences. Specifically, we find that whereas damage to a bank's headquarters affected firm exports in FY1995, the financial year immediately following the earthquake (i.e., in the financial year typically from April 1995 to March 1996; the earthquake occurred in January 1995), damage to a bank's branch network affected firm exports only a year later, in FY1996. This implies that the impairment of banks' managerial capacity affects firms' exports within a relatively short period, while the impairment of banks' financial health and risk-taking capacity only has a delayed effect.

Second, as for the intensive margin, we found that a firm whose main bank is damaged has a lower export-to-sales ratio than a firm whose main bank is unaffected. This finding is consistent with the prediction that the exogenous damage to banks' lending capacity has an adverse effect on the intensive margin of firm exports through a smaller provision of trade finance. Specifically, we found that in FY1995 the export-to-sales ratio of firms whose main bank was damaged was 6.5 percentage points lower than that of firms whose main bank was unaffected, while in FY1996 and FY1997 it was 7.4 and 6.5 percentage points lower, respectively. This impact is economically significant, given that the average export-to-sales ratio for firms in the unaffected areas was 9.1% in FY1995, 9.2% in FY1996, and 9.7% in FY1997.

LESSONS FROM THE EMPIRICAL STUDY

The results above imply that for economic recovery in the wake of a natural disaster, it is important to ensure that the functioning of financial intermediation is maintained to mitigate any potential financial constraints and allow firms to carry on with their capital spending and export plans. To this end, government support, including capital injection into banks affected by a natural disaster, as provided in the aftermath of the Tohoku earthquake, may be justified. In other words, in addition to speeding up recovery through the reconstruction of infrastructure and support for damaged firms, it may be necessary for the government to introduce policies for mitigating a potential credit crunch triggered by the disaster.

In this context, it should be noted that the analysis in the two studies focused solely on damage to a firm's main bank. Our results thus imply that firms are unable to fully offset the shock to their main lender bank by finding alternative sources of funding, providing further justification for government intervention in loan markets in the case of a massive natural disaster. At the same time, however, it is also important to note that our findings indicate that the negative effects of bank damage on firm activities do not last for a long time. This means that government measures to intervene in the supply of credit should be timely and can be terminated within a short period.

Many relate natural disaster to the climate of India that cause massive losses of life and property. Droughts, flash floods, cyclones, avalanches, landslides brought on by torrential rains, and snowstorms pose the greatest threats. Earthquakes, flooding, volcanic eruption, landslides, hurricanes etc might cause a natural disaster. In order to be classified as a disaster it will have profound environmental effect and/or human loss and frequently incurs financial loss. Other dangers include frequent summer dust storms, which usually track from north to south; they cause extensive property damage in North India and deposit large amounts of dust from arid regions. Hail is also common in parts of India, causing severe damage to standing crops such as rice and wheat

LANDSLIDES AND AVALANCHES

Landslides are very common indeed in the Lower Himalayas. The young age of the region's hills result in labile rock formations, which are susceptible to slippages. Rising population and development pressures, particularly from logging and tourism, cause deforestation. The result is denuded hillsides, which exacerbate the severity of landslides; since tree cover impedes the downhill flow of water. Parts of the Western Ghats also suffer from low-intensity landslides. Avalanches occurrences are common in Kashmir, Himachal Pradesh, and Sikkim.

FLOODS IN INDIA

Floods are the most common natural disaster in India. The heavy southwest monsoon rains cause the Brahmaputra and other rivers to distend their banks, often flooding surrounding areas. Though they provide rice paddy farmers with a largely dependable source of natural irrigation and fertilisation, the floods can kill thousands and displace millions. Excess, erratic, or untimely monsoon rainfall may also wash away or otherwise ruin crops. Almost all of India is flood-prone, and extreme precipitation events, such as flash floods and torrential rains, have become increasingly common in central India over the past several decades, coinciding with rising temperatures. This means that there are more extreme rainfall events intermittent with longer dry spells over central India in the recent decades.

CYCLONES IN INDIA

Cyclones bring with them heavy rains, storm surges, and winds that often cut affected areas off from relief and supplies. In the North Indian Ocean Basin, the cyclone season runs from April to December, with peak activity between May and November. Each year, an average of eight storms with sustained wind speeds greater than 63 kilometers per hour (39 mph) form; of these, two strengthen into true tropical cyclones, which have sustained gusts greater than 117 kilometers per hour (73 mph). On average, a major (Category 3 or higher) cyclone develops every other year.

FINDINGS

- In the face of a disaster, banking business gets affected.
- There is an impact on revenue, all banks should have in place contingency and Loss of corporate image continuity plans to ensure that they could continue to operate.
- Delays in responding to customer requests on an on-going basis and limit losses in the event of severe unplanned events due to natural disaster.
- Disasters collapsed infrastructure and human threats operations.
- There is a wide-scale disruption Security threat, such as computer viruses, worms and the ability to recover and continue operations following denial-of-service attacks the loss or inaccessibility of staff.
- It leads to very high cost of operating locationdowntime due to data loss or unavailability.

SUGGESTIONS

- Banks find inability to meet regulatory requirements due to disaster.
- Banks should identify critical business processes, including dependencies on third parties or external parties.
- The need for an effective Business Continuity Plan (BCP) or identify alternative mechanisms for banks to resume their service.
- Attention should be paid to the restoration of the banking sector to implement adequate electronic records; care should be taken so that back up measures to ensure business continuity.



- Banks should periodically review their disaster recovery and business continuity plans so that they are consistent with current operations.
- These plans should be tested periodically to ensure that the bank would be able to execute the plans during a severe business disruption.
- Because of growing number of high - profile operational loss events worldwide, Operational Risk Management (ORM) was identified as an integral part of the risk management activity. The Basel II Framework 3 identified broad types of operational risk events having the potential to result in substantial losses which included continuity risk events such as damage to physical assets, business disruption and system failures, loss on account of external fraud such as computer hacking, etc.

CONCLUSION

Business interruptions can occur anywhere, anytime. Massive hurricanes, tsunamis, power outages, terrorist bombings and more have made recent headlines. It is impossible to predict what may strike when. In today's 24x7x365 world, it has become mandatory to prepare for such disaster scenarios. With the ever-increasing dependence on banks for both electronic and traditional banking services, it has become almost mandatory for the banking industry to plan for 'Business Continuity'. It may sound cliché to mention that much of the commercial activity that we see today is dependent on banks. Banks, in turn, have turned to increasingly complex technology and business models to deliver the services expected in this age of boundary less commerce. Sophisticated and interconnected Automated Teller Machine (ATM) networks, Tele-banking, Core Banking Solutions and Internet Banking Solutions for seamless customer access are but some of technologies. Banking sectors can use the disaster management approaches and controlling strategies to manage the disasters and thereby serving the society and sustain the economic growth.

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ATTRITION IN IT INDUSTRIES: DEMOGRAPHIC FACTORS AFFECTING EMPLOYEES' INTENTION TO QUIT

Dr. G. Sivaramakrishnan²¹ K. Suresh Kumar²² Supraja Sivaramakrishnan²³

ABSTRACT

The aim of this study is to understand and investigate intention of IT employees to quit the job. Several theoretical concepts were presented explaining the occurrence of intention of employees to quit the job leading to attrition. The empirical investigation from this study helps to determine the most influencing factor on the intentions behind employee turnover. In this paper, the demographic factors affecting employees' intention to quit the job are determined and explored. The findings and the results of the findings help to give suggestions to reduce the employees' intention to quit from IT companies, reduce Attrition and to retain them.

KEYWORDS

IT Employees Intention to Quit, Factors etc.

INTRODUCTION

In the recent decades, the Indian industry has changed its outlook. The employment scene has changed its appearance. The factors like skill sets, job satisfaction, promotion progress, work-life balance, drive the employment and not just the money. The employer hence faces the heat of continuous employee turnover and it is normally known as "attrition". It is a challenge for human resource (HR) professionals to recruit and retain skilled personnel. The study on the level of attrition during 2010 -11 indicated the following reasons - pay packages (21%), career level growth (16%), dissatisfaction with supervisors (15%) and work pressure (14%). Interestingly, senior-level employees (experience more than 15 years) had a very low attrition rate of 15%. The attrition level at year 2012 was found to be minimum, among employees having a work experience of over 10 years (5%), employees with 5 to 10 years of experience (7-10%) and employees with less than five years of work experience (15-20%).

The *attrition rate among young and entry-level employees is the highest*, since they aspire high pay packages and to become early achievers. In addition, the study found that companies have been expanding into smaller towns for cost advantages in tier III towns, where running costs are about 25% lower than in metros. Retrieved from <http://www.topnews.in/india-top-global-attrition-rates-2013/> (Published on 6th July, 2013) & Retrieved from <http://www.thehindubusinessline.com> (Published on 7th June, 2013).

NEED FOR STUDY

Though pay and employee benefits are two of the most important factors in a job, other demographic factors also influence attrition. By understanding the influence of all Demographic factors, the need of study is better understood and provide insight on employee's intention to quit and suggests solution for retention of employees.

STATEMENT OF PROBLEM

The statement of problem is about the IT industry employees' attrition fueled by their intention to quit the organization.

OBJECTIVE

To study the influence of demographic profile on the IT employees' intention to quit.

LIMITATIONS OF STUDY

- The study was limited only to ten IT companies.
- This study uses only selected factors as contributors for intention to quit among the IT employees.
- There could be numerous other factors, which may be equally important.

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REVIEW OF LITERATURE

Weitz (1952) has identified that job dissatisfaction would be more predictive of turnover and stated that "some individuals generally gripe Ignore than others" and that such individuals when dissatisfied with their jobs are less likely to quit than are those more positively disposed toward life. **March and Simon (1958)** classified in his study that dissatisfaction leads to search for alternative jobs and that search increases the likelihood that alternatives will be found. **Herzberg F. W. et al. (1959)** have examined that pay and supervision are extrinsic elements that do not enhance job satisfaction unlike the intrinsic factors such as achievement, recognition, advancement, autonomy, personal growth etc. These factors encourage effective performance and ensure job satisfaction. Pay and supervision are "de-motivators or dissatisfiers" as used in the Herzberg" and do not encourage job satisfaction. This implies that pay and supervision rather have positive effect on employees" turnover intention. **Hulin, C. L. (1966)** from the results of clerical workers, found that turnover was clearly negatively related to job satisfaction.

Hulin, C. L. (1968) from the result of his study observed that those employees who quit express dissatisfying factors and the corrective and preventive measures initiated in lieu of the suggestions given by exit employees led to significant decrease in turnover. **Porter et al. (1974)** from their study have found that individuals who are committed to the organization are less likely to leave their jobs than those who are less committed. **Hackman and Oldham (1975)** argues that repetition at work is also another fueling factor affecting the turnover intention. According to findings of the study, demanding jobs, more job satisfaction potentially inspire an employee to work harder, and increase productivity. **Rule and Nesdale 1976)** from their study found that the negative emotions associated with stress incline the people toward more aggressive and less altruistic behavior.

Porter et al. (1976) from their study results found that the relationship between organizational commitment and turnover and further observed that trainees who voluntarily left the company during the initial 15 months employment period had begun to show a definite decline in commitment prior to termination. **Kalleberg and Arne (1977)** examines the relationship between job satisfaction, work values and job rewards associated with six dimensions of work--intrinsic, convenience, financial, relations with co-workers, career opportunities and resource adequacy. The results found that work values have independent effects on job satisfaction. The extent to which workers are able to obtain perceived job rewards is conceptualized to be a function of their degree of control over their employment situations. **Mannari, H., and Marsh, R. (1977)** from their study found that commitment, which is morally right in an employee's opinion, would make the employee to stay in the company regardless of how much satisfaction is derived from the company.

Mobley (1977) from his study examined that for individuals who are more negatively disposed toward life, job dissatisfaction and quitting may seem to have little to do with each other. **Staw, B. M. (1980)** from his study found that turnover might be the last-resort of conflict resolution especially if they stem from differences in fundamental values or beliefs. **Roseman, E. (1981)** classified his study that turnover may also be able to reduce cost by eliminating or merging vacant positions as high-priced talent may tradeoff for lower-priced talent with equal capabilities. **Spencer, D. G., and Steers, R. M. (1981)** found a strong negative relationship between job satisfaction and turnover among low performing employees. **Jackson, M., (1981)** observed that high turnover is caused by factors like unhappiness with the work, inadequate compensation, unsafe and unhealthy conditions, unrealistic expectations, inappropriate processes or tools, and poor candidate screening, lack of career opportunities, poor challenges, dissatisfaction with the job-scope or conflict with management.

Hogan, R., and Hogan, J. C. (1982) suggested that self-esteem is related to stress and argued that people have deep-seated needs for social approval. **Mowday et al. (1982)** concluded that there was consistency of negative relationship between job satisfaction and turnover. **Jackofsky, E. F., and Peters, L. H. (1983)** observed that employees who believe on the existence of alternative jobs would quit when they are dissatisfied. **Carsten, J. M., and Specter, P. E. (1987)** has found that there is significant negative correlation between job satisfaction and turnover. **Lee, T. W., and Mowday, R. T. (1987)** concluded that high job satisfaction leads to lower turnover, while low satisfaction leads to higher turnover. **Sherman, J. D. (1989)** clarified that sociable individuals experience positive emotions and are likely to be correlated with job satisfaction and have less intention to quit. **Ashford S, et al. (1989)** found that job insecurity, leads job dissatisfaction. **Idson T. L., and Feaster, D. J. (1990)** opined that jobs, which provide adequate financial incentive, make the employees to stay with the organization. Large organizations can provide employees with better opportunities for career advancement and higher remuneration and hence ensure organizational attachment.

Jewell L. N., and Segall, M. (1990) stated that employees, who are satisfied with their jobs, tend to stay longer, with less absenteeism and attrition. **Hom, P. W. et al. (1992)** found that organizational politics are significantly related to turnover intentions and psychologically the person may still intend to leave the organization. **Guimaraes Tor and Magid Igbaria (1992)** found that for information systems are the most powerful predictors of turnover intentions and these factors appear to transcend professional and organizational boundaries. **Judge, T.A. (1993)** studies disclosed stronger relationship between job dissatisfaction and turnover. **Wallace, J.E. (1995)** found that Hong Kong IT professionals, working in Small and Medium Enterprises, have limited resources on IT would limit the IT employees from promotion opportunities and exposure, which are essential for professionals to be loyal to an organization and hence the employees move to next job.



Sager, J.K. (1994) found that employees having role conflict and ambiguity faces high work stress leading to dissatisfaction and ultimately develop an intention to quit. **Bruce J. Eberhardt, et al. (1995)** investigated possible moderating effects on the relationship between job satisfaction and nurse's intention to quit. **Beehr T. A. (1995)** studies revealed that stress cause strains, poor psychological health or well being of the individual. **Koh, H. C., and Goh, C. T. (1995)** found that the role of supervisors is significant to job satisfaction and intention to leave. **Oi-Ling Siul et al. (1997)** findings revealed the coping strategies, positively related to job satisfaction, and negatively related to mental and physical ill-health and the 'managerial role' was identified as a strong predictor of Physical and mental ill-health. **Hellman, C. M. (1997)** observed a relationship between job satisfaction and intention to leave the job. **Agarwal R., and Ferratt T. W. (1998)** studies observed that the Hong Kong IT professionals intend to swap among different companies for professional advancement and exposure.

Oi-ling siul, and Cary Cooper (1998) suggested that locus of control and organizational commitment had strong direct effects that the employees having commitment had higher job satisfaction and commitment buffered most of the stressor-strain relationships. **Wai, C. T., and Robinson, C. D. (1998)** show that there is negative relationship between formal recruitment, age and the intention to quit - as the employee's age increases, the desire to leave the job decreases. **Hatton, C., and Emerson, E. (1998)** found that supervisors and managers play a major role in turnover intention and can determine whether an employee will leave or stay. **Larson, S., and Lakin, K. (1999)** found that simple and routine jobs result in lower participation and higher absenteeism and consequently higher desire to leave the job.

Allen D. G., and Griffeth R. W. (1999) examined the relationship between individual job performance and employee turnover. An integrative performance model is suggested that may lead to turnover in three different routes.

- Performance may influence turnover through cognitive and affective evaluations of the desire to leave the organization.
- Performance may influence turnover through actual and perceived mobility in the job market.
- Performance may lead more directly to turnover in response to performance-related shocks to the system.

Moore, J. E. (2000) defines that unrelenting pressures and sometimes-unrealistic expectations and deadlines can make IT professionals lack the challenge and innovation of working with innovative technologies. **Griffeth R. W. et al. (2000)** examined pay and pay-related variables have a modest effect on turnover-person's performance and turnover and concluded that high performers quit when inadequately rewarded. **Harrington D. et al. (2001)** investigated the predictors of intentions to leave a job-emotional exhaustion, low levels of intrinsic job satisfaction, dissatisfaction with low levels of salary and poor promotional opportunities. **Paul D. Rouse (2001)** represented a unique phenomenon that may not adhere to traditional model construct of voluntary turnover of information technology professionals and provided an alternative method of understanding the processes.

A. R. Elangovan (2001) study results indicate strong causal links between stress, satisfaction and commitment -higher stress leads to lower satisfaction that leads to lower commitment that again leads to greater intentions to quit. **Khatri, N., and Fern C. T. (2001)** studies identified a modest relationship between job satisfaction and turnover intentions. **Ronald J. Burke et al. (2001)** examined the relationship of managerial and professional women's perception on organizational values supportive of work-life balance and psychological emotional well-being. **Zuber A. (2001)** found employees are more likely to stay when there is a predictable work environment and vice versa and that unstable organization have a high degree of employee turnover.

Stephane Cote, and Laura M. Morgan (2002) explored the association between emotion regulations, and conscious manipulation of job satisfaction and intentions to quit by improving the quality of interpersonal encounters at work. **Mark E. McMurtrey et al. (2002)** study presents a model of the combination of computer aided software engineering tool usage and job satisfaction as related to internal career orientation. Careful selection of the computer aided software engineering tool for use may result in this win-win situation. **Rosemary Batt, and P. Monique Valcour (2003)** explore the relationship between human resource practices and employees' turnover intentions. The results suggest that the most effective organizational responses to work-family conflict and to turnover are those that include work redesign and commitment-enhancing incentives. **Dow Scott et al. (2003)** examined Chinese employees to a participative work environment and the nature of the decision making processes, employee willingness to cooperate with co-workers and intention to quit. **Ing-Chung Huang et al. (2003)** observes that employee probably attempt to seek another job if he or she feels that it is unlikely to obtain a good evaluation or promotion even after individual's great endeavors.

María Pilar de et al. (2003) indicated that women have lower mobility than men, which may have managerial implications of gender segmentation in labor market. **Ronald J. Burke et al. (2003)** examined the relationship of female and male psychologist's perceptions of organizational values supportive of work-life balance and psychological well-being. **Lee, P.C.B. (2004)** in his study concluded that IT professional has intention to quite depend on the social support from his/her family, colleagues and supervisor. **Lucy Firth et al. (2004)** has measured commitment to the organization on the perceived stressors in the job and their intention to quit and suggested Managers should monitor the sources of job satisfaction available to employees.

Brough, P., and Frame P. (2004) have found that job satisfaction is a strong predictor of turnover intentions. **Mohsin Aziz (2004)** identified the differences in the level of stress between married and unmarried employees on several role stressors and the level of literacy education does not emerge as a significant differentiator of stressors. **Steven G. Westlund, and John C. Hannon (2004)** examined job satisfaction facets and turnover intention of software developers. The results of Turnover intention showed a significant negative correlation with all job satisfaction facets. **Billie Comber and K. Louise Barriball (2005)** found that the salary is associated with the intention to quit. **Korunka, C. et al. (2005)** has concluded that there is significant negative association between job satisfaction and turnover intentions.

Barbara Bigliardi et al. (2005) indicated that design engineers report lower levels of turnover intention when organizational socialization is prominent and an adequate range of opportunities that satisfy career aspirations exist within the organization. **Ruth C. King et al. (2005)** study the results showed the socialization tactics - investiture tactics (recognize employees' values and skills), serial tactics (that emphasize the interpersonal and mentoring aspects) affected IT professionals differently and had the most significant effects on employees' role adjustment and organizational attachment. **Cranwell. W and Alyssa (2005)** results shows that workers suffer from stress exhibit higher number of accidents, lower morale and greater interpersonal conflict with colleagues and superiors. **Christo, B. and Pienaar, J. (2006)** in the studies has demonstrated the causes of occupational stress that include perceived loss of job, security, and organizational climate are considered as contributors to employees stress.

John O. Okpara, et al. (2005) in their research findings show that there are gender differences apparent in the job satisfaction among university teachers -female faculty were more satisfied with their work and co-workers, whereas, their male colleagues were more satisfied with their pay and promotions. **Fernando Jaramillo, et al. (2006)** observes that Salespeople operating in the banking industry are prone to be dissatisfied, emotionally exhausted, and are likely to quit when they believe that their time or efforts have been used ineffectively. **Ramudu Bhanugopan and Alan Fish (2006)** results demonstrate that three job characteristics - role conflict, role ambiguity and role overload, are significantly associated with three dimensions of job burnout-emotional exhaustion, depersonalization and reduced personal commitment, with role conflict being the main reason. **Zhong Ming Benjamin Siong, et al. (2006)** study observes that the core stressors are associated strongly with supervisor support and supervisor's support reduces quitting intentions. **Lori Anderson Snyder, et al. (2006)** from his study finds that that organizations face special challenges when designing and validating selection procedures for information technology (IT) workers and the implications of the issues for industrial/organizational psychologists, human resource managers, and managers of IT workers are identified. **Anthony Scott, et al. (2006)** from the study a structural model of job satisfaction and quitting intentions is estimated using data from a survey of general practitioners in the United Kingdom. The structural approach provides a richer interpretation of the role and effect of job characteristics on job satisfaction and intentions to quit than is found in previous research. **Ghosh and Piyali (2006)** inferred hyper-competitive Indian business environment is experiencing an intense fight for knowledge workers and the key to enhancement of productivity rests on designing ways and means to retain key performers in the organization which is pertinent in the IT industry. **Sarminah Samad (2006)** observed a moderate relationship between job satisfaction and turnover intentions. **Jaramillo, F., J. P. Mulki, and W. B. Locander (2006)** identified that employees are found to experience emotional exhaustion when they perceive inconsistencies in management expectations and lack of clarity about their job responsibilities.

Topper, E. F. (2007) observed that the discrepancy between environmental demands (stressors) and individual capacities to fulfill these demands makes employee more stressful. **Mustapha Achoui and Mourad Mansour (2007)** found that the turnover of employees may disrupt teams, raises costs, reduces production, and poor knowledge Management. **Niederman. F. et al. (2007)** examines the factors that trigger IT employees' voluntary turnover. **Chun Hui et al. (2007)** examines the antecedents of turnover intention and job performance in China and observed that the employee turnover intention which is related to individual job performance. **Jui-Chen Chen and Colin Silverthorne (2008)** examines the relationships between locus of control and the work-related behavioral measures of job stress, job satisfaction and job performance in Taiwan. **Ismatilla T Mardanov and Kenneth Heischmidt (2008)** study reveals that the Satisfaction with supervision had a significant impact on job satisfaction, and is predicted to be lower than satisfaction with supervision, due to absence of strong intrinsic motivation.

Keyoor Purani and Sunil Sahadev (2008) concluded that the industry experience moderates the job satisfaction, disinclination to quit relationship for most of the job satisfaction dimensions. **Hettie A. Richardson et al. (2008)** studies indicated that the perceived organizational support does not moderate any of the relationships examined. **Rahman A, S. M. M. Raza Naqvi, and M. Ismail Ramay (2008)** noted that job satisfaction had negative effect on turnover intentions of IT professional. **Wei (Amy) Tian-Foreman (2009)** results provide a strong support for the hypothesized negative relationship between employee turnover intention and job satisfaction.

Jae San Park, and Tae Hyun Kim (2009) indicated different types of culture and the consensual culture exhibited the strongest, negative association with the turnover intention of the nurses, while hierarchical culture showed a significant, positive association. **Erich B. Bergiel et al. (2009)** the studies test indicates whether job embed is a mediator of the relationship between human resource practices and employees' intention to quit and findings conclude that job embed did not mediate employee training and employees' intention to quit. **Ryan D. Zimmerman and Todd C. Darnold (2009)** observed Employee's nationality and job type also acted as moderators. Poor performers are more likely to quit and good performers were have less intention to quit.

Rebecca M. Guidice, et al. (2009) describes how turnover rates and organizational learning curve can be linearly related and the turnover-innovation relationship. **Vandenberghe, C., and Bentein, K. (2009)** found that organizational commitment (OC) is negatively associated with absenteeism and the intention to leave an organization. **Rong, G., and Grover, V. (2009)** found that IT professionals might have good intrinsic motivators, and have significant effects on turnover. **Moncraz, E., et al. (2009)** concluded that compensation could act as a critical factor in reducing managerial turnover and increasing commitment. **Larry W. Hughes and James B. Avey (2010)** has examined that there is exchange relationship between leader-follower and explained how a transformational leader considers motivations to stimulate personal development.

Krishnan, S. K., and Singh (2010) explored structural equation model and showed that performance orientation mediates the relationships between intention to quit and organizational citizenship behavior as well as organizational deviance. The findings implied that organizations need to understand that employees with a high intention to quit can prove costly from multiple dimensions. **Dr G. Sivaramakrishnan (2010)** in their article on “a study of labour welfare measures and job satisfaction of employees in automobile retail industries in Coimbatore” revealed the working conditions ambience, salary, motivation, inter personnel relationship, infrastructure, and job security were the major factors that improve of work life and work environment. **Dr. G. Sivaramakrishnan and S. Jaishree (2010)** clarified that labour welfare practices, fair wages, work ambience of employees nurture positive attitude towards management evidence implied way of less intention to quit from the organization because of job satisfaction. **Fethi Calisir, et al. (2011)** observed about the factors affecting intention to quit among IT professionals in Turkey. **Chris Ryan, et al., (2011)** examined the issues such as job stress and peer groups pressure are the determinants of an intention to quit a job by non-managerial staff.

Janelle E. Wells, and Jon Welty Peachey (2011) attempted to investigate the relationship between leadership behaviors (transformational and transactional), and voluntary turnover intentions and identified that satisfaction with the leader mediated the negative relationship between leadership behaviors (transformational and transactional) and voluntary turnover intentions. **Walter G. Tymon Jr, et.al. (2011)** observed that managerial support of employees had significant direct and indirect effects on perceived career success. Intrinsic rewards and personal commitment mediated these relationships. **Fernando Jaramillo A., et al. (2011)** examined a model focused on two acute stressors-interpersonal conflict and work overload and the findings show that work overload plays a significant role in the stressor-strain process.

Pratik Shah and Manisha RudraShah (2011) observed that the dissatisfaction of employees about the organization was because of poor communication between them and organization. **Maya Yankelovich, et al. (2012)** observed the non-linear relations between general measures of job stress. The result indicates that Stress in general is non-linear relations with job satisfaction and intentions to quit and has a J-shaped curvilinear relation with intentions to quit such that turnover intentions increase exponentially after a certain level of stress. **Ipek Kalemci Tuzun and R. Arzu Kalemci (2012)** examines the relationship between perceived organizational support, perceived supervisory support and turnover intentions. **Vincent Cho and Xu Huang (2012)** studied on IT professionals' intention to leave and the findings explained a complementary relationship between organizational and professional commitment. **Ahmad H. Abu Raddaha, et al. (2012)** reported that the nurses' level of job satisfaction significantly predicted their intention to leave their workplace.

Steven H. Appelbaum, et al. (2013) finds that employee trust in management is an important determinant for willingness to participate in decision-making and lack of employee commitment and engagement affects the employee's intention to quit. **Leoni van der Vaar, et al. (2013)** observed the influence of work environment on employees' perception and explained the same through structural equation model demonstrating the employee well-being mediating the relationship between the state of the psychological contract and an employee's intention to leave the organization. **Wali Rahman and Zekeriya Nas (2013)** study results indicate employee's turnover intention is predicted by employee development perceptions that validate the theory of development-attitude-behavior relationship. **Jing April Chang, et al. (2013)** studied on the Taiwanese employee-turnover intention and store level factor associated with employee turnover intention. **Michal Biron and Corine Boon (2013)** study show that self-rated performance and manager-rated performance were both negatively related to turnover intentions.

RESEARCH GAP

All the above reviews of Literature covered the intention to quit in different sectors but there were only few studies in IT sector and studies about the IT companies and especially on the influence of Demographic factors on the IT Employees intention to quit are yet to be explored and hence there is a research gap and the worth to take this study. This study intends to analyze these issues in depth and try to find a solution.

METHODOLOGY

Research Design: Descriptive design was used for the present study. The Population Profile for the study considers Coimbatore district as the region of geography for its study. The study considers both male and female as its population from seventy-five IT companies working the domain of Software development, Web design and development, IT consulting, E-Business solution and

the like. The population included Programmers, Team Leaders, Project Leaders, Technical Lead, Managers, and Assistant Managers and the like. The size of the population considered for sampling was 1300. Total of 331 individuals responded to the questionnaires, out of which, 300 completed responses were selected for analysis after removing unfilled and partially filled questionnaires, which was found to be reasonable to represent the population of 1300 as per the sample size determination table. (Krejcie and Morgan's, 1970: recommends 297 for a population of 1300). The data was collected through online Internet survey tool available at www.google.com/drive/apps.html. Retrieved from <http://www.scribd.com/doc/55999910/IT-Companies-in-Coimbatore>, http://www.naukri2000.com/careers/it_coimbatore.php3, <http://opa.uprrp.edu/InvInsDocs/KrejcieandMorgan.pdf>, <http://coimbatoreitanditesnews.blogspot.in/>.

ANALYSIS AND INTERPRETATION

The raw data collected from the respondents were analyzed and consolidated as Percentage frequency.

Table-1: Relationship between Demographic Variables and Level of Stress

S. No.	Demographic Variable	Percentage
1	Age	38.3% of the employees were between 26-30 years of age.
2	Gender	60.3% of respondents were male
3	Qualification	69.7% of respondents were graduates.
4	Marital Status	56.3% of respondents were unmarried
5	Work Experience	35.3% percent of respondents have 5-10 years of experience
6	Number of Organization Worked	32.7% have worked in one organization only which show that they are satisfied with their organization.
7	Distance From Home to Work Place	35 % of respondents travel 20-30 km daily from their home to work place.
8	Place of Native	42.7% respondents are from urban area
9	Family Type	53% of respondents have nuclear family
10	Total Family Members	75.3% of respondents have a family size of 3- 5 members
11	Number of Earning Members in Family	68% of respondents have two earning members in family
12	Income Wise Classifications	23.7% of respondents' income is between Rs 30,001-40,000

Sources: Authors Compilation

Significant (F-Test) for Stressors Score Based on Age of the Respondents

Hypothesis

H₀: There is no significant difference in the stressors among the different age group of the respondents.

H₁: There is a significant difference in the stressors among the different age group of the respondents.

Table-2: Anova

Stress Level	Sum of Squares	d.f.	Mean Square	F	Sig.
Between Age Groups	85.178	2	42.589	1.362	.258
Within Age Groups	9290.058	297	31.280		
Total	9375.237	299			

Sources: Authors Compilation

Inference: The above ANOVA value shows that the calculated value is lesser than the table value. Hence, the null hypothesis is accepted and alternate hypothesis is rejected. It is inferred that there is no significant difference in the level of stress among the different age groups of the respondents at 95% confidence level. *It is inferred the level of stress does not influence that age group.*

Table-3: Significant (F-Test) for Stress Score Based on Qualification of the Respondents

Stress Level	Sum of Squares	d.f.	Mean Square	F	Sig.
Between Different Qualification Groups	64.656	1	64.656	2.069	.151
Within Different Qualification Groups	9310.580	298	31.244		
Total	9375.237	299			

Sources: Authors Compilation

Hypothesis

H₀: There is no significant difference in the stress level among respondents having different qualifications.

H₁: There is a significant difference in the stress level among respondents having different qualifications.

Inference: The above ANOVA value shows that the calculated value is lesser than the table value. Hence, the null hypothesis is accepted and alternate hypothesis is rejected. It is inferred that there is no significant difference in the level of stressors among the different qualifications of the respondents at 95% confidence levels. *It is inferred that qualification does not influence the level of stress.*

Table-4: Significant (T-Test) for Stress Score Based on Gender of the Respondents

T	DF	SIG. (2-TAILED)
2.630	298	.009

Sources: Authors Compilation

Hypothesis

H₀: There is no significant difference in the stress level among male and female respondents.

H₁: There is a significant difference in the stress level among male and female respondents.

Inference: The t-test value shows that the calculated t value is greater than the table value. Hence, the null hypothesis is rejected and alternate hypothesis is accepted. It is inferred that there is a significant difference in the level of stress among the male and female at 99% confidence level. The mean value shows that male respondents had higher level of stress among male respondents as compared to female respondents. *It is inferred that there is a significant difference in the levels of stress between Genders.*

Table-5: Associations between Work Experience and Level of Stressors

O	E	O-E	(O-E) ²	(O-E) ² / E
3	5.4	-2.4	5.76	1.067
26	19.7	6.3	39.69	2.015
3	6.8	-3.8	14.44	2.124
20	14.1	5.9	34.81	2.469
41	51.1	-10.1	102.01	1.996
22	17.7	4.3	18.49	1.045
14	13.4	0.6	0.36	0.027
45	48.7	-3.7	13.69	0.281
20	16.8	3.2	10.24	0.610
14	18	-4	16	0.889
73	65.3	7.7	59.29	0.908
19	22.6	-3.6	12.96	0.573
$\sum(O-E)^2 / E$				14.01

Sources: Authors Compilation

Table-6: Chi-Square Test

	Value	d.f.	Asymp. Sig. (2-Sided)
Chi-Square	14.01	6	.029

Sources: Authors Compilation

Hypothesis

H₀: There is no significant association between work experience and level of stress of the respondents

H₁: There is a significant association between work experience and level of stress of the respondents

Inference: The chi-square table shows that the calculated value is greater than the table value. Hence, the null hypothesis is rejected and alternate hypothesis is accepted. It is inferred that there is a significant association between work experience and level

of stress of the respondents at 95% confidence level. *It is interpreted that work experience influences the level of stress of the respondents.*

Table-7: Associations between Monthly Income and Level of Stress

O	E	O-E	(O-E) ²	(O-E) ² / E
1	1.1	-0.1	0.01	0.009
4	4.3	-0.3	0.09	0.021
2	1.4	0.6	0.36	0.257
9	10.2	-1.2	1.44	0.141
37	37	0	0	0.000
14	12.8	1.2	1.44	0.113
18	12	6	36	3.000
43	43.7	-0.7	0.49	0.011
10	15.1	-5.1	26.01	1.723
5	10	-5	25	2.500
41	36.3	4.7	22.09	0.609
13	12.5	0.5	0.25	0.020
8	8.6	-0.6	0.36	0.042
27	31.4	-4.4	19.36	0.617
16	10.8	5.2	27.04	2.504
10	8.8	1.2	1.44	0.164
33	32	1	1	0.031
9	11	-2	4	0.364
$\Sigma(O-E)^2 / E$				12.124

Sources: Authors Compilation

Table-8: Chi-Square Test

	Value	d.f.	Asymp. Sig. (2-Sided)
Chi-Square	12.124	10	.289

Sources: Authors Compilation

Hypothesis

H₀: There is no significant association between monthly income and level of stressors.

H₁: There is a significant association between monthly income and level of stressors.

Inference: The chi-square table shows that the calculated value is less than the table value. Hence, the null hypothesis is accepted and alternate hypothesis is rejected. It is inferred that there is a no significant association between level of income and level of stress of the respondents at 95% confidence level. *It is inferred that the level of income does not influences the level of stress among the respondents.*

SUMMARY OF ANALYSIS

Level of Stress

Summary of Anova

- There is no significant association between the levels of stress among the different age groups.
- There is no significant difference in the level of stressors among respondents having different qualifications.
- It is inferred that gender has impact with respect to stress.

Summary of T-Test

- Male respondents had higher level of stress compared to female respondents. *It is inferred that there is a significant difference in the levels of stress between Genders.*

Summary of Chi-Square

- There is an association between work experience and levels of stress among respondents
- There is no association between monthly income and stressors. It is inferred that monthly income does not influence the level of stress of the respondents.

Table-9: Relationship between Demographic Variables and Level of Work Life Balance Significance of the Respondents (F-Test) for Work Life Balance Score Based on Age ANOVA

Work Life Balance	Sum of Squares	d.f.	Mean Square	F	Sig.
Between Groups	83.601	2	41.800	1.497	.225
Within Groups	8291.316	297	27.917		
Total	8374.917	299			

Sources: Authors Compilation

Hypothesis

H₀: There is no significant difference in the level of work life balance among the different age groups

H₁: There is a significant difference in the level of work life balance among the different age groups

Inference: The ANOVA table shows that the calculated value is lesser than the table value. Hence, the null hypothesis is accepted and alternate hypothesis is rejected. It is inferred that there is no significant difference in the level of work life balance among the different age groups of the respondents at 95% confidence level. *It is inferred that age group does not influence the level of work life balance.*

Table-10: Relationship between Demographic Variables and Level of Intention to Quit Significant (F-Test) for Intention to Quit Score Based on Age of the Respondents ANOVA

Intention to Quit	Sum of Squares	d.f.	Mean Square	F	Sig.
Between Groups	265.227	2	132.614	3.536	.030
Within Groups	11140.120	297	37.509		
Total	11405.347	299			

Sources: Authors Compilation

Hypothesis

H₀: There is no significant difference in the level of intention to quit among the different age group of the respondents.

H₁: There is a significant difference in the level of intention to quit among the different age group of the respondents.

Inference: The ANOVA table shows that the calculated value is greater than the table value. Hence, the null hypothesis is rejected and alternate hypothesis is accepted. It is inferred that there is a significant difference in the level of intention to quit among the different age groups of the respondents at 95% confidence level. The mean value shows that the respondents who were between 20-25 years had high intention to quit compared to other age group of the respondents. *It is inferred that age group influence the level of intention to quit.*

Table-11: Significant (F-Test) for Intention to Quit Score Based on Qualifications of the Respondents ANOVA

Intention to Quit	Sum of Squares	d.f.	Mean Square	F	Sig.
Between Groups	128.468	1	128.468	3.395	.066
Within Groups	11276.878	298	37.842		
Total	11405.347	299			

Sources: Authors Compilation

Hypothesis

H₀: There is no significant difference in the level of intention to quit among the different qualifications of the respondents.

H₁: There is a significant difference in the level of intention to quit among the different qualifications of the respondents.

Inference: The ANOVA table shows that the calculated value is lesser than the table value. Hence, the null hypothesis is accepted and alternate hypothesis is rejected. It is inferred that there is no significant difference in the level of intention to quit among the different qualifications of the respondents at 95% confidence level. *It is inferred that qualification does not influence the level of intention to quit.*

Table-12: Significant (F-Test) for Intention to Quit Score Based on Work Experience of the Respondents
ANOVA

Intention to Quit	Sum of Squares	d.f.	Mean Square	F	Sig.
Between Groups	139.280	3	46.427	1.220	.303
Within Groups	11266.067	296	38.061		
Total	11405.347	299			

Sources: Authors Compilation

Hypothesis

H₀: There is no significant difference in the level of intention to quit and work experience of the respondents.

H₁: There is a significant difference in the level of intention to quit and work experience of the respondents.

Inference: The ANOVA table shows that the calculated value is lesser than the table value. Hence, the null hypothesis is accepted and alternate hypothesis is rejected. It is inferred that there is no significant difference in the level of intention to quit and work experience of the respondents at 95% confidence level. *It is inferred that work experience does not influence the level of intention to quit.*

Table-13: Significant (T-Test) for Intention to Quit Score Based on Gender of the Respondents
T-Test

T	d.f.	Sig. (2-Tailed)
-.641	298	.522

Sources: Authors Compilation

Hypothesis

H₀: There is no significant difference in the level of intention to quit among male and female.

H₁: There is a significant difference in the level of intention to quit among male and female.

Inference: The t-test table shows that the calculated value is lesser than the table value. Hence, the null hypothesis is accepted and alternate hypothesis is rejected. It is inferred that there is no significant difference in the level of intention to quit among the male and female respondents at 95% confidence level.

It is inferred that gender does not influence the level of intention to quit.

Table-14: Significant (T-Test) for Intention to Quit Score Based on Marital Status of the Respondents
T-Test

T	d.f.	Sig. (2-Tailed)
.525	298	.600

Sources: Authors Compilation

Hypothesis

H₀: There is no significant difference in the level of intention to quit among single and married respondents.

H₁: There is a significant difference in the level of intention to quit among single and married respondents

Inference: The t-test table shows that the calculated value is lesser than the table value. Hence, the null hypothesis is accepted and alternate hypothesis is rejected. It is inferred that there is no significant difference in the level of intention to quit among single and married respondents at 0.05 levels. *It is inferred that marital status does not influence the level of intention to quit.*

Table-15: Association between Monthly Income and Level of Intention to Quit

O	E	O-E	(O-E) ²	(O-E) ² / E
1	1.4	-0.4	0.16	0.114
4	3.8	0.2	0.04	0.011
2	1.6	0.4	0.16	0.100
16	12.4	3.6	12.96	1.045
32	33.2	-1.2	1.44	0.043
12	14.4	-2.4	5.76	0.400
17	14.6	2.4	5.76	0.395
40	39.2	0.8	0.64	0.016
14	17	-3	9	0.529
9	12.1	-3.1	9.61	0.794
32	32.6	-0.6	0.36	0.011
18	14.1	3.9	15.21	1.079
8	10.5	-2.5	6.25	0.595
27	28.2	-1.2	1.44	0.051
16	12.2	3.8	14.44	1.184
11	10.7	0.3	0.09	0.008
31	28.7	2.3	5.29	0.184
10	12.6	-2.6	6.76	0.537
$\sum(o-e)^2 / E$				7.097

Sources: Authors Compilation

Table-16: Chi-Square Test

	Value	d.f.	Asymp. Sig. (2-Sided)
Pearson Chi-Square	7.097	10	.726

Sources: Authors Compilation

Hypothesis

H₀: There is no significant association between monthly income and intention to quit

H₁: There is a significant association between monthly income and intention to quit

Inference: The chi-square table shows that the calculated value is lesser than the table value. Hence, the null hypothesis is accepted and alternate hypothesis is rejected. It is inferred that there is no significant association between monthly income and intention to quit .*It is inferred that monthly income does not influence the level of intention to quit.*

SUMMARY OF ANALYSIS

Intention to Quit

Summary of Anova

- There is a significant difference in the level of intention to quit among the different age group of the respondents. It is inferred that age group influence the level of intention to quit.
- There is no significant difference in the level of intention to quit among the different qualifications of the respondents. It is inferred that qualification does not influence the level of intention to quit.
- There is no significant difference in the level of intention to quit and work experience of the respondents. It is inferred that work experience does not influence the level of intention to quit.

Summary of T-Test

- There is no significant difference in the level of intention to quit among male and female respondents. It is inferred that gender does not influence the level of intention to quit.
- There is no significant difference in the level of intention to quit among single and married respondents. It is inferred that marital status does not influence the level of intention to quit.

**Summary of Chi-Square**

- There is no significant association between monthly income and intention to quit. It is inferred that monthly income does not influence the level of intention to quit.

CONCLUSION

The aim of this study was to investigate “Factors affecting employees’ intention to quit from IT companies”. The empirical findings from the study reveal that the demographic factors influence to quit the job among the IT employees. The above study indicate the “Problem of Plenty” that the avenues and opportunities available are plenty especially for the new entrants which is supported by the finding that the attrition maximum at the first organization. The employees are ambitious to be early achievers than being achievers, which is fueled by other compelling factors, Nuclear family, and distance from work place that affect the work-life balance and hence job satisfaction. Hence, if the employees can space out the aspirations with the length of career and if the corporate can give an assurance of gradient growth it may minimize the attrition rate and will benefit both the employees and employer.

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GLOSSARY

Table-17

IT	Information Technology
ITES	Information Technology Enable Sector
BPO	Business Process Outsourcing
ERP	Enterprise Resource Planning
CTI	Computer Telephony Integration
CRM	Customer Relationship Management
IP	Internet Protocol
F&A	Financial and Administration
HR	Human Resources
CEBR	Centre For Economics and Business Research
GDP	Gross Domestic Product
SAAS	Software as a Service
ISP	Internet Service Provider
SEO	Search Engine Optimization
STPI	Software Technology Parks of India
ASSOCHAM	Associated Chambers of Commerce And Industry of India
NASSCOM	National Association of Software and Services Companies
GIS	Geographical Information System

Sources: Authors Compilation

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शोध सारांश

वर्तमान समय में विज्ञान एवं सूचना तथा संचार प्रौद्योगिकी के युग में सक्रिय अधिगम विधि और स्मार्ट बोर्ड ऐसी तकनीकी है जिसके द्वारा रोचक, प्रभावी व कम समय में अधिक शिक्षण सामग्री को पढ़ाया जा सकता है तथा विद्यार्थी की शैक्षिक उपलब्धि में वृद्धि की जा सकती है। प्रस्तुत शोध का उद्देश्य माध्यमिक स्तर पर अध्ययनरत बालकों की विज्ञान उपलब्धि पर सक्रिय अधिगम विधि और स्मार्ट बोर्ड के प्रभाव का तुलनात्मक अध्ययन करना एवं माध्यमिक स्तर पर अध्ययनरत बालिकाओं की विज्ञान उपलब्धि पर सक्रिय अधिगम विधि और स्मार्ट बोर्ड के प्रभाव का तुलनात्मक अध्ययन करना। शोधकार्य में सर्वेक्षण विधि का प्रयोग किया गया है। उज्जैन शहर के 2 माध्यमिक विद्यालयों के कक्षा 8वीं के 40 विद्यार्थियों को न्यादर्श हेतु लिया गया है। शोध उपकरण के रूप में शोधकर्ता द्वारा 25 प्रश्नों पर आधारित वैध विज्ञान उपलब्धि परीक्षण निर्मित किया गया। परिणामों के रूप में यह निष्कर्ष प्राप्त हुआ कि माध्यमिक स्तर पर अध्ययनरत बालकों की विज्ञान उपलब्धि को सक्रिय अधिगम प्रविधि और स्मार्ट बोर्ड शिक्षण सार्थक रूप से प्रभावित करते हैं एवं माध्यमिक स्तर पर अध्ययनरत बालिकाओं की विज्ञान उपलब्धि को सक्रिय अधिगम प्रविधि और स्मार्ट बोर्ड शिक्षण सार्थक रूप से प्रभावित करते हैं।

Keywords: सक्रिय अधिगम विधि, स्मार्ट बोर्ड, विज्ञान उपलब्धि

प्रस्तावना

किसी देश की शिक्षा प्रणाली वह दर्पण है जिसमें उसका प्रतिबिम्ब निर्माण होता है तथा संभावित रूप का प्रतिमान देखा जा सकता है। शिक्षा किसी भी समाज में परिवर्तन लाने का प्रभावशाली जरिया पहले से रहा है, आज भी है और आगे भी रहेगा। समय के साथ-साथ तकनीकी तथा प्रौद्योगिकी के क्षेत्र में नित नये विकास हो रहे हैं, ऐसे में कोई भी विकासशील सभ्यता समयानुसार परिवर्तन की आवश्यकता से विलग नहीं रह सकती अन्यथा समाज अविकसित तथा पिछड़ा होने के दोष से चिन्हित हो सकता है। वर्तमान प्रौद्योगिकी के युग में विश्व एक सार्वजनिक ग्राम के रूप में परिवर्तित हो चुका है, जैसे ग्राम में अपने पड़ोसी की प्रगति से काई स्वयं को अलग नहीं रख सकता ठीक वैसे ही सम्पूर्ण विश्व की स्थिति है। हम 53 वर्ष के परिपक्व प्रजातंत्र के बाद नई सहस्राब्दी में प्रवेश कर रहे हैं इसलिए हमारी विद्यालयी शिक्षा प्रणाली भी उसके समतुल्य उत्तनी ही महत्वपूर्ण होनी चाहिए। शिक्षा के इतिहास में एक समय था जब बच्चे की बुद्धि, रुचि, योग्यताओं व आवश्यकताओं की ओर कोई ध्यान नहीं दिया जाता था, शिक्षा पूर्णतः अध्यापक केंद्रित थी किन्तु अब शिक्षा का केन्द्र छात्र बन गया है अब उसकी रुचि, योग्यताओं व आवश्यकताओं को आधार मानकर ही पाठ्यक्रम का निर्माण किया जाता है, लेकिन फिर भी विद्यालयों में किये जाने वाले शिक्षण में गुणवत्ता की कमी है आज हमारे विद्यालयों में विद्यार्थियों को परम्परागत तरीके से ही शिक्षा दी जाती है जो आज के विज्ञान, सूचना व संचार प्रौद्योगिकी के युग में उचित नहीं है।

वर्तमान युग सूचना व संचार प्रौद्योगिकी का है। सूचना व संचार प्रौद्योगिकी से कोई भी क्षेत्र अछूता नहीं है। शोधों से सिद्ध हो चुका है कि शिक्षा के क्षेत्र में भी सूचना व संचार प्रौद्योगिकी ने कई नए आयाम दिये हैं जिससे शिक्षा के क्षेत्र में क्रांतिकारी परिवर्तन हो रहे हैं, सूचना व संचार प्रौद्योगिकी ने Online Learning, E-Learning – डवइपसम समतदपदह आदि कई नई विधाएं दी हैं, इन्हीं की तरह नए रूप में एक विधा सामने आयी है जो स्मार्ट बोर्ड शिक्षण है इसके अतिरिक्त एक नई शिक्षण प्रविधि जिसे सक्रिय अधिगम प्रविधि कहते हैं यह भी एक सीखने-सिखाने की प्रक्रिया को बेहतर बनाने के लिए शिक्षण मॉडल है जिससे विभिन्न विषय जो परंपरागत शिक्षण से पढ़ाने पर छात्रों को नीरस, बोझिल व कठिन लगते हैं उन्हीं विषयों को सक्रिय अधिगम विधि और स्मार्ट बोर्ड द्वारा रोचक, प्रभावी व कम समय में पढ़ाया जा सकता है तथा विद्यार्थी की शैक्षिक उपलब्धि में वृद्धि की जा सकती है।

स्मार्ट बोर्ड

सबसे पहले स्मार्ट बोर्ड 1991 में निर्मित किया गया। व्हाइट बोर्ड या स्मार्ट बोर्ड बहुत सारे डिवाइसेस का सम्मिलित रूप है इसमें शिक्षक व छात्र के लिए उपयोगी सभी विशेषताएँ होती हैं जिसे कक्षा शिक्षण में एक प्रभावी सम्प्रेषण माध्यम के रूप में प्रयोग किया जा सकता है। स्मार्ट बोर्ड सफेद रंग व चिकनी सतह वाला होता है जिस पर मार्कर पेन द्वारा लिखा जा सकता है, यह बोर्ड दो भागों में बंटा होता है आधे भाग को परंपरागत बोर्ड की भांति लिखने हेतु उपयोग में लाया जाता है व बचे हुये आधे भाग को कम्प्यूटर की स्क्रीन की भांति उपयोग में लाया जाता है।

सक्रिय अधिगम प्रविधि

यह एक नवीन शिक्षण पद्धति है। इसे सामान्यतः ALM के नाम से जाना जाता है। यह एक बालकेन्द्रित शिक्षण पद्धति है और यह पद्धति सन् 2009 में मध्यप्रदेश में प्रारंभ की गई इस पद्धति से शिक्षण के क्षेत्र में सकारात्मक वैचारिकता उत्पन्न हुई है। अतः ALM सीखने की सुदृढ़ एवं सुनिश्चित करने वाली प्रक्रिया है।

अतः हम कह सकते हैं कि नई सहस्राब्दी में नई तकनीकी के रूप में सक्रिय अधिगम प्रविधि और स्मार्ट बोर्ड का उपयोग शिक्षक व छात्र दोनों के लिए लाभकारी होगा।

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समस्या कथन दृ "माध्यमिक स्तर के विद्यार्थियों की विज्ञान उपलब्धि पर सक्रिय अधिगम प्रविधि और स्मार्ट बोर्ड शिक्षण के प्रभाव का तुलनात्मक अध्ययन"

शोध के उद्देश्य

- माध्यमिक स्तर पर अध्ययनरत बालकों की विज्ञान उपलब्धि पर सक्रिय अधिगम प्रविधि और स्मार्ट बोर्ड के प्रभाव का तुलनात्मक अध्ययन करना।
- माध्यमिक स्तर पर अध्ययनरत बालिकाओं की विज्ञान उपलब्धि पर सक्रिय अधिगम प्रविधि और स्मार्ट बोर्ड के प्रभाव का तुलनात्मक अध्ययन करना।

परिकल्पनाएँ

- माध्यमिक स्तर पर अध्ययनरत बालकों की विज्ञान उपलब्धि को सक्रिय अधिगम प्रविधि और स्मार्ट बोर्ड शिक्षण सार्थक रूप से प्रभावित नहीं करेगा।
- माध्यमिक स्तर पर अध्ययनरत बालिकाओं की विज्ञान उपलब्धि को सक्रिय अधिगम प्रविधि और स्मार्ट बोर्ड शिक्षण सार्थक रूप से प्रभावित नहीं करेगा।

शोध विधि

प्रस्तुत शोधकार्य में सर्वेक्षण विधि का प्रयोग किया गया है। न्यादर्श हेतु उज्जैन शहर के 2 विद्यालयों का चयन किया गया, इन विद्यालयों की कक्षा 8 वीं के 40 विद्यार्थियों को न्यादर्श के रूप में उद्देशीय प्रतिदर्श (Purposive Sample) के आधार पर चयनित किया गया क्योंकि शोध अध्ययन में उन्हीं विद्यालयों का चयन किया गया जिनमें सक्रिय अधिगम प्रविधि और स्मार्ट बोर्ड द्वारा शिक्षण किया जाता है।

शोध उपकरण

शोध कार्य के उद्देश्य की पूर्ति हेतु शोधकर्ता द्वारा कक्षा 8वीं के विज्ञान विषय को लेकर प्रथम तीन अध्यायों पर 30 बहुविकल्पीय पदों का निर्माण किया गया जिसमें प्रत्येक पद हेतु 4 संभावित उत्तर दिये गए जिसमें सही उत्तर के आगे सही का निशान लगाना है। प्रत्येक पद का सही उत्तर देने पर 1 अंक व गलत उत्तर देने पर 0 अंक दिया गया। परीक्षण के पदों संदर्भ में विषय शिक्षकों से विचार विमर्श के बाद 5 पदों को निरस्त किया गया व परीक्षण

हेतु 25 पदों को चयनित किया गया। इस आधार पर परीक्षण की वैधता को मान्य किया गया और शोध अध्ययन हेतु उपयुक्त पाया गया।

सांख्यिकीय प्रविधि

प्रस्तुत अध्ययन में विभिन्न सांख्यिकीय प्रविधियों मध्यमान, प्रामाणिक विचलन और टी-परीक्षण का प्रयोग किया गया –

परिणाम, विश्लेषण व निष्कर्ष

उद्देश्य व परिकल्पनाओं के आधार पर प्रस्तुत शोध में सांख्यिकीय प्रविधियों मध्यमान, प्रामाणिक विचलन और टी-परीक्षण का प्रयोग किया गया। विभिन्न चरों के संदर्भ में सक्रिय अधिगम प्रविधि और स्मार्ट बोर्ड शिक्षण के प्रभाव हेतु सारणियां निम्नानुसार प्रस्तुत है –

सारणी क्रमांक-1: बालकों के विज्ञान उपलब्धि परीक्षण प्राप्तकों का मध्यमान, प्रामाणिक विचलन एवं t – मान

क्रं.	समूह	संख्या	मध्यमान (Mean)	प्रामाणिक विचलन (SD)	टी – मान (t-Value)
1.	सक्रिय अधिगम प्रविधि	20	10-01	2-52	17-89*
2.	स्मार्ट बोर्ड शिक्षण	20	15-05	2-22	

सारणी क्रमांक 1 से स्पष्ट है कि प्राप्त ज का मान 17.89 जो 0.01 स्तर पर सार्थक है इसलिए बालकों की विज्ञान उपलब्धि में सार्थक अंतर है। अतः शून्य परिकल्पना क्रमांक 1 निरस्त की जाती है। इससे यह निष्कर्ष प्राप्त होता है कि सक्रिय अधिगम प्रविधि और स्मार्ट बोर्ड शिक्षण बालकों की विज्ञान उपलब्धि को प्रभावित करते हैं। परिणामों से स्पष्ट है कि स्मार्ट बोर्ड शिक्षण बालकों की विज्ञान उपलब्धि को ज्यादा प्रभावित करता है।

सारणी क्रमांक-2: बालिकाओं के विज्ञान उपलब्धि परीक्षण प्राप्तकों का मध्यमान, प्रामाणिक विचलन एवं t – मान

क्रं.	समूह	संख्या	मध्यमान (Mean)	प्रामाणिक विचलन (SD)	टी – मान (t-Value)
1.	सक्रिय अधिगम प्रविधि	20	10-1	2-34	15-2*
2.	स्मार्ट बोर्ड शिक्षण	20	14	2-12	



सारणी क्रमांक 2 से स्पष्ट है कि प्राप्त ज.मान 15.2 है जो 0.01 स्तर पर सार्थक है इसलिए बालिकाओं की विज्ञान उपलब्धि में सार्थक अंतर है। अतः शून्य परिकल्पना क्रमांक 2 निरस्त की जाती है इससे यह निष्कर्ष प्राप्त होता है कि इससे यह निष्कर्ष प्राप्त होता है कि सक्रिय अधिगम प्रविधि और स्मार्ट बोर्ड शिक्षण बालकों की विज्ञान उपलब्धि को प्रभावित करते हैं। परिणामों से स्पष्ट है कि स्मार्ट बोर्ड शिक्षण बालिकाओं की विज्ञान उपलब्धि को ज्यादा प्रभावित करता है।

निष्कर्ष

- यह निष्कर्ष प्राप्त हुआ कि माध्यमिक स्तर पर अध्ययनरत बालकों की विज्ञान उपलब्धि को सक्रिय अधिगम प्रविधि और स्मार्ट बोर्ड शिक्षण सार्थक रूप से प्रभावित करते हैं।
- अतः शून्य परिकल्पना क्रमांक 1 निरस्त की जाती है। 2. यह निष्कर्ष प्राप्त हुआ कि माध्यमिक स्तर पर अध्ययनरत बालिकाओं की विज्ञान उपलब्धि को सक्रिय अधिगम प्रविधि और स्मार्ट बोर्ड शिक्षण सार्थक रूप से प्रभावित करते हैं।

अतः शून्य परिकल्पना क्रमांक 2 निरस्त की जाती है।

उपसंहार

नये तकनीकी युग में कोई भी क्षेत्र ऐसा नहीं है जो तकनीकी से वंचित रह गया हो अतः शिक्षा के क्षेत्र में भी एक क्रांति का प्रादुर्भाव हुआ है और यह शिक्षक व छात्र दोनों की दृष्टि से अच्छा है। स्मार्ट बोर्ड द्वारा हम विभिन्न विषयों के प्रति छात्र की रुचि बढ़ाकर उसकी अधिगम क्षमता को बढ़ा सकते हैं। शोध के परिणाम इस ओर संकेत कर रहे हैं कि स्मार्ट बोर्ड विद्यार्थियों की विज्ञान उपलब्धि स्तर को बढ़ाने में सहायक है तथा भविष्य में शिक्षा के क्षेत्र में इसका प्रयोग सकारात्मक परिणाम दे सकता है।

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INFORMATION AND COMMUNICATION TECHNOLOGY IN ETHIOPIAN BANKING: A STUDY

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ABSTRACT

The world today is witnessing a new kind of revolution – the Information Revolution – ushered by technology. History has shown that modern economic growth has been inspired by the rapid and persistent up gradation of technology and scientific knowledge. Today's business environment is very dynamic and experiences rapid change because of creativity, innovation, technological changes, increased awareness and demands from customers. Business organizations, especially the banking industry operates in a complex and competitive environment characterized by dynamic changing conditions and highly unpredictable economic climate with Information and Communication Technology (ICT). The rapidly growing ICT is knocking the front door of every organization in the world, where Ethiopian banks would never be exceptional. In the face of rapid expansion of electronic payment (E-payment) systems throughout the developed and the developing world, Ethiopian's financial sector cannot remain an exception in expanding the use of the system. Hence, the objective of this study is to examine the role of information and communication technology in ensuring efficient service delivery in the banking industry.

KEYWORDS

Information Revolution, Information and Communication Technology, Ethiopian Banks, Banking Industry etc.

INTRODUCTION

The world today is witnessing a new kind of revolution – the Information Revolution – ushered by technology. This revolution is in fact far more sweeping than any other revolution in history in its reach and influence, bringing fundamental changes in all aspects of our life. Information and Communication Technology (ICT) is the engine used to drive useful information systems. This includes computers, software, Internet / Intranet and telecommunication systems. Information and communication technology provides the means for collecting, storing, encoding, processing, analyzing, transmitting, receiving, and printing text, audio, or video information. In the present context, ICT is not merely the matter of machines and microchips. In fact, now it regulates all aspects of our lives including how we live, how we work, how we communicate, how we relax, how we travel, and how we talk. The future promises to be more dramatic. Researches in the field of processor performance, chip miniaturization, artificial intelligence, and other areas are setting up new standards every day.

History has shown that modern economic growth has been inspired by the rapid and persistent up gradation of technology and scientific knowledge. It is estimated that one-third to one-half of the growth experienced by the industrially advanced countries has come from technological progress. Thus, technology has emerged as the principal driving force for long-term economic growth. Economic growth results both from slow and steady improvements in technology as well as from “breakthrough” innovations. Break through innovations are, however, unpredictable and such innovations when they come up change the direction of the entire industrial structure.

Technological innovations of a fundamental nature started two centuries ago. They began with the revolution in the textile sector. We are now in the fifth or the sixth wave of innovations and the current technological innovations have ushered in the electronic age. Far-reaching changes in computers and communications technology have altered our way of life. It is this change, which has also fundamentally altered the way in which banking is being performed. The basic functions of banking have remained the same but the way in which banking services are provided has altered. ICT has become the heart of banking industry, while the banking industry is the heart of the economy. Business organizations, especially the banking industry is operating in a complex and competitive environment characterized by the changing conditions and highly unpredictable economic climate with ICT is at the center of the change curve.

Today's business environment is very dynamic and experiences rapid change because of creativity, innovation, technological changes, increased awareness and demands from customers. Business organizations, especially the banking industry operates in a complex and competitive environment characterized by dynamic changing conditions and highly unpredictable economic climate with the technology. The role of ICT in the banking industry became of interest to this study due to the significant role it plays in

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the economy by stimulating economic growth through the intermediation of funds to economic agents that need them for productive activities. This function is very vital for any economy that intends to experience meaningful growth because it makes arrangement that bring borrowers and lenders of financial resource together and more efficiently too than if they had to relate directly with one another. Hence, the objective of this study is to examine the role of information and communication technology in ensuring efficient service delivery in the banking industry as a strategy for the actualization of banking objectives.

The rapidly growing ICT is knocking the front door of every organization in the world, where Ethiopian banks would never be exceptional. In the face of rapid expansion of electronic payment (E-payment) systems throughout the developed and the developing world, Ethiopian's financial sector cannot remain an exception in expanding the use of the system. Technological innovations play a crucial role in banking industry by creating value for banks and customers, that it enables customers to perform banking transactions without visiting a brick and mortar banking system. On the other hand, E-banking has enabled banking institutions to compete more effectively in the global environment by extending their products and services beyond the restriction of time and space. However, mirroring the development of E-commerce, the adoption and diffusion of electronic banking (E-banking) system is not well developed in Ethiopia.

RESEARCH METHODOLOGY

The primary objective of this paper is to focus on the usage of information and communication technology in banking industry and its role in Ethiopian banking sector. Data for this paper were derived from secondary sources: previous researches and analyses of scholars; Public and private documents; newspaper / magazines as well as journal articles.

THE CONCEPT OF ICT

Information is the processed data, on which decisions are taken and the subsequent actions are performed thereafter. It is the collection of facts gathered through various means of communication and plays a vital role in drawing a conclusion. Information provides power to find and evaluate the problems, and make decisions effectively and efficiently. The word technology originated from the Greek word *Techne* that means skill and *Logia*, which means study of science. Technology is the knowledge generated for the purpose of development of new systems to help in solving practical problems. Using technology, information can be easily gathered about various fields such as weather forecasting, space exploration, and much more. Information Technology is a combination of telecommunications and computing to obtain process, store, transmit and output information in the form of voice, picture or text. This includes:

- The software application and operating systems,
- Web-based information and applications such as distance learning,
- Telephones and means of telecommunications,
- Video equipment and multimedia products,
- World Wide Web,
- Electronic devices such as photocopiers, printers.

Information and communication technology exists from the days when telegraph was being used to move data from one place to another. With the advancement in technology, the role of people responsible for handling data also increased. A key to the technological advances in IT sector is the interweaving of computation, communication and content supported by theories of information and computer science.

According to Oxford English Dictionary "Technology is the scientific study of the practical or industrial arts". Technology denotes the broad area of purposive application of the contents of the physical, life and behavioural sciences. It comprises the entire notion techniques as well as the medical, agricultural, management and other fields with their total hardware and software contents. The technologies that exist in a business are the technological assets of that business. These assets may therefore include hardware, software, brain ware and expertise. They constitute the collective knowledge and technical capabilities of the organization, including its people, equipment and systems. In the past, the value of a company was assessed largely based on its capital and physical assets such as land, building, equipment and inventory. Today the real value of the company is much more than the value of its physical assets or its simple accounting net worth. Technology adds value to the assets of a company. The technology resides in the company's people and its technological systems.

HISTORY OF ETHIOPIAN BANKING INDUSTRY

The history of modern money in Ethiopia is traced back more than 2000 years. Modern banking in Ethiopia was started in 1905 with the establishment of Abyssinia Bank, which was based on a fifty-year agreement with the Anglo-Egyptian National Bank. In 1908 a new development bank (called *Socite Nationale d'Ethiope Pour le Development de Agriculture et du Commerce*) and two other foreign banks (*Banque de l'Indochine* and the *Compagnie de l'Afrique Orientale*) were also established. These banks were

criticized for being wholly foreign owned. In 1931, the Ethiopian government purchased the Abyssinian Bank, which was the dominant bank, and renamed the Bank of Abyssinia – the first nationally owned bank in Africa. Banking activity was expanded during Italian occupation from 1936 to 1941. After independence; Barclays Bank was established and remained in business in Ethiopia from 1941 to 1943. Following this, in 1943 the Ethiopian government established the State Bank of Ethiopia. The State Bank of Ethiopia was operating as both a commercial and a central bank until 1963 when it was remodeled into National Bank of Ethiopia (NBE) and the Commercial Bank of Ethiopia (CBE). At the end of 2013/14 fiscal year, there are eighteen commercial banks operating in Ethiopia, of these sixteen are private commercial banks while the rest two are state owned banks. Despite a rapid increase in the number of financial institutions since financial liberalization, the Ethiopian banking system is still underdeveloped compared to the rest of the world.

Table-1 (a): Privately – Owned Commercial Banks in Ethiopia

S. No.	Name of Bank	Year	Branches
1	Abay Bank S. C.	2011	79
2	Addis International Bank	2011	18
3	Awash International Bank	1994	191
4	Bank of Abyssinia	1996	111
5	Berhan International Bank	2009	46
6	Bunna International Bank	2009	72
7	Cooperative bank of Oromia	2004	190
8	Dashen Bank	1995	190
9	Debub Global Bank	2012	32
10	Enat Bank	2013	7
11	Lion International Bank	2006	67
12	Nib International Bank	1999	98
13	Oromia International Bank	2008	115
14	United Bank	1998	108
15	Wegegan Bank	1997	98
16	Zemen Bank	2008	1

Table-1 (b): State-Owned Commercial Banks of Ethiopia

S.No.	Name of the Bank	Year	Branches
1	Commercial Bank of Ethiopia	1963	909
2	Development bank of Ethiopia	1901	43

Sources: Authors Compilation

ROLE OF ICT IN THE BANKING INDUSTRY

Information and Communication Technology plays an important role in banking industry as every organization adopts it in some form or the other to perform the tasks in effective manner. In the past few years, rapid development in IT, particularly in communications, electronic service networks, and multimedia have opened up new opportunities for banks. All these are contributing towards new and effective ways of processing business transaction, integrating business processes, transferring payments, and delivering services electronically. ICT has created a new infrastructure for the world economy to become truly global and provided the users of new technology a competitive advantage over their rivals.

Electronic banking system has become the main technology driven revolution in conducting financial transactions. However, banks have made huge investments in telecommunication and electronic systems, users have validated to accept electronic banking system as useful and easy to use. Now transactions worth billions of dollars can only take place in seconds in the electronic circuit throughout the globe by pressing a single button. Although ICT has revolutionized the way of living as well as conducting businesses and study of banking industry has received increased attention over the last decade, it continues to pose challenges for marketers and academic alike.

Evidence from previous empirical studies indicates that ICT has a positive impact on banks' financial performance, owing to multitude of benefits it offers its users and provides alike. The decision to provide on line services is currently perceived as vital for customer retention and maintaining competitive advantage. The benefits of application of ICT in the enhancement of banking services is not only limited to cost reduction benefits alone, the innovation is found also to have significant contribution to giving access to customers residing outside the branch network and create opportunities for effectiveness.



The modernization of ICT has set the stage for extraordinary improvement in banking procedures throughout the world. For instance, the development of worldwide networks has considerably decreased the cost of global funds transfer. It is observed banks that are using ICT related products such as online banking, electronic payments, security investments, information exchanges, financial organizations can provide high quality customer service delivery to customers with less effort. Considering the dynamism in the drivers of the economies across the globe, it is notable that the world has moved currently to a knowledge-based economy of which the ICT has become one of the principal driving forces. The effects of ICT are seen in the improvements in productivity and economic growth at the level of the firm and the economy overall.

Interestingly, ICT in particular play an important role in the financial industry and this is one reason why the banking sector is among the most intensive industries deploying ICT. With the increase of internet services and cash machines available in various locations, the recurring problems have been mitigated and in some cases, solved; as an effect, the volume of customers' services increased became easier, and the customer experience turned out to be more comfortable. It is noticeable that the new technologies, particularly in ICT enabled banks, to service customer not only in branches and other dedicated servicing cities, but also in domiciles, work places and stop and shop stores, as well as in a myriad of other channels.

However, to successfully cope with the challenge of the ICT, the banking sector must understand the nature of the changes that revolves around them, changes in terms of ICT, innovation and demography. Without this understanding, attempts to mitigate to ICT may be doomed to failure. Today, banks that are well equipped with a good grasp of the electronic banking phenomenon will be able more to make informed decision on how to transform ICT and to exploit the opportunity in electronic banking. In today's competitive market, establishing core capabilities can help the banking industry reorganize their product and customer service delivery, to sustain competitive advantages and to achieve congruence whilst shifting from the conventional banking to electronic banking.

ICT revolution has distorted the conventional banking business model by making it possible for banks to break their comfort zones and value creation chain so as to allow customer service delivery to be separated into different businesses. Thus, for example, primarily internet banks distribute insurance and securities as well as banking products produced by their group. Apparently, ICT creates unprecedented opportunities for the bank sector in the ways they organize financial product development, delivery, and marketing via the internet. While it offers new opportunities to bank sector, it also brings many challenges such as the innovation of ICT applications, the blurring of market boundaries, the breaching of industrial barriers, the entrance of new competitors and appearance of new business models.

The revolution in ICT has made the banking sector changed from the traditional mode of operations to presumably better ways with technological innovation that improves efficiency. ICT can enhance efficiency via its use and in recent times, banks have been encouraged by the rapid decline in the price of ICT gadgets. This has perhaps increased the bank level of ICT usage. There is no doubt that commercial banks play an important role in the economic development of any nation. The need for efficiency and effectiveness in the performances of the banks as leading players in the financial services that the commercial banks provide a nation cannot be overemphasized. Recent advances in the technological world giving birth to the emergence of information and communication technology have led to remarkable changes in the ways businesses are running in contemporary times.

ICT IN ETHIOPIAN BANKING INDUSTRY

The appearance of information and communication technology in Ethiopia goes back to the late 2001, when the largest state owned, Commercial Bank of Ethiopia (CBE) introduced ATM to deliver service to the local users. In addition to ATMs located Addis Ababa the capital city of Ethiopia, CBE has had visa membership since November 14, 2005. However, due to lack of appropriate ICT infrastructure it failed to reap the fruit of its membership. Despite being the pioneer in introducing ATM based payment system and acquired visa membership, CBE lagged behind Dashen bank, which worked aggressively to maintain its lead in e-banking.

All banks in Ethiopia are too late to move with technological advancement and they should clearly chart out the time schedule for their integration and technological advancement. Some of the banks even today do not have their own websites, which can help them to provide at least the information on financial services offered by them. All most, all banks operated in Ethiopia with some exemptions provide service to customers by using traditional systems.

Despite the recent improvements made by Ethiopian government on the national infrastructure, the overall ICT infrastructure in Ethiopia remains inadequate. Card-based payment systems in Ethiopia have been growing fast in recent years. Commercial banks in Ethiopia also cited plans to use new technologies for remittance transfers, including mobile-phone transfers and remittance-linked financial products such as prepaid cards. However, significant challenges to these plans include, lack of adequate financial and telecommunications infrastructure for the new technologies. Lack of sufficient telecommunication infrastructure is one of the basic challenges in the development of E-payment in Ethiopia.



CONCLUSION

This study aims at investigating the usage of ICT in Ethiopian banking industry. ATM, mobile banking, internet banking and other technologies were not well adopted by Ethiopian banking industry. This is due to low level of ICT infrastructure and lack of legal frame works at National Bank of Ethiopia (NBE), which can initiate banking industry to implement the system. In addition to the above, security risk and lack of trust on the use of technological adoption are other major barriers for the system.

The level of security risk associated with E-banking product or service, such as ATM, internet banking, mobile banking and others, pose different challenges to different banks. Improvements are required to ensure client confidence. Lack of competition among local and foreign banks is also another challenge for the adoption of E-banking in the country. Technical and managerial skills available in Ethiopian banks for the adoption of E-banking are also limited. This is influencing the choice of technology in Ethiopian banks. Therefore, Ethiopian government should establish a clear set of legal framework on the use of technology in banking industry, support-banking industry by investing on ICT infrastructure and banks needs to be focused on technological innovation competition rather than traditional bases of retail bank competition.

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READING FRAMEWORK FOR THE VISUALLY HANDICAP PERSON USING CONNECTED COMPONENT ANALYSIS AND SPEECH SYNTHESIS

Sapankumar Brahmadev Singh²⁸ Dr. Vilas Nandwadekar²⁹

ABSTRACT

In this paper, we have proposed a framework for text extraction from captured image using camera and converting the extracted text into voice. We have used connected component analysis for the classification of text region and non-text region, Bayesian algorithm for clustering the interrelated. We have used Microsoft speech synthesis engine for conversion of text to voice. We have used Microsoft net for developing the framework. This method tested by using the different font size and light condition.

KEYWORDS

OCR, Visually Handicap, Speech Synthesis, Text Extraction etc.

INTRODUCTION

Regardless of the headway of innovation that takes into consideration putting away data electronically, literary data exhibited on papers remains the most well-known method of data trade. Nevertheless, such data is not accessible for outwardly disabled residents. To enhance their capacity to get to literary data we propose an assistive framework that peruses writings from examined records and speaks to the printed data as discourse. The advancement of such frameworks requires utilization of two advances that are key to these frameworks, to be specific OCR (Optical Character Recognition) for Text Information Extraction (TIE) and TTS (Text-to-discourse) to change over this content to discourse.

Content Information Extraction (TIE) is the first and imperative capacity of any assistive perusing framework and is a vital piece of OCR in light of the fact that this procedure decides the clarity of the yield discourse. Lately, the programmed identification of writings from pictures and recordings has increased expanding consideration. Nevertheless, the vast varieties in content textual styles, hues, styles, and sizes, and the low complexity between the content and the confounded foundation, frequently make TIE greatly difficult. To discover a very vigorous and summed up strategy for TIE still remains a range of research. A great deal of endeavors have been put on tending to these issues. Content extraction methods can be isolated into four classes.

The primary class depends on edges [1], which expect high differentiation contrasts between the content and foundation. It is quick and can have high review rate. Nevertheless, it frequently delivers numerous false alerts since the foundation may likewise have solid edges like the content.

The second class utilizes associated part examination (CCA) [2], in which pixels with comparable hues are gathered into associated segments, and after that into content districts. CCA is quick at the same time, it comes up short when the writings are not homogeneous and content parts are not prevailing in the picture.

The third class depends on surfaces [3] and expect that writings have particular surface examples. It is additional tedious and can fizzle when the foundation is jumbled with content. The fourth class depends on frequencies [4]. In this sort of approach, the content is separated from the foundation in the recurrence (e.g. wavelet) domain. This is likewise tedious, and the recurrence representation may not be superior to the spatial representation. As of late, there is a considerable measure of enthusiasm for utilizing design grouping methods, (for example, AdaBoost [5], bolster vector machines [6, 7, 8], conviction engendering [9] and neural systems [10]) for content confinement. With the assistance of intricately composed elements that consolidate different properties of the content, (for example, geometry, shading, surface and recurrence), these procedures are frequently effective indiscriminating content from its experience.

TTS or discourse union is a strategy for creating understandable, characteristic sounding fake discourse for a given content [11]. The system utilized as a part of TTS is to endeavor acoustic representations of discourse for blend, together with etymological examination of content to remove rectify articulations ("content"; what is being said) and prosody in setting ("tune" of a sentence; how it is being said). Discourse union framework can be partitioned into two sections i) Front End likewise called Natural Language Processing module (NLP) [12] used to break down content, and ii) Back End additionally called Signal-handling

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module that produces the discourse waveform in view of data from the front end. Front end contains content processor (standardization and letter-to-sound), prosody control, and unit determination [13]. Therefore, it is fundamentally worried with the change of grapheme-to-phoneme. This procedure is additionally called "letter-to-sound" change. Back End is worried with system utilized for union. There are two procedures [14]: arrange blend [15, 16, 17] and Concatenative amalgamation [18, 19, and 20].

Format union relies on upon acoustical models keeping in mind the end goal to create parametric driven discourse, while Concatenative combination, links fragments of recorded discourse. Arrange amalgamation can be exceptionally understandable, however due to the troublesome and complex undertaking of acquiring sufficient discourse models; the combined discourse has so far a debased discourse quality to some degree. While Concatenative union can be exceptionally characteristic in the feeling of having a discourse quality near human discourse, yet it might experience the ill effects of capable of being heard discontinuities at link focuses.

METHODOLOGY

We have used Logitech quick pro 1000 camera for the image capturing. On the captured image, we perform connected component analysis for the finding the text region and non -text region in the image.

Connected component analysis

```
private Dictionary<int, List<Pixel>> AggregatePatterns(Dictionary<int, Label> allLabels, int width, int height)
{
    var patterns = new Dictionary<int, List<Pixel>>();
    for (int i = 0; i < height; i++)
    {
        for (int j = 0; j < width; j++)
        {
            int patternNumber = _board[j, i];

            if (patternNumber != 0)
            {
                patternNumber = allLabels[patternNumber].GetRoot().Name;

                if (!patterns.ContainsKey(patternNumber))
                {
                    patterns.Add(patternNumber, new List<Pixel>());
                }
                patterns[patternNumber].Add(new Pixel(new Point(j, i), Color.Black));
            }
        }
    }
    return patterns;
}
```

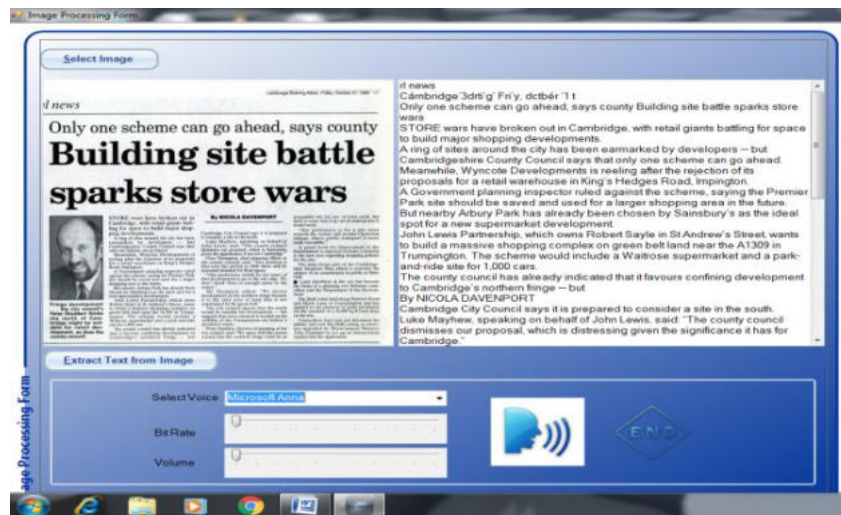
After the segmenting the text region and non-text region next we perform Bayesian classification algorithm for the segmentation the text block. Bayesian classifier in this commitment tackles the grouping issue. The Bayesian classifier originates from Bayes recipe (see below formula). This recipe empowers to figure the likelihood that a pixel with highlight vector F has a place with class C . It is restrictive likelihood $P(C | F)$.

We can appraise inverse contingent likelihood $P(F | C)$ for any element vector F what's more, class C with the guide of the preparation sets. Expression $P(F | C)$ remains for likelihood that a pixel of class C has include vector F . Under these presumptions for known earlier probabilities (C) the Bayes equation has shape:

$$P(C|F) = \frac{P(F|C)P(C)}{\sum_{T \in \Theta} P(F|T)P(T)}$$

After this preprocessing, it goes to OCR for the text extraction. extracted text we pass to speech synthesis engine the speech synthesis engine convert the extracted text into voice which user can listen with the help of head phone or Bluetooth device.

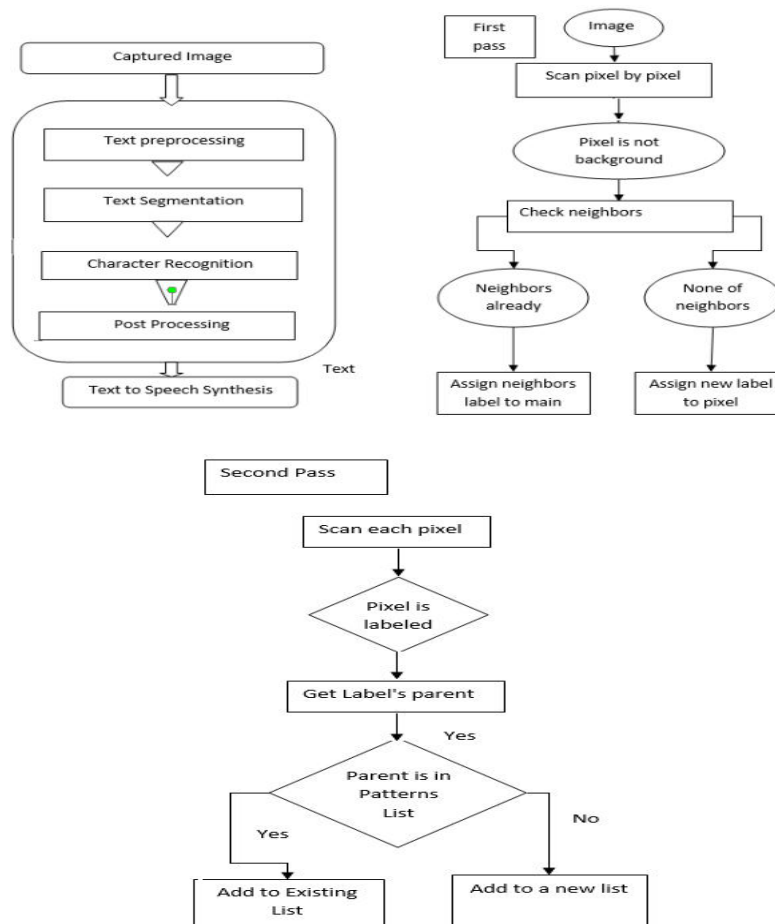
Figure-1: GUI of Proposed Framework for the Conversion of Image to Voice



Sources: Authors Compilation

ARCHITECTURE

Figure-2



Sources: Authors Compilation

RESULT

Several tests were performed on an English text containing four sentences and 100 words.

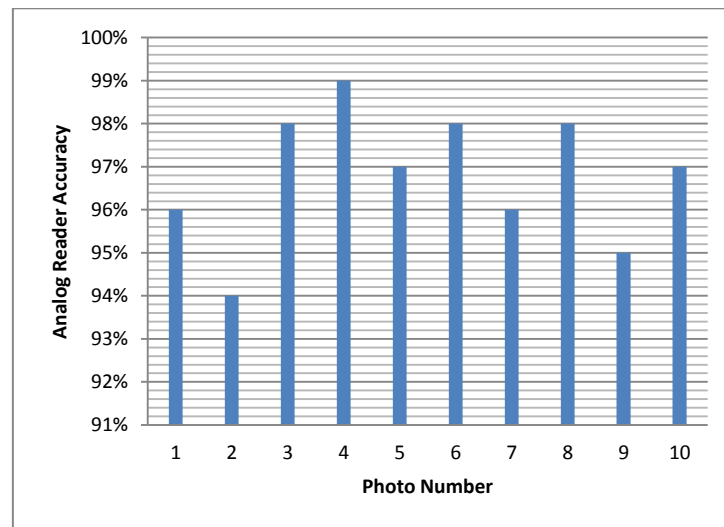
The Framework accuracy was measured by the percentage of recognized words in the text out of the total number of words in the text. Ten pictures of the same text (written with Times New Roman) were taken, and on each were evaluated the accuracy of the framework. To perform the following tests, we switched on all the lights inside a room to have bright recall= R/C

R= number of relevant item received

C= total number of relevant item in collection

Light projected directly onto the text and use automated flash of camera with the font size of 12 times new roman. The resulting graph shown in figure-3 and figure-4

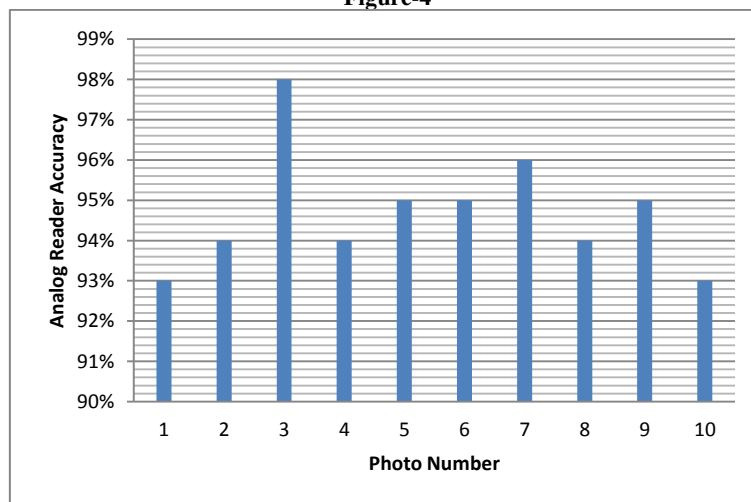
Figure-3



Sources: Authors Compilation

Figure-3, the average framework accuracy in this chart is 97%. This means that 97/100 words were recognized by the OCR with a text of a font size 12 in a bright room along with the flash light.

Figure-4



Sources: Authors Compilation



Figure-4, the average OCR accuracy in this chart is 95%. This means that 95/100 words were recognized by the framework with a text of a font size 12 in a bright room without camera flash light.

CONCLUSION

The proposed reader frame work is able to recognize the text more accurately if we are using in build camera light for the capturing the image and connected component analysis is working accurately along with the Bayesian classification algorithm and it giving satisfactory result. Only problem with this framework is if any text written on image then it could not be able to recognize that text.

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STATISTICAL ANALYSIS OF BUSINESS PERFORMANCE AND PERCEPTIONS OF CUSTOMERS OF SELECTED DCCBs IN KARNATAKA

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ABSTRACT

There are 9 lakh cooperative societies across the globe. These cooperative are functioning over 100 countries with very significant number of members (Shahrba Bak et al. 2012). These institutions are as old as human society and viewed as bedrock of any civilization growth. The cooperatives established with an intention of providing financial assistance to the deserving hitherto untouched agriculturists in the rural area. It is well said these kind of institutions strengthens the status of agriculturists in the rural areas.

Heavy environmental variations like cloud burst, cyclones, continuous rain, low quality seeds indifferent trend in the market, pressures from money lenders, heavy indebtedness etc., are the strongest drivers driving the agricultural scenario at present in India. The present demonetization programme is further bringing heavy difficulties to the agriculturists and are getting lowest prices for their agricultural produce calling the attention of planners to compensate immediately in the form of immediate declaration of debt waive off.

On the industrial side black transactions are on the rise where in the industrialist who avail loan facility goes for waive off transforming the entire loan to his favourable side and State Bank of India writing off loans in the beginning and waive off at the end is only one example of that kind and there are many and more black transactions taking lace repeatedly hampering the real growth of economy.

KEYWORDS

Cooperatives, Performance, Perception, Demonetization, Debt Waive Off etc.

INTRODUCTION

Rural indebtedness is still a major problem to be addressed effectively in the best interest of agriculture and agriculturists. Innumerable agriculturist's suicides are reporting from Karnataka and India. Agrarian distress backed by heavy indebtedness is causing problems to be policy framers and executors. The previous debt waive off benefitted many ineligible agriculturists and the targeted agrarian community failed to receive benefit of debt waive off. Further, the black transactions are on the rise and upsetting the purpose of bank lending and hence on a reality check it is natural to recommend another waive off.

DCCBs are rendering valuable services to the agrarian community. The selected banks performance is satisfactory and they should continue the similar service in future by adopting innovative strategies of service products.

OBJECTIVES OF STUDY

- To study the business performance through statistical analysis of data.
- To measure the cost of management.
- To know the perceptions of customers in the selected DCCBs.

HYPOTHESES

- Performance of the banks in terms of loans and collection is better and respondents are satisfied with the performance of supervisions and management.
- Cost of management is too high.
- Customers do not aware of purpose of management.

LIMITATIONS

- The limitation of the present study is that it confines only to five districts. Hence, any agrarian needs an in-depth study.

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RESEARCH METHODOLOGY

Universe	: 5 selected districts in Karnataka
Sampling Technique	: Convenient Sampling Technics
Data Source	: Primary and Secondary Data
Sample	: 300 Respondents Customers
Quantitative metrics Performed	: Time series analysis, ANOVA, Kendell's coefficient of concordance.
Data Collection	: Through questionnaire – schedule.
Date of Commencement of Data Collection	: 10 th November 2016
Date of Closure of Data Collection	: 30 th November 2016

REVIEW OF LITERATURE

Mohanty (2008) in his case study of the Bidar district argued that cooperatives could effectively revive themselves and include poor in their working through the Self Help Groups Bank Linkage Programme (SBLP). The DCCBs along with PACs had credit linked nearby 78% formed in the district. The DCCBs embraced multiple models directly by the DCCBs/PACs themselves. The DCCBs leadership had actively internationalized the SBLP with the help from NGOs and by creating a separate micro credit cell.

Paramanandam et al. (2012) have made comparative study of NABARD in India and its counterpart's viz., Grameen Bank in Bangladesh. This research paper reveals the achievement of Grameen Banks in Bangladesh and the commendable schemes like the SHG Bank linkage model of the NABARD. The authors have pointed out the need for further strengthening their initiatives with the active support of the government NGOs and banks for the purpose of total eradication of poverty.

Sequeria (2012) examined the productivity in cooperative banks of Dakshina Kannada districts of Karnataka state for the period 1990-1998. He found that the productivity of cooperative banks of this district had increased during the period and found that cooperative banks, which adopts information technology, had shown good progress.

Sivaprakasam (2009) conducted a critical study on farmer's debt waiver with an objective to study the impact of the scheme. Researcher suggested that default is attributable to institutional failure; corrective measures should be taken on a case study by in order to rehabilitate no willful defaulters. Secondly, recurrent calamities such as droughts and floods needs long term remedies in addition to short-term relief and finally well support price and crop insurance cover market fluctuations.

Reddy (1993) conducted a discriminant analysis using variables which constituted different dimensions of the performance of cooperative agricultural and rural development banks to classify the district of Karnataka into relatively high and low performance districts. The study reveals that high performance districts were characterized with higher mean value.

SURVEY FINDINGS

Table-1 highlights data about analysis of demand and collection data through time series analysis. The period of study is 2008-2014. Totally, 7 years data is measured and presented. Total demand for the study period varies from Rs. 74748 lakhs to 313407 lakhs indicating 298% increase over the base year 2008-09. District wise data shows that lowest recipient is South Canara district and the highest loan recipient district is Shimoga district amounting to Rs. 52769 lakhs. The combined arithmetic mean is Rs. 150513, SD = 75854.85 and CV = 50.39778%. The SD and CV shows the existence of greater variation in the data. The disbursements is not uniform but highly variable. Further, the table also reveals data about collection. Collection in certain districts are not made and shows the previous year's performance repeatedly. There is a greater variation even in the collection and sans uniformity. High variations in the collection dampens the future lending. The SD is 71531.40 and CV = 50.19% shows greater variations.

Table-1: Time Series Analysis of Demand and Collection of Loans in DCCBs w.r.t select district in Karnataka

District wise Demand							
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Bengaluru	14793	14793	19793	19793	19793	19793	39298
Hassan	20251	23767	26986	30639	35722	40637	50144
S. Canara	7957	9068	9068	30536	48036	56175	109103
Tumkur	17565	23391	30376	38236	38236	38236	62093
Shimoga	18182	19869	21760	27735	28617	28617	52769
Total	78748	90888	107983	108703	170404	183458	313407
AM	15750	18178	21597	21741	34081	36692	62681

Mini	7957	9068	9068	19793	19793	19793	39298
Maxi	18182	23391	30376	38236	48036	56175	109103
AM for all			150153				
S.D.			75854.85				
C.V.			50.39778				

District wise Collection

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Bengaluru	24386	14316	14316	14316	14316	14316	35328
Hassan	17237	18222	24419	29181	32043	38333	47832
S. Canara	6056	7017	7017	27719	45451	52925	105411
Tumkur	13578	20324	27475	35858	35858	35858	59493
Shimoga	11779	17368	19932	26967	27337	27337	48239
Total	73036	77247	93159	134041	155005	168769	296303
AM	146072	15449.4	18631.8	26808.2	31001	33753.8	59260.6
Mini	6056	7017	7017	14316	14316	14316	35328
Maxi	24386	20324	27475	35858	45451	52925	105411
AM for all			71531.40				
S.D.			142508.57				
C.V.			50.19%				

Sources: Authors Compilation

Table-2 reveals that data regarding human resources employed in DCCBs. It is revealed during the time of data collection that some banks have not recruited employees for the vacancies arised because of death, voluntary and supernumery. It is found that only in the year 2014-15 some appoints are in the entire district except Simoga. The minimum are 131 and the highest is 719.

Table-2: Time Series Analysis of Number of Employees

District	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Bengaluru	249	170	170	170	170	170	230
Hassan	193	197	190	183	164	146	217
S. Canara	461	456	456	437	471	538	719
Tumkur	131	169	169	169	164	164	269
Shimoga	216	216	213	209	206	206	196
Mini	131	169	169	169	164	146	196
Maxi	461	456	456	437	471	538	719

Sources: NAFSCDB Reports

Table-3 reveals data about cost of management for the year 2008-09 to 2014-15. Highest cost of management is found during the year 2014-15 for all district. The minimum being Rs. 547 lakhs and the maximum being Rs. 6832 lakhs. All the banks have to design suitable affordable strategies to reduce the cost of management in order to get more avenue in future. The performance in terms of meeting the demand collection and number of employee is satisfactory.

Table-3: Time Series Analysis of Cost of Management (Rs. in Lakhs)

District	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Bengaluru	4085	2438	2438	2438	2438	2438	1856
Hassan	547	649	668	954	1109	1167	1304
S. Canara	2287	2713	2713	2221	3658	4602	6832
Tumkur	773	584	863	1063	1063	1063	2901
Shimoga	655	1224	1127	1596	1386	1386	1487
Mini	574	584	668	451	1063	1063	1304
Maxi	4085	2713	2713	2438	3658	4602	6832

Sources: NAFSCDB Reports

Table-4 highlights the bipolar opinion of customers about service received from supervisors and management. Out of 300 respondents 180 expressed very much satisfied, 80 satisfied and 40 respondents not satisfied. ANOVA fails to accept the null hypotheses and accepts the alternative.

Table-4: Respondents Satisfaction about Service Received from Supervisors and Management

Satisfactory Variables	VMS	S	NS	T
Friendly and Customer Manner Availability	50	18	8	76
Knowledge of Bank Products and Service	30	12	6	48
Willingness to Listen & Respond to Customer Need	28	14	5	47
Fast and Efficient Service	42	20	12	74
Effect of Demonetization	30	16	9	55
Total	180	80	40	300

Sources: Questionnaire

Note: VMS - Very much satisfied, S - Satisfied, NS - Not satisfied.

Hypotheses

H ₀	Respondents are not happy service provided by supervisors and management	Reject
H ₁	Respondents are happy with services provided by supervisor and management	Accept

ANOVA Table

Source of Variation	SS	d.f.	m.s.	F-ratio	5% F Limit (From the F Table)
Between the Sample	2080	(3-1) =2	2080/2 =1040	1040/36.5 =28.493	
Within the Sample	438	(15-3) =12	438/12 =36.5		(2, 12) =3.88
Total	2518	(15-1) = 14			

Sources: Authors Compilation

ANOVA Analysis: Table reveals that F calculated value being 28.493 higher than TV = 3.88 @ 5% level of significance with d.f. V1 = 2 and V2 = 12 fails to accept the null hypotheses and the alternative is accepted.

Table-5 speaks about respondent's awareness of purpose of training since training helps the employees to improvise their performances. Out of 300 respondents 190 strongly agreed that training helps the employees to improve customer relationship, acquires latest technology, impacts human resource management, influences professional growth and allows to attain the targeted growth. Kendall's coefficient of concordance statistical tool rejects the null hypotheses and accepts the alternative.

Table-5: Respondents awareness of purpose of Training

Respondents Variables	SA	A	N	T
Improvise Customer Relationship	42	15	3	60
Acquires Latest Technology	34	16	4	54
Impacts on Human Resource Development	35	18	5	58
Influences Professional Growth	32	19	2	53
Allows to Achieve Targeted Growth	47	22	6	75
Total	190	90	20	300

Sources: Questionnaire

Note: VMS - Very much satisfied, S - Satisfied, NS - Not satisfied.

Hypotheses

H ₀	Respondents do not possess knowledge of purpose of training	Reject
H ₁	Respondents are aware of purpose of training	Accept

Kendall's Coefficient of Concordance Test

To judge the significance of W, we look to the table for finding the value of 's' at 5% level for K = 4 and N = 3. This value is 0, and thus for accepting the null hypotheses that K sets of ranking are independent and our calculated value of 's' shall be less than 0, But the worked value is 14600 which is higher than the TV which fact shows that W = 466.25 is significant. Hence, null hypotheses is rejected and alternative is accepted.

**CONCLUSION**

DCCBs in Karnataka in general rendering valuable service by providing agricultural short term and medium term loans in along with nonagricultural lending. Agriculture has become costly and that is why we feel heavy exodus of agrarian community searching better jobs in the nearby towns and cities. DCCBs were established only with an intention of serving agriculturists, this continue forever, and thereby the marginal agri-labourers and agriculturists are brought to the main stream.

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A COMPARATIVE STUDY OF RECRUITMENT PRACTICES BETWEEN IT COMPANIES AND CONSULTANCIES

Dr. B. Sudheshna³¹ Dr. B. Sudhir³²

ABSTRACT

Due to shortages of skilled workers, high turnover rates, and rapid business Growth in the service sectors, it has been noted that recruiting, selecting, and placing applicants are among the top three priorities of human resource professionals. The IT industry in India is faced with these three challenges, recruitment and selection comprises an important human resource practice in this industry. The aim of this paper is to identify the opinion of the employees of IT companies with regard to recruitment methods followed by IT companies and Consultancies. The recruitment methods like TV advisements, employee referrals, professional association and employment agencies are tested with suitable hypotheses. It is observed that there is a significant difference between IT companies and Consultancies with regard to methods of recruitment.

KEYWORDS

Recruitment Practices, Employee Referrals, Professional Association, Employment Agencies, IT Industry etc.

INTRODUCTION

The Indian IT industry comprises of domestic software and services firms as well as foreign firms looking to consolidate their presence in India owing to the increasing cost pressures in US and Europe, hence increasing the need to setup in-house development centers or outsource to third-party service providers in low cost countries such as India. IT and IT enabled services include a wide range of services from back-office data entry and processing to customer contact services, corporate support functions, knowledge support functions and research and design activities.

It is necessary to investigate the recruitment practices of firms in the IT industry in India and to examine the extent to which these firms have adopted and implemented best practices as identified in literature on this area of human resource management. The labour market for this industry is highly competitive with both domestic and foreign firms targeting to hire from the same labour pool. The growing competition has generated a strong interest and enthusiasm among companies to search actively for the best management practices in all fields, including HRM, to improve their efficiency and overall performance. India offers an appropriate setting to examine how recruitment as an important function of HRM.

LITERATURE REVIEW

Sudhamsetti Naveen & D.N.M. Raju (2014) observed that Successful recruitment and selection practices are key components at the entry point of human resources in any organization .Efficient recruitment and selection strategies result in improved organizational outcomes. The main objective of this paper is to identify general practices that organizations use to recruit and select employees.

Edward Nartey (2012) said that advertising of job vacancies and employee referrals are mostly the mode for recruiting potential employees, it was also realized that the method used in the recruiting and selection process was very effective and moreover helped improve employee performance.

Mufu God will Fomunjong (2012) reveal that despite a well-conceived recruitment strategy framework aimed at attracting the right people in the right places, discrimination and corruption are major factors that infringing on the efficiency and effectively of the recruitment policy.

Geetika and Piayali Gosh (2006 and 2007) observed the relationship between different strategies of recruitment in the Indian software industry, the size of the organization and dimensions of recruitment strategies.

Philip (2006) Examined aspects like recruitment system, selection methodologies, communication within the organization, awards and rewards, motivational approaches, career management system etc.

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Deepti Sethi (2005) studied the implementation of new and innovative methods to recruitment and selection, and finally a comparison is made between the recruitment and selection practices of domestic and foreign IT-ITES firms to determine whether foreign firms use more sophisticated techniques compared to domestic firms.

OBJECTIVES

- To study the recruitment process of different IT companies and consultancies.

HYPOTHESIS

Ho: there is no significant difference between the perceptions of company employees and consultants with regard to methods of recruitment.

METHODOLOGY

Structured questionnaire was used to collect the information from respondents in Bangalore. Quota sampling method is used to collect responses. Sample size = 440 Respondents. (40 for each company).

Data Analysis

The study is to explain the employee opinion on selection process in IT companies. The data is processed through an accepted statistical program SPSS 20.0. The data was analyzed using statistical techniques like chi-square test.

DATA ANALYSIS AND INTERPRETATION

Table-1: TV Advertisement

Opinion	Company (N=280)		Consultancy (N=160)		x ² Value	Significant Value
	F	%	F	%		
No	222	79.30%	146	91.3	10.649	0.001
Yes	58	20.7	14	8.8		

Sources: Authors Compilation

The table-1 reveals that 79.3% of company employees said that the company is not following the TV advertisement method for recruitment and remaining 20.7% of employees said that they are following the TV advertisement method for recruitment

In case of consultancies, 91.3% of consultancy employees said that the company is not following the TV advertisement method for recruitment and remaining 8.8% of employees said that they are following the TV advertisement method for recruitment

Hence, it can be interpreted that the majority of employees of both company and consultancy said that they are not following the TV advertisement method for recruitment.

That table 1 shows that the calculated χ^2 value is 10.649 and significant value is 0.001. since the calculated value 0.001 is less than the 0.05 it can be interpreted that there is a significant difference between the companies and consultancies with regard to methods of recruitment.

Table-2: Newspaper Advertisement

Opinion	Company (N=280)		Consultancy (N=160)		x ² Value	Significant Value
	F	%	F	%		
No	151	53.9	29	18.1	53.993	0
Yes	129	46.1	131	81.9		

Sources: Authors Compilation

The table 2 reveals that 53.9% of company employees said that the company is not following the Newspaper advertisement method for recruitment and remaining 46.1% of employees said that they are following the Newspaper advertisement method for recruitment.

In case of consultancies, 81.9 % of consultancy employees said that the company is following the Newspaper advertisement method for recruitment and remaining 18.9% of employees said that they are following the Newspaper advertisement method for recruitment.

Hence, it can be interpreted that the majority of employees of both company and consultancy said that they are following the Newspaper advertisement method for recruitment.

That table 2 shows that the calculated χ^2 value is 53.993 and significant value is 0.000. since the calculated value 0.000 is less than the 0.05 it can be interpreted that there is a significant difference between the companies and consultancies with regard to methods of recruitment.

Table-3: Professional Association Method

Opinion	Company (N=280)		Consultancy (N=160)		χ^2 Value	Significant Value
	F	%	F	%		
No	107	38.2	136	85	90.133	0
Yes	173	61.8	24	15		

Sources: Authors Compilation

The table 3 reveals that 61.8% of company employees said that the company is following the professional association method for recruitment and remaining 38.2% of employees said that they are not following the professional association method for recruitment.

In case of consultancies, 85% of consultancy employees said that the company is not following the professional association method for recruitment and remaining 15% of employees said that they are following the professional association method for recruitment.

Hence, it can be interpreted that the majority of companies are following the professional association method for recruitment and Consultancies are not following the professional association method for recruitment.

That table 3 shows that the calculated χ^2 value is 90.133 and significant value is 0.00. since the calculated value 0.00 is less than the 0.05, it can be interpreted that there is a significant difference between the company employees and consultancy employees with regard to methods of recruitment.

Table-4: Employment Agencies

Opinion	Company (N=280)		Consultancy (N=160)		χ^2 Value	Significant Value
	F	%	F	%		
No	43	15.4	55	34.4	21.272	0
Yes	237	84.6	105	65.6		

Sources: Authors Compilation

The table 4 reveals that 84.6% of company employees said that the company is following the employment agencies method for recruitment and remaining 15.4% of employees said that they are not following the Employment Agencies method for recruitment.

In case of consultancies, 65.6% of consultancy employees said that the company is following the Employment agencies method for recruitment and remaining 34.4% of employees said that they are not following the Employment agencies method for recruitment.

Hence it can be interpreted that the majority of employees of both company and consultancy that they are following the Employment agencies method for recruitment.

The table 4 shows that the calculated χ^2 value is 21.272 and significant value is 0.00. since the calculated value 0.00 is less than the 0.05 it can be interpreted that there is a significant difference between the company employees and consultancy employees with regard to methods of recruitment.

Table-5: Employee Referrals Method

Opinion	Company (N=280)		Consultancy (N=160)		x ² Value	Significant Value
	F	%	F	%		
No	51	18.2	39	24.4	2.375	0.123
Yes	229	81.8	121	75.6		

Sources: Authors Compilation

The table 5 reveals that 81.8% of company employees said that the company is following the Employee referrals method for recruitment and remaining 18.2% of employees that they are not following the Employee referrals method for recruitment

In case of consultancies, 75.6% of consultancy employees said that the company is following the Employee referrals method for recruitment and remaining 24.4% of employees said that they are not following the Employee Referrals method for recruitment

Hence it can be interpreted that the majority of employees of both companies and consultancies that they are following the Employee referrals method for recruitment.

The table 5 shows that the calculated x² value is 2.375 and significant value is 0.123. since the calculated value 0.123 is higher than the 0.05 it can be interpreted that there is a no significant difference between the company employees and consultancy employees with regard to methods of recruitment.

FINDINGS

- There is no significant difference between companies and consultancies with regard to employee referrals.
- There is a significant difference between companies and consultancies with regard to TV & Newspaper advertisement, professional association and employment agencies methods.

SUGGESTIONS

Most of the companies and consultants are not following latest methods of recruitment. Hence, it is suggested to utilize social media like twitter, LinkedIn, YouTube and Face Book etc. to familiarize their activities among large number of people.

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**PROSPECTS OF DIGITAL LIBRARY**Pankaj Mathur³³**ABSTRACT**

Insightful correspondence and methods for instructing give a chance to scholastic organizations to team up on giving access to academic materials and research information. There is a developing need to handle a lot of information utilizing Computer algorithm that presents difficulties to libraries with restricted involvement in taking care of IT foundation. Because of the current financial emergencies, computerized libraries need to discover approaches to get and oversee registering assets in a savvy way. Cloud computing is another figuring model for IT administrations, which numerous libraries and different associations are embracing. Cloud computing is a registering worldview, where an extensive pool of frameworks are associated in private or open systems, to give powerfully versatile foundation to application, information and document stockpiling. It permits libraries to stay away from locally facilitating various servers and types of gear and continually managing equipment disappointment, programming introduces redesigns and similarity issues. Firstly, this paper characterizes cloud computing and highlights the three administration models of cloud computing viz. Software as a Service (Saas), Platform as a Service (Paas), Infrastructure as a Service (Iaas). Secondly, it examines how cloud-computing arrangements could be profited to libraries in three fundamental regions viz. innovation, information and group.

KEYWORDS**Cloud Computing, Digital Libraries etc.****INTRODUCTION**

PCs have turned into a basic piece of life. We require PCs all around, be it work, examine or in any such field. As the utilization of PCs in our everyday life expands, the registering assets that we require additionally go up. For enormous organizations, tackling the assets as and when they need is not an issue. Nevertheless, about littler endeavors, reasonableness turns into an enormous component. With the tremendous foundation comes issue like machines disappointment, hard drive crashes, programming bugs and so on. This may be a major pain for such a group. Cloud computing offers an answer for this circumstance. Cloud computing alludes to the conveyance of adaptable IT assets over the web, instead of facilitating and working those assets locally, for example, on a school or college organize. Those assets can incorporate applications and administrations, and in addition, framework on which they work. By creating IT foundation and administrations over the system, an association can buy these assets on an as-required premise and maintain a strategic distance from the capital expenses of programming and equipment. With Cloud processing, IT capacity can be balanced rapidly and effectively to suit changes popular. Computerized Libraries have been receiving cloud-based answers for various administrations including electronic diary get to administration, measurements following, advanced library facilitating, and even incorporated library framework (ILS) facilitating.

CLOUD COMPUTING: DEFINITION

The Gartner Group characterizes "cloud computing as - a style of processing in which enormously adaptable and versatile IT-empowered abilities are conveyed as a support of outside clients utilizing web technologies."

As indicated by National Institute of Standards and innovation (NIST) at present characterizes "cloud computing as - a model for empowering helpful, on-request arrange access to a common pool of configurable processing assets (e.g. arrange, servers, stockpiling, applications and administrations) that can be quickly provisioned and discharged with insignificant administration exertion or administration supplier interaction."

To be more particular, cloud computing is the change of the distributed computing, parallel computing, grid computing and dispersed databases.

SORTS OF CLOUD COMPUTING

There are situations where computerized libraries require processing assets for prerequisites that are not gave by administrations or stage suppliers. Cloud computing separated into five classes: Software as a Service (SaaS), Platform as a Service (PaaS), Infrastructure as a Service (IaaS).

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Software-as-a-Services (SaaS): In this model, an entire application is offered to the client, as an administration on request. A solitary example of the administration keeps running on the cloud and numerous end clients are overhauled. On the customers' side, there is no requirement for forthright interest in servers or programming licenses, while for the supplier, the expenses are brought down, since just a solitary application should be facilitated and kept up. Today SaaS is offered by organizations, for example, Google, Salesforce, Microsoft, Zoho, and so on.

Platform-as-a-Services (PaaS): Here, a layer of programming, or advancement environment is epitomized and offered as an administration, whereupon other more elevated amounts of administration can be constructed. The client has the opportunity to fabricate his own applications, which keep running on the supplier's foundation. To meet reasonability and versatility prerequisites of the applications, PaaS suppliers offer a predefined blend of OS and application servers, for example, LAMP stage (Linux, Apache, MySQL and PHP), limited J2EE, Ruby and so on. Google App Engine, Force.com, and so forth are a portion of the prominent PaaS illustrations.

Information/Data-as-a-Services (IaaS): IaaS gives essential stockpiling and registering abilities as institutionalized administrations over the system. Servers, stockpiling frameworks, organizing hardware, server farm space and so on are pooled and made accessible to handle workloads. The client would commonly send his own particular programming on the foundation. Some basic illustrations are Amazon, GoGrid, 3 Tera, and so on.

COMPUTERIZED LIBRARY PERSPECTIVES

Digital Libraries have unobtrusively been on the front line of cloud computing innovation for various years. The utilization of SaaS in advanced libraries comes to again into mid-2000, with the foundation of organizations like Serials Solutions (<http://serialssolutions.com>). A lot of the work, in moving to electronic diaries has concentrated on a SaaS stage and late organizations, for example, LibGuides (<http://www.libguides.com>) have demonstrated that computerized libraries will put resources into SaaS arrangements. In the IaaS field, Amazon Elastic Computing Cloud (EC2) offers IT foundation for associations to dispatch contrastingly measured servers utilizing an assortment of working frameworks, including a few kinds of Linux and Windows. Computerized libraries are in an interesting position to explore different avenues regarding cloud computing given their administration-arranged mission and need to discover suitable arrangements utilizing restricted assets. The library group can apply the idea of cloud computing to enhance the force of participation and to construct a critical, brought together nearness on the Web. This way to deal with figuring can help computerized libraries spare time and cash while disentangling work processes. The enhancements or advantages that library group can accomplish with the utilization of Cloud Computing can be gathered into three zones i.e. Technology/Innovation, Data/information and Community.

BENEFITS OF TECHNOLOGY

Cloud computing arrangements are based on current innovation and are architected to adjust for innovation shifts. Taking a gander at the blast of cell phones one perceives how business and associations working in cloud environment can adjust and convey their support of the new gadgets a great deal more rapidly and less lavishly. Library Management System (LMS) gives center library work, for example, indexing, and procurement, reporting, bookkeeping and client administration. These frameworks are largely shut exclusive frameworks. It has been troublesome for these nearby exclusive frameworks to exploit innovations as they rise furthermore to coordinate with outer frameworks. For this, libraries must depend on their merchants to do any such combination. In the end libraries need to add more frameworks to deal with their steadily expanding and perpetually changing gathering which moves from physical accumulation administration to blend of physical, authorized and computerized accumulations. Joining of these frameworks gets to be troublesome and on occasion unthinkable. What can change in cloud environment for overseeing center library administrations? To start with would be the likelihood of open administration situated engineering. Numerous cloud arrangements offer this sort of openness with distributed application program interfaces (APIs) that any software engineer can exploit.

Besides libraries can escape the matter of innovation and concentrate on accumulation building, supporter administrations and development. Servers can be decommissioned and did not really require substitution like clockwork (or less). Staff no longer needs to keep up the unpredictable programming stack important to run neighborhood frameworks and stress over similarity of the stack amid overhauls. Rather specialized aptitudes can be re-conveyed for broadening cloud administrations into their surroundings and their surroundings into other cloud administrations.

HOW EFFICIENT IS THE DATA?

At the point when information is put away in the cloud it offers a few preferences. Basic information can now be effectively shared among administrations and clients. The requirement for nearby stockpiling, support and reinforcements is expelled. Understandings can be produced to share information that regularly would be viewed as private to a solitary business or



association. Lastly, libraries can accomplish Web scale when they hugely total information and clients, something a cloud domain makes conceivable.

Like the upsides of innovation conveyed and got to as cloud arrangements, information stockpiling in the cloud brings numerous advantages for libraries. The simple one to perceive is similar information being put away a huge number of times crosswise over libraries. Consider what number of duplicates of the indexing information there are for a serial distribution. What's more, if a change is expected to the inventorying information to keep it current every library must play out that change. At the point when this information is kept up in the cloud, support, reinforcement of this information is currently done once, and if a change is required, once one library plays out the change all share it. Another awesome advantage of information put away in the cloud is the open door for coordinated effort and agreeable insight. Libraries can consent to share pools of information for agreeable accumulation building, helpful protection or digitization, agreeable sharing of materials, and so on. What's more, with hugely collected information new administrations can be made, for example, recommender administrations in view of a wide base of use information.

POWER OF THE GROUP OR COMMUNITY

To make an online data group arrange, there exist two groups, the inside group of libraries working together inside a solitary establishment and crosswise over organizations and the outer group of libraries and data seekers. The esteem to libraries is the - network effect that meeting up in the cloud gives. The agreeable endeavors of libraries will make scale investment funds and efficiencies, bring acknowledgment that is more extensive for libraries, give helpful knowledge to better decision-making, and give the stage on which libraries can develop. The remotely group can offer preferred standpoint of web-based social networking. Organizations and associations can both form social groups around their administrations and take an interest in existing social groups, for example, Face book or Twitter. The interior group shaped through the cloud offers new conceivable outcomes and efficiencies for current work processes.

CONCLUSION

Computerized Libraries have the chance to enhance their administrations and pertinence in today's data society. Cloud computing is one road for this move into what has to come. It can bring a few advantages for libraries and give them an alternate future.

With cloud computing, the greater part of this is dealt with straightforwardly for the library and client. The vision is to utilize cloud computing to convey library assets, administrations and skill at the purpose of need, inside client work processes and in a way that clients need and get it. It ought to free libraries from overseeing innovation so they can concentrate on accumulation building, enhanced administrations and development. The cloud-computing model will energize computerized libraries and their clients to take part in a system and group of libraries by empowering them to reuse data and associate around data. It can likewise make an effective, bound together nearness for advanced libraries on the Web and give clients a nearby, amass and worldwide reach. For associations giving computerized libraries critical interest in conventional programming and equipment framework, movement to the cloud will bring out significant innovation move.

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A STUDY OF INFORMATION AND COMMUNICATION TECHNOLOGIES FOR SUSTAINABLE AGRICULTURAL DEVELOPMENT

Pradeep K. Sahu³⁴ Annjaan Daash³⁵ Dr. Tushar Pany³⁶

ABSTRACT

Today, ICT is the most important enabling forces for development. Previous studies have recognized the importance of the adoption processes. However, they fail to describe the important factors to manage them successfully. Most studies focus on evaluating critical adoption success factors while broadly discussing the failure to adopt information technology. This paper is a focused attempt to understanding success factors and adoption problems of ICT in agriculture. It also highlights e-Governance in the field of Agriculture as an emerging field focusing on the enhancement of agricultural and rural development through implementation of improved information and communication processes.

KEYWORDS

Electronic Cultivation, Information Technology, Information and Communication Technology (ICT), Agricultural Technology, Agriculture, Agribusiness, Adoption, Incentive, Barriers, Economic, Productivity, Governance etc.

INTRODUCTION

Developing agriculture and rural economy is one of the most important orientations of any Government. In India, the vigorous development of ICT and e-Governance implementations has strongly influenced every socio-economic aspect to become the most significant motivation of the socio - economic development and poverty reduction. Nearly 75 % of Indians live in rural areas and are predominantly farmers. ICT has been creating not only opportunities but also challenges to business in rural areas to narrow the gap between different regions, realize gender equality and the advancement of women to promote sustainable growth and poverty reduction. The potential benefits of computerizing data input and information management and e-Governance is well known and apparent to all market sectors and industries including agriculture. Information promotes competition and improves market. Accurate and complete information is vital performance (Thompson and Sonka, 1997). At the firm level, information promotes the efficiency and effectiveness of production and customer service. Information may also increase the level of trust consumers have in a product or firm leading to increased demand. It is readily accepted that increased information flow has a positive effect on the agricultural sector and individual firms. However, collecting and disseminating information is often difficult and costly. Information technologies (IT) offer the ability to increase the amount of information provided to all participants in the agricultural sector and to decrease the cost of disseminating the information. Research and literature already conducted regarding IT and the food and agribusiness industry have predominately focused on the effects that IT/e-Governance will have on the industry (Cragg, 1996). Fewer works can be found that attempt to understand the factors that cause the adoption and use of IT in agricultural organizations. Therefore, the need exists to understand why some agricultural industry participants adopt use of IT or plan to implement e-Governance faster and more readily than others do.

An understanding of the factors associated with IT adoption, use of e-Governance in agriculture will enable the development of strategies to promote e-Governance, IT adoption, and implementation of e-Governance can increase the effectiveness and efficiency of information use in agriculture.

OBJECTIVES

Agriculture constantly experiences advances in technology. Recently, the use of information technologies (IT), such as e-mail and the World Wide Web, has become commonplace. Information technologies afford the agriculture industry the opportunity to increase information flow to all industry participants at a decreased cost. Identifying the factors associated with IT adoption and use in agriculture will allow the industry, especially managers, to increase information flow and increase the demand for a firm's products and services, while increasing the level of trust in the firm. Thus, the objective of this research is to contribute to the understanding of the adoption and use of information technology (IT) and e-Governance over time in agricultural organizations. More specifically, the research focuses on identifying the reasons why some individuals in agricultural service organizations use IT more than other individuals identify. It is hypothesized that multiple factors are associated with IT use. These factors include, among others, user knowledge of IT, trust level in the IT system, and access to IT.

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FACTORS ASSOCIATED WITH ADOPTION AND USAGE OF ICT IN AGRICULTURE

Two fundamental steps exist in establishing an innovation as a valuable, readily used tool: diffusion and adoption. Both diffusion and adoption must occur in order for an innovation to successfully reach its target user and be implemented (Mahajan, et al., 1990). First, diffusion, the process by which an innovation “is communicated through certain channels over time among the members of a social system” (Rogers, 1995), must occur. In addition to individuals having access to a new technology, adoption must also occur, which means individuals accept the innovation as valuable and use it. Numerous factors could influence IT adoption and use in agricultural organizations and can be grouped into five categories: access to IT, demographic, IT training/education, trust, and time. It is possible for adoption factors to fit into more than one category. In the case of IT, access to the technology means an individual must have access to a computer equipped with IT such as e-mail and access to the WWW. The category “access to IT” would not only include the use of a computer with IT ability, but would also include the ability to upgrade computer hardware and software to facilitate IT use. The price of needed computer equipment and the expense of Internet use are also related to access to IT. It is predicted that the higher the level of access to IT, the higher the level of IT use by an individual. The demographic category includes adoption factors such as age, education level, gender, and income level. It is hypothesized that factors in the demographic category will not significantly influence IT adoption and use. Although previous literature suggests that IT use will be higher for younger, more educated individuals (Batte, et al., 1990), 1997 survey results suggest that demographic factors have little influence on IT adoption and use. This may reflect that demographic factors may influence the decision to adopt a new technology, but once that decision to adopt is made, demographic factors may have little influence on use. Another category of IT adoption factors is IT training/knowledge. This IT adoption factor can be measured with variables such as type of IT training, days of IT training, and the level of knowledge on IT use. It is hypothesized that as the quality and level of IT training increases, the use of IT will also likely increase. An important factor influencing the adoption of any new technology is an individual's perception of that technology. It is hypothesized by this research that one of the key perception aspects influencing the adoption of IT is the level of trust that the potential adopter has in the IT system and in those who use IT. Trust can be defined as “an individual's optimistic expectation about the outcome of an event” (Hosmer, 1995). There are different aspects of trust related to IT. An individual must first trust that information technologies will work and that IT will be beneficial in accomplishing his/her goals and in completing his/her tasks. An individual must also trust that the information they obtain via IT is accurate, the information they send via IT will not be tampered with, and privacy levels will be maintained. Trust proves to be a difficult variable to measure. Factors included in the trust category include an individual's perception of the ease of use of IT as well as the benefit of IT. In this study, trust is measured by variables such as helpfulness of IT for work-related communication, problem solving ability, and banking and shopping via the Internet. Some individuals, either due to their background or current environment, have a fear of IT or feel that it is difficult to use. It is hypothesized that an individual will use IT more if they have a positive perception or high trust level in IT. The final IT adoption category proposed by this research is the passage of time. It is hypothesized that individuals will increase their use of IT over time, as access to IT becomes more commonplace. The same group of people may be surveyed twice to evaluate their changes in IT use over time. Time can be measured by establishing a dummy variable where each survey response from a survey will be assigned a value of zero and one according to the respective year. Time-interaction variables can also be created for each variable by multiplying the original variable by the time variable. For example, the “days of training” variable can be multiplied by the time variable to become the “time influenced days of training” variable.

ROLE OF ICT IN AGRICULTURE

ICT is another physical infrastructure, which has a tremendous role to play in agriculture in respect of bridging the communications divide created by geographical barriers. India is a typical case. How to reach out to the individual farmer in each village, so that he/she is included in the developmental process? ICT can bring education, capacity building and training to rural people all over the world. In effect it would be a knowledge transfer mechanism from the have's to the have not's, enabling this socially relevant development process to happen. India should build a high capacity ICT infrastructure and use it to develop traffic of information flow from cities, academic and R&D institutional knowledge centres to the illiterate and economically disadvantaged. Same case with other developing countries as well. It could also encompass the information flow from the 'North' to the 'South' hemispheres of Earth, if political support is there.

ICT IN MARKET LINKAGES TO FARMERS

ICT can help in the following ways:

- **Supply Chain Management:** ICT can help individual small farmers to find such aggregators who can buy small lots and sell to big buyers. This function can also be shortened and facilitated by electronic means of the exchanges, if agricultural produce becomes standardised and conforms to specified quality standard levels. Buyers place orders with minimal inspection as to quality, which add to the cost of supply chain management. ICT alone cannot help, if physical infrastructures like warehousing, quality standardization, grading systems are not in place. Warehousing also creates commerce through trade in warehouse receipts, which in effect become a commercial bill of exchange.



- **Spot Exchanges to Function:** Spot exchanges help arbitrage the price levels effectively and help farmers to find buyers at right prices. In effect, it breaks down barriers of communication, which farmers face in finding the optimal price and its buyer. Combined with an operational feature exchange, it can integrate speculation and other aspects of trading, making the price discovery transparent to the individual farmer.
- **B2B Commerce:** ITC E Choupals are reaping the benefits since its Choupals connect to the rural market. Similarly Hindustan Level Ltd (HLL) in India is expanding its Shakti network, which includes women and Self Help Groups, who become entrepreneurs with an alternative livelihood in direct marketing of HLL consumer goods.
- **Communications:** India Postal Service (IPOST) serves many villages in remote locations. Electronic mail can help it deliver better services, improve logistics of information flow, reduce costs and benefit rural India. There are plans in the works to make Post Offices as ICT centres.
- **Health Services:** Some services are already operational or are about to become operational. Agricultural Extension Workers, Doctors, etc. can be accessed for consultations through ICT networks, thereby bringing expert advice to reach farmers. It is worthy of note however that despite the great and good of ICT, without a proper intermesh with the environment, physical aspects of agriculture and rural economic development, as well as other physical infrastructure bottlenecks like good road and rail connections, even water ways, it will remain a non-starter.

REASONS FOR SUCCESSFUL ADOPTION OF ICT IN AGRICULTURE

The reasons for the successful adoption process seem to be as follows:

- **An increased need for information:** Agricultural production is in the process of constant structural adaptation dictated by deteriorating terms of trade and characterized by larger, commercialized production units (Ministry of Agriculture, 1999). The larger the production unit and crop diversity the larger the need for more sophisticated data management and support for decision-making.
- **Prevalence and simplicity:** The prevalence of computers is consistently increasing which in turn reduces reluctance to adopt them. Eventually reduced inhibition and lower costs lead farmers to seek and adopt software to suit their needs. The less sophisticated farmers tend in time to join the process by seeking suitable simple, non-challenging solutions.
- **Returns on investment:** Farmers that found ICT to be beneficial and compatible with their needs pointed out the following advantages: easy collection of data, favourable comparisons of cost and income, follow-up of data input, establishment of cumulative data sets, their use and information accessing all translating into management efficiency. Measuring the benefit from the use of information systems is difficult (Rapley, 1997). One reason is the unavailability of quantifiable variables, although attempts to measure information have been made (Srorey and Barnett, 2000). This makes measuring the expected benefit of information systems very difficult. One of the intuitively obvious variables is the return on investment but the level of investment is not necessarily correlated to profitability. Contrary to expectations, it was found that quantifiable changes were modest at best (Christensen, 1992). Since performance goals are usually presented as justification for investment in information technology, the measure should be an improvement in the production process and not necessarily a direct return on investment. In this case, if ICT indeed improved the production processes, these improvements should eventually be evident. Examples would include better decisions in a specific production process, shorter supply lead-time, etc. No effort was made to quantify the benefit from ICT although the negligible cost of such package contributes to the farmer's favourable cost benefit ratio.
- **Maintaining existing competencies:** An adopter's level of education and training correlates positively with the ability to manage information, production processes and attain benefit from adopting a new technology (Gelb, 1998). It makes sense as well that an adopter's level of education correlates positively with the level of benefit accrued to adoption of the managerial information systems. ICT enables even the most conservative farm managers to utilize the system for supporting decisions without a threat of unfamiliar changes in management procedures. Older and traditionally trained managers can easily adopt ICT without a need to study new background data sets and / or management methodology. As such prior knowledge for using ICT is not a prerequisite for adoption. Despite the approach that agriculture is a comprehensive business as any other, most farmers limit their management efforts to production aspects. In comparison to other businesses, farmers are usually isolated professionally in their decisions. This self-perpetuating situation encourages resistance to changes in production methods and changes in business management methodology. It is in line with the contention that individuals tend to justify their actions according to their beliefs, past experience and reluctance to relinquish their time proven traditions and experience (Varela et al., 1994). This may result in disassociation from a new technology and diversion of time and efforts to alternatives (Von-Krogh et al., 2000). ICT enables the user to maintain his habits thereby minimizing the resistance.



- **Flexibility:** ICT is not confined to a specific crop or crop-pattern which in turn allows the farmer maximum adaptation flexibility. Consequently, different farmers growing the same crop may utilize the program differently. Experience indicates that in many cases dedicated programs, attempting to be all-inclusive become inflexible, and eventually irrelevant.
- **On time Information:** When information is unavailable when needed on time at a decision point, the decision is taken based on a currently different situation. This can distort the managerial processes. ICT enables accessing data and information when needed. This is due to the simplicity of entering data as well as extracting reports.
- **Training and Support:** Operational proficiency training is a necessary condition for successful information technology adoption, the more so with complicated software (Ptak and Schragenheim, 1999). Some ICT packages needs limited training being technically simple enabling adaptation to various production patterns. Regardless, on-line and phone support are available on request without charge. Occasional refresher courses are held on demand.

MAJOR ICT ADOPTION CONSTRAINT

Following are some of the major ICT adoption constraints and observations emphasized during the presentations and discussions of this paper:

- If ICT cost and infrastructure as constraints are neutralized developed and developing countries face identical problems in developing and adopting ICT for Agriculture and Rural Development. This regardless of “digital divide” definitions, generation divides, digital immigrants/natives and/or “divide” definition components;
- Significant “wrong” (non-optimal) ICT development and implementation decisions are prevalent. They are extremely costly in economic and scarce human capital terms. Not least - they are continuously resulting in considerable loss of benefit and opportunity;
- “End Users” are the key factor in defining the needs and critical success factors for ICT development and implementation. “End User” lack of ICT awareness does not seem to be a significant impediment while lack of their involvement is. “End User” complaints of “ICT related waste of time” seem to be diminishing in importance as an adoption constraint;
- The constant oversupply of ICT innovations and cost reductions blended with the ever-changing information and Internet characteristics emphasize the critical need for an “ICT Intermediary” and training. An Extension officer, scientist, consultant, etc., can provide this. In this situation, proficient End Users are becoming an influential source of innovation and information. Their role as “agents of change” is becoming indispensable. A lack of “between End User” information exchange and “training” were indicated in this context as effective adoption impediments. Introducing a new technology to farmers poses obstacles. Other adoption and dissemination difficulties usually encountered are listed below:
 - Not all farmers are interested in a computerized managerial information system. Some are satisfied with cost accounting at seasons’ end, sometimes not even that.
 - Some of the farmers use other software packages, including Excel spreadsheets or dedicated software, which may or may not be adequate.
 - Personal impediments of various kinds.
 - Personal preferences. There are farmers who tried ICT and decided to quit because they did not find it user-friendly enough, special needs were not met, etc.
 - Dissatisfied farmers will discourage others from using ICT, even after installation.
 - Marketing of ICT to farmers is non-existent.
 - Awareness of managerial information systems benefits is limited, resulting in situations where they have yet to be internalized.
 - Experience shows that farmers unassociated with the extension service are left behind professionally, which includes the use of ICT.

PROSPECTS OF ADOPTING ICT/e-GOVERNANCE IN AGRICULTURE

Development economy has witnessed industrial revolution, agricultural revolutions (green-food grain, white-milk, yellow-edible oil, bluefish, and now rainbow), information technology revolution, and biotechnology revolution. Information Technology and Biotechnology have now become the “drivers” of globalisation of the economy, with their complementarities of liberalisation,



privatization and tighter intellectual property rights. As we entered into the 21st century, the realm of electronic communication, which encompasses telecommunication, broadcasting, information technology, and services and industries, is undergoing profound changes, leading to a Global Information Infrastructure (GII), which will be capable of carrying any type of information, be it text, data, voice or video. Information is now broadly defined to embrace voice in telephony, text in fax and newspapers, images in video and TV broadcasting, and data in computers. All information can be digitized, transported, stored, retrieved, modified, and then distributed. The application of Information and Communication Technology (ICT) in agriculture is increasingly important. E-Governance in Agriculture is an emerging field focusing on the enhancement of agricultural and rural development through improved information and communication processes. More specifically, e-Agriculture involves the conceptualization, design, development, evaluation and application of innovative ways to use information and communication technologies (ICT) in the rural domain, with a primary focus on agriculture.

IoT in Agriculture

Internet of things has been proving its mettle across the industries such as banking, retail, tele companies, manufacturers and more. Amidst the various industries, the one sector it is quickly catching up with is the agriculture. With the concept of smart farming and digitization, it is gaining popularity like never before and is coming with the potential to offer high precision crop control, data collection and automated farming techniques.

Why do we need IoT in agriculture?

A forecast by the food and agriculture arm of the United Nations (FAO) says that the food production worldwide should see a 70% increase by 2050 to cater the ever growing population. Agriculture experts believe that IoT could play a crucial role in meeting this need. Combined with big data, it can do so by improving the efficient use of inputs like soil, fertilizers and pesticides, monitoring the livestock, predicting diseases, scanning storage capacities like water tanks, and making sure that crops are fed and watered well. It shows an overall potency to increase the productivity with a reduced cost.

Few other use cases of IoT in agriculture have been in monitoring water level, testing of soil parameters and helping to control the use of pesticides. Though it is, has been a trend in developed nations, despite being an agricultural nation, countries such as India faces various challenges while applying IoT in agriculture. To begin with, internet connectivity and availability is one of the major challenges. Then there are certain other aspects such as presumption amongst the vendors about Indian consumers not being “ready” for the advanced products. This results in drastically low awareness of IoT devices and systems amongst consumers. That is not all, the infrastructure required for smooth functioning of the IoT devices, such as smart grids and traffic systems are far from ready, hindering the growth furthermore.

Despite being a newer concept in the field, there has been a tremendous popularity in the agricultural circuits about the benefits of smart farming and the applicability of IoT. It has been looked upon as a hope to encourage innovation in agriculture with “connected farms” speculated to be the future of farming.

If we talk about the India perspective, with its experience in IP design and project management, it shows up unique potential to come up with innovative products. In addition, with the government initiatives like “Make in India” and “Smart India”, IoT could be utilized to make the best out of our agricultural potential.

Other Future Transformative Technologies in agriculture are:

- Artificial Intelligence,
- Biometrics,
- Flexible Displays,
- Sensors,
- Advanced User Interfaces,
- Graphene,
- Energy Storage
- Advanced Battery Technologies etc.

CONCLUSION

Food, shelter and clothing are one of the three basic needs of life. Among the three, only one is needed to stay alive, food. Food security has become a global issue especially in recent times. Hence, the importance of agriculture cannot be overemphasized. As in every other sector, constant research in the agriculture sector is needed if it must stay in tune with advances in technology to meet the ever-growing demand for its produce more so with the new trend of eco-friendly green world campaign. This has put more pressure on agriculture produce, which are the most eco-friendly resources available (e.g. use of grains in fuel production). ICT has affected positively every sector of the economy. Agriculture being a part of the economy is yet to witness any meaningful widespread impact by ICT. It is in this light that this paper presents a guideline as to what challenges and prospects ICT/e-Governance holds for Agriculture, if adopted.

**RECOMMENDATIONS**

This study recommends the following for the successful adoption of ICT/e-Governance in Agriculture:

- Government should provide at least one ICT centre in every local government headquarter. This ICT centre should have computers equipped with IT such as email and the World Wide Web, for ready access to farmers.
- Government should provide training and support staff in each of these ICT centres.
- Government should educate farmers on the role/benefits of ICT in agriculture to boost user's trust on ICT.

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ENHANCING DATA STORAGE SECURITY IN CLOUD COMPUTING THROUGH SIS

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ABSTRACT

*In distributed computing information stockpiling is a huge issue because the whole information live over a set of interconnected asset pools that empowers the information to be gotten to through virtual machines. It moves the application programming and databases to the vast server farms where the administration of information is really done. As the asset pools are arranged over different corners of the world, the administration of information and administrations may not be completely dependable. In this way, there are different issues that need to be tended to regarding the administration of information, administration of information, security of information, security of information and so on. Nevertheless, the protection and security of information is very difficult. To guarantee protection and security of information very still in distributed computing, we have proposed a compelling and a novel methodology to guarantee information security in distributed computing by method for concealing information inside pictures emulating is the idea of **Steganography and Image Shuffling (SIS)**. The fundamental objective of this paper is to keep information access from cloud information stockpiling focuses by unapproved clients. This plan perfectly stores information to cloud database and information stockpiling focuses and recovers information from it when it is required.*

KEYWORDS

Cloud Computing, Data Storage Security, Steganography, Image Shuffling etc.

INTRODUCTION

Cloud computing is available over the internet to share data, applications and hardware. Cloud computing provides unlimited infrastructure to store data and execute the applications. The customers do not need to own the infrastructure. One of the main problems with cloud based computing services, is that the uncertainty about the level of information security offered by these services. Infrastructure-as-a-service (IaaS) of cloud computing system is seen as providing all access control security. In the clouds, data are sent to and processed in the environment that is not under the user or data owner control. Therefore, it could potentially be compromised either by clouds insiders or by other users sharing the same resource. Data must be secured during all processing stages including: Uploading, processing, storing, streaming and/or visualizing. Policies and security requirements must be bound to the data. To enforce these policies, the corresponding security mechanisms should be in place.

DATA SECURITY ISSUES IN THE CLOUD DATA BASE

Privacy and Confidentiality

Once the client host data to the cloud database there should be some guarantee that access to that data will only be limited to the authorized access. Inappropriate access to customer sensitive data by cloud personnel is another risk that can pose potential threat to cloud data. Assurances should be provided to the clients and proper practices and privacy policies and procedures should be in place to assure the cloud users of the data safety. The cloud seeker should be assured that data hosted on the cloud database would be confidential.

Data Integrity

With providing the security of data, cloud service providers should implement mechanisms to ensure data integrity and be able to tell what happened to a certain dataset and at what point. The cloud provider should make the client aware of what particular data is hosted on the cloud, the origin and the integrity mechanisms put in place. Cloud computing acting as a hot topic in IT industry. Cloud computing is internet based development and is used in computer technology. Cloud computing manages and schedules the computing resources through network, and constitutes a large computing resources pool which can provide service to users on their demand.

The network is called "cloud". Resources in cloud is seems that can be extended unlimitedly, got anytime, used on-demand and paid according to apply. It dynamically delivers everything as a service over the internet based on user demand, such as network, operating system, storage, hardware, software, and resources.

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These services are classified into three types: Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS).

There are four main types of cloud:

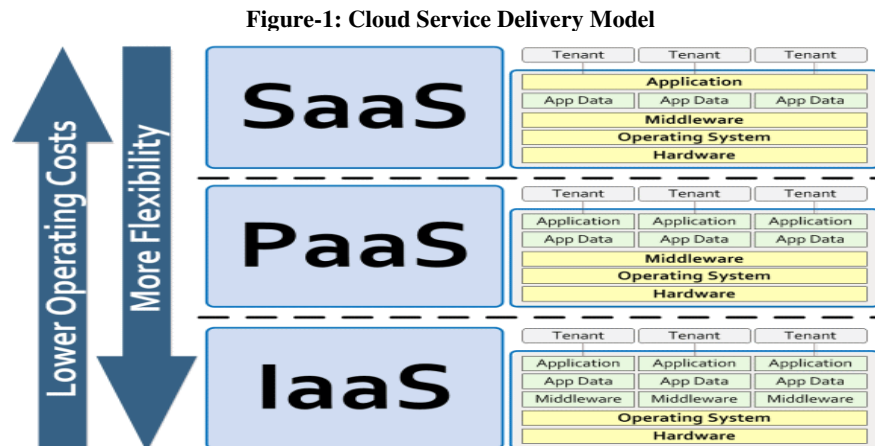
- **Public Cloud:** The cloud computing resources are shared outside, anyone can use it and some payment maybe required.
- **Private Cloud:** It is opposite to public cloud, private cloud's resources are limited to a group of people or a single person, like a staff of a company or an individual etc.
- **Hybrid Cloud:** This is a mixture of previous two clouds, some cloud computing resources are shared outside but some do not which depends on requirement.
- **Community Cloud:** This is a special cloud to make use of cloud computing features. More than one community shares a cloud to share and reduce the cost of computing system.

Data storage in cloud offers so many benefits to users:

- It provides unlimited data storage space for storing user's data.
- Users can access the data from the cloud provider via internet anywhere in the world and by using the different kind of client devices.

We do not buy any storage device for storing our data and have no responsibility for local machines to maintain data.

Each service delivery model has different possible implementations, as in Figure 1, which complicates the development of standard security model for each service delivery model. Moreover, these service delivery models may coexist in one cloud platform the security management process.



Sources: Authors Compilation

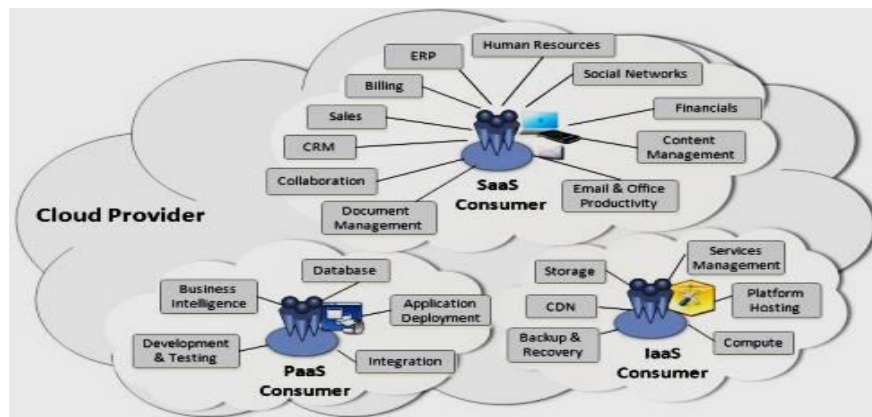
It is clear that the security issue has played the most important role in hindering cloud-computing acceptance. Without doubt, putting your data, running your software on someone else's hard disk using someone else's CPU appears daunting to many. Well-known security issues such as data loss, phishing, and botnet (running remotely on a collection of machines) pose serious threats to organization's data and software. Moreover, the multi-tenancy model and the pooled computing resources in cloud computing has introduced new security challenges that require novel techniques to tackle with. For example, hackers can use cloud to organize botnet as cloud often provides more reliable infrastructure services at a relatively cheaper price for them to start an attack.

PROBLEM STATEMENT

Managing data-when sending to the cloud database and when retrieving the data from the cloud database plays a crucial role in cloud computing. The main issue with data- in cloud, computing is providing security and unauthorized user may have access the data in a shared environment. However, now a-days storage devices are powered by encryption methodologies, which restrict unauthorized access to data to share extents. If the encryption and decryption keys are accessible to malicious users encryption methodologies fails to provide authorized access. Another approach to provide security in data-at-rest is to hide data behind images, following the concept of steganography. This paper aims to provide a better security through steganography.

A System Architecture Schematic network architecture for our proposed model for cloud data storage is illustrated in Figure 2. In this architecture, we have different network entities, which can be identified as follows:

Figure-2: Architecture of Cloud Data Security Model



Sources: Authors Compilation

Users or organizations who have their data for storage in the cloud and rely on the cloud for data computation.

A cloud service provider, which have significant resources of grayscale image of various sizes, a database that maintains records of file names, number of characters present etc. Security Model our proposed model aims to secure data of cloud database. Not by physically storing the data, instead of the data transferring over the network. This underlining concept is known as steganography.

PROPOSED SYSTEM

The proposed system is improving the security of the data sending to the cloud database using SIS (Steganography and Image Shuffling), in this method the data will be encrypted and a stego image is generated which is shuffled and sent to the cloud database. The shuffled and stego image will be retrieved from the cloud database in which original data is available, from which the image is unshuffled and data is retrieved from stego image then decrypted then displayed to the user.

Figure-3: Flow Chart Represents Sending the Data to the Cloud Database

When sending the data to the cloud database use the following steps.

Step1: Accept the data from the user including the image.

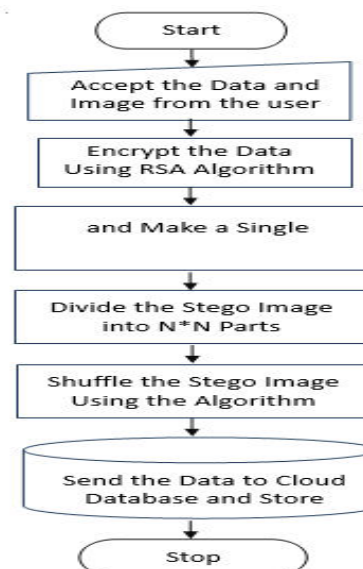
Step2: Encrypt the data using RSA algorithm.

Step3: Hide the data into the image and generate the 'Stego Image'.

Step4: Divide the *Stego Image* into the $N \times N$ Parts.

Step5: Shuffle the parts of created in Step4.

Step6: Send tis data to the Cloud Database.



Sources: Authors Compilation



Table-1: Shows the Possible Combinations for each N value for Un-shuffling of the Image

N	N*N	Possible Combinations
2	4	24
3	9	362880
4	16	2.092278988 E+13 20922789888000
5	25	1.551121004 E+25 15511210043330985984000000
6	36	3.719933267 E+41 3719933267899012174679994481 50835200000000
7	49	6.08281864 E+62 608281864034267560872252 1633212953768875528313792 10240000000000
8	64	1.268869321 E+89 1268869321858841641034333893 3516148080286551617454519219 8801894375214704230400000000 000000
9	81	5.79712602 E+120 57971260207473679858797342315 78109105412357244731625958745 8650497163901796938920562561 845342497459404800000000 000000000000
10	100	9.332621544 E+157 933262154439441526816992388562667004907159682643816214685929638952 175999932299156089414639761565182862536979208272237582511852109168 640000000000000000000000000000
11	121	9.332621544 E+157 93326215443944152681699238856266700490715968264381621468592963895 21759999322991560894146397615651828625369792082722375825118521091 686400000000000000000000000000
12	144	5.550293832 E+249 55502938327393047895510546605503881179999823379827628713430 7090377320974050790704421276194399889413260302964296757872427457 316014932181834187890765109349598440792631659305387180597679852465 879035748838374340208623616000000000000000000000000000000000000000
13	169	4.269068009 E+304 42690680090047052749392518888995665380688186360567361038491634 11117977554942180092854323970142716152653818230139905012221568 248567907501779605235748945594648470841341210762119980360352740 1512378815048789750405684196703601544535852628274771797464002689 3725894862438400
14	196	5.08012211 E+365 50801221108670467625027357853474485583272975249470269829299714310 4359057480013603705540137242115195719262628671043031667501252088 161309228461647972823682280495348903461291560889483687823263915860 2913456171373926571946869837498875017021761130986766777797110310 600196082835768030946986921882857481137396069476122276921344 00
15	225	1.259360854 E+433 125936085459459960910360289478707033464712366100830310947884859323

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		06359423769613992319171340638589965379701478272066063202173794720 103213566246138090779423045973606995675958360961587151299138222865 78579549361617654480453222007825818400848436415591229454275384803 558374518022675900061399560145595206127211192918105032491008000 00 00
--	--	---

Sources: Authors Compilation

Figure-4: Flow Chart Represents Sending the Data to the Cloud Database

When retrieving the data from the cloud database use the following steps.

Step1: Accept the search criteria from the user.

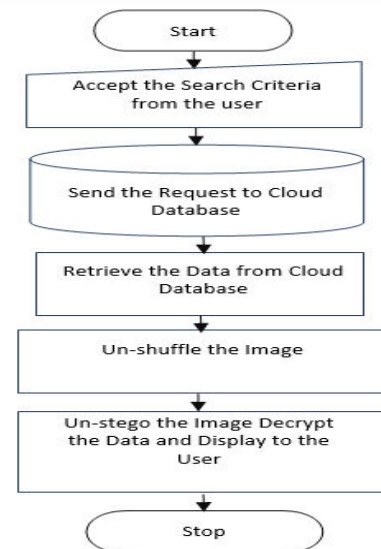
Step2: send the request to cloud database.

Step3: Get the shuffled image from the cloud database.

Step4: Un-shuffle the image.

Step5: Un-stego the Image and get the data.

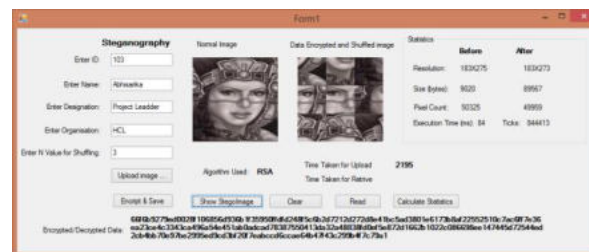
Step6: Decrypt the data using RSA algorithm and display it to the user.



Sources: Authors Compilation

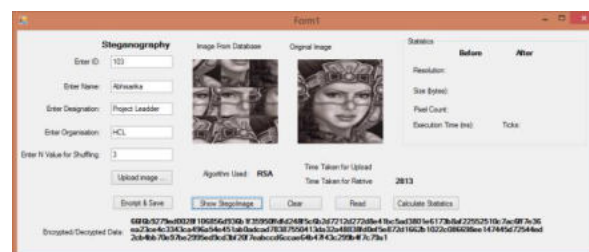
The Screens of the program Execution can be seen below:

Figure-5: Sending the Shuffled Image to Cloud Database with 3 Parts of Shuffling



Sources: Authors Compilation

Figure-6: Retrieving the Shuffled Image from Cloud Database with 3 Parts of Shuffling



Sources: Authors Compilation

Figure-7: Sending the Shuffled Image to Cloud Database with 4 Parts of Shuffling

Form1

Steganography

Enter ID: 104

Enter Name: Abhisarika

Enter Designation: Project Leader

Enter Organisation: HCL

Enter N Value for Shuffling: 4

Upload image ...

Encrypt & Save

Normal Image

Data Encrypted and Shuffled image

Algorithm Used: RSA

Time Taken for Upload: 3218

Time Taken for Retrive

Statistics

	Before	After
Resolution:	183x275	180x272
Size (bytes):	9020	88214
Pixel Count:	50325	48960
Execution Time (ms):	67	675990

Encrypted/Decrypted Data: 80832264c792ef23f952a61137788db3163675d27b4459b68e09e16fcae42d93a529102d9b707add491beedd9b20511036de66cac61ba2926a870587ef6637f24a1d663e91ffecac707fdd9630bd89fe62daec95078747efd0edf4556339b9ac31132ae890a55aa86c4904277b542743dd212942e657789b6010e64dae

Show StegoImage

Clear

Read

Calculate Statistics

Sources: Authors Compilation

Figure-8: Retrieving the Shuffled Image from Cloud Database with 4 Parts of Shuffling

Form1

Steganography

Enter ID: 104

Enter Name: Abhisarika

Enter Designation: Project Leader

Enter Organisation: HCL

Enter N Value for Shuffling: 4

Upload image ...

Encrypt & Save

Image From Database

Original Image

Algorithm Used: RSA

Time Taken for Upload

Time Taken for Retrive: 3615

Statistics

	Before	After
Resolution:		
Size (bytes):		
Pixel Count:		
Execution Time (ms):		

Encrypted/Decrypted Data: 80832264c792ef23f952a61137788db3163675d27b4459b68e09e16fcae42d93a529102d9b707add491beedd9b20511036de66cac61ba2926a870587ef6637f24a1d663e91ffecac707fdd9630bd89fe62daec95078747efd0edf4556339b9ac31132ae890a55aa86c4904277b542743dd212942e657789b6010e64dae

Show StegoImage

Clear

Read

Calculate Statistics

Sources: Authors Compilation

Figure-9: Sending the Shuffled Image to Cloud Database with 5 Parts of Shuffling

Form1

Steganography

Enter ID: 105

Enter Name: Abhisarika

Enter Designation: Project Leader

Enter Organisation: HCL

Enter N Value for Shuffling: 5

Upload image ...

Encrypt & Save

Normal Image

Data Encrypted and Shuffled image

Algorithm Used: RSA

Time Taken for Upload: 4024

Time Taken for Retrive

Statistics

	Before	After
Resolution:	183x275	180x275
Size (bytes):	9020	88842
Pixel Count:	50325	49500
Execution Time (ms):	129	1298162

Encrypted/Decrypted Data: 44d61c2b0134a684753cc66aee5d848d3a98010fc892f388228bd1a35dbcd1e58e46a4f238b79f425e2d31ec07f92c5712f31ab18252a593082b344485ced5ce8d4acbb5004945636c9598215af3ca2bb6fb3e467e938dd0850bf59cf0dbae84c3f5556ea363cbdef531399a30d1231ff0d5c35d88092e30e85aa43c78084ad

Show StegoImage

Clear

Read

Calculate Statistics

Sources: Authors Compilation

Figure-10: Retrieving the Shuffled Image from Cloud Database with 5 Parts of Shuffling

Form1

Steganography

Enter ID: 105

Enter Name: Abhisarika

Enter Designation: Project Leader

Enter Organisation: HCL

Enter N Value for Shuffling: 5

Upload image ...

Encrypt & Save

Image From Database

Original Image

Algorithm Used: RSA

Time Taken for Upload

Time Taken for Retrive: 4336

Statistics

	Before	After
Resolution:		
Size (bytes):		
Pixel Count:		
Execution Time (ms):		

Encrypted/Decrypted Data: 44d61c2b0134a684753cc66aee5d848d3a98010fc892f388228bd1a35dbcd1e58e46a4f238b79f425e2d31ec07f92c5712f31ab18252a593082b344485ced5ce8d4acbb5004945636c9598215af3ca2bb6fb3e467e938dd0850bf59cf0dbae84c3f5556ea363cbdef531399a30d1231ff0d5c35d88092e30e85aa43c78084ad

Show StegoImage

Clear

Read

Calculate Statistics

Sources: Authors Compilation

Figure-11: Sending the Shuffled Image to Cloud Database with 6 Parts of Shuffling

Sources: Authors Compilation

Figure-12: Retrieving the Shuffled Image from Cloud Database with 6 Parts of Shuffling

Sources: Authors Compilation

Figure-13: Sending the Shuffled Image to Cloud Database with 10 Parts of Shuffling

Sources: Authors Compilation

Figure-14: Retrieving the Shuffled Image from Cloud Database with 10 Parts of Shuffling

Sources: Authors Compilation

Figure-15: Sending the Shuffled Image to Cloud Database with 15 Parts of Shuffling

Form1

Steganography

Enter ID: 115

Enter Name: Abhisarika

Enter Designation: Project Leader

Enter Organisation: HCL

Enter N Value for Shuffling: 15

Upload image ...

Encrypt & Save

Normal Image

Data Encrypted and Shuffled image

Algorithm Used: RSA

Time Taken for Upload: 2389

Time Taken for Retrive: 2389

Statistics

	Before	After
Resolution:	183X275	180X270
Size (bytes):	9020	87463
Pixel Count:	50325	48600
Execution Time (ms):	72	724762

Encrypted/Decrypted Data: 6c82e54fee948b6909bad09e0cb7cf97a2cbead38b51281620cb102882a4f1524504c13cf83ca530b8ad9c6671351f0b499e3b2ba1828b7dc01433a83219d8bb8ef95892a266d75e003341cb92161829c5904f54eb4869dbc11c6359190be7441e20c48911594c722be86073ad13c15c4fa79ac9aa4dd440c88a14dd0

Sources: Authors Compilation

Figure-16: Retrieving the Shuffled Image from Cloud Database with 15 Parts of Shuffling

Form1

Steganography

Enter ID: 115

Enter Name: Abhisarika

Enter Designation: Project Leader

Enter Organisation: HCL

Enter N Value for Shuffling: 15

Upload image ...

Encrypt & Save

Image From Database

Original Image

Algorithm Used: RSA

Time Taken for Upload: 3015

Time Taken for Retrive: 3015

Statistics

	Before	After
Resolution:	183X275	180X270
Size (bytes):	9020	87463
Pixel Count:	50325	48600
Execution Time (ms):	72	724762

Encrypted/Decrypted Data: 6c82e54fee948b6909bad09e0cb7cf97a2cbead38b51281620cb102882a4f1524504c13cf83ca530b8ad9c6671351f0b499e3b2ba1828b7dc01433a83219d8bb8ef95892a266d75e003341cb92161829c5904f54eb4869dbc11c6359190be7441e20c48911594c722be86073ad13c15c4fa79ac9aa4dd440c88a14dd0

Sources: Authors Compilation

Figure-17: Sending the Shuffled Image to Cloud Database with 20 Parts of Shuffling

Form1

Steganography

Enter ID: 120

Enter Name: Abhisarika

Enter Designation: Project Leader

Enter Organisation: HCL

Enter N Value for Shuffling: 20

Upload image ...

Encrypt & Save

Normal Image

Data Encrypted and Shuffled image

Algorithm Used: RSA

Time Taken for Upload: 1251

Time Taken for Retrive: None

Statistics

	Before	After
Resolution:	183X275	180X260
Size (bytes):	9020	85030
Pixel Count:	50325	46800
Execution Time (ms):	76	762317

Encrypted/Decrypted Data: 58f56c1ec057a4be521e4ceaf65eca98691054d6defd1ad3971cbb79f86c563c23bd48b95affb4b2d55a407d4b6cddc7f78b96a5691f5ddc360c7ee04ea39b5e771d5e2397714b0bf4b02d9ab013f12bc528433aa5448967012c674c168oe6381a0be2afba1848ef1659dab44cd40be29bd1f68ed997ec29623d76baac5

Sources: Authors Compilation

Figure-18: Retrieving the Shuffled Image from Cloud Database with 20 Parts of Shuffling

Form1

Steganography

Enter ID: 120

Enter Name: Abhisarika

Enter Designation: Project Leader

Enter Organisation: HCL

Enter N Value for Shuffling: 20

Upload image ...

Encrypt & Save

Image From Database

Original Image

Algorithm Used: RSA

Time Taken for Upload: 1795

Time Taken for Retrive: 1795

Statistics

	Before	After
Resolution:	183X275	180X260
Size (bytes):	9020	85030
Pixel Count:	50325	46800
Execution Time (ms):	76	762317

Encrypted/Decrypted Data: 58f56c1ec057a4be521e4ceaf65eca98691054d6defd1ad3971cbb79f86c563c23bd48b95affb4b2d55a407d4b6cddc7f78b96a5691f5ddc360c7ee04ea39b5e771d5e2397714b0bf4b02d9ab013f12bc528433aa5448967012c674c168oe6381a0be2afba1848ef1659dab44cd40be29bd1f68ed997ec29623d76baac5

Sources: Authors Compilation



By this study we conclude that if number of parts i.e. N value is increased to 20 then it becomes impossible to any hacker or intruder to steal the original data that is being sent to the cloud database refer *table1 for the calculations*.

CONCLUSION

In this paper, we have investigated the problem of security in cloud computing, which is essentially a distributed storage system. To ensure the security of user's data in cloud database storage, we proposed an effective and efficient Steganographic and Image Shuffling (SIS) strategy for enhancing security on data-at-rest and data transferring over the network. Therefore, when these images are stored in the cloud data center and transferring over the network, no one can view the original content of the data without any proper identification. Through detailed security and performance analysis, we have seen that our scheme almost guarantees the security of data when it is residing on the data center of any Cloud Service Provider (CSP). The concept we have discussed here, will help to build a strong architecture for security in the field of cloud computation. This kind of structure of security will also be able to improve customer satisfaction largely and we will attract more investor in this cloud computation concept for industrial as well as future research farms. Security in a very large-scale cross-cloud environment is an active issue. This present scheme is able to handle only a limited number of security threats in a small environment. We need further simulations to verify the performance. In the future, we will extend our research by providing security through steganography in RGB images. In addition, if the raw data is encrypted and the steganographic issues are employed then the protection will be a bit enhanced. The protections can also be enhanced if we can change the pixel positions after steganography. Until now, we are working on it to get better performance.

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QUALITY OF MOBILE APPLICATIONS: LITERATURE REVIEW FOR IDENTIFICATION OF QUALITY FACTORS

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ABSTRACT

With the increasing acceptance of smart phones, mobile applications are gradually becoming ubiquitous in the daily lives of the users. At the same time studies, show that one out of every four apps downloaded is never used again. Thus, there arises the need to identify the quality factors from customer's point of view as high quality leads to satisfied customer, which has an important effect on customer retention. In this paper, a review of various software quality models is carried out. It was found that the quality is usually measured in terms of functionality, usability, reliability, portability, efficiency, and data integrity. Other factors such as privacy and trust seem to be overlooked in the existing models. With the rising concerns of network security and data theft, the likely impact of these factors is expected to be prominent in determining the mobile application quality. We have carried out an extensive literature search to compile a collection of research studies carried out in the field of mobile application and software quality. An effort has been made to design a more comprehensive quality model, which brings together the significant attributes of mobile application quality from the existing prominent quality models. Further, the factors of privacy and trust are added in the quality model designed to address the limitations of the existing models.

KEYWORDS

Mobile Applications, Software Quality, Quality Factors, Quality Models, Literature Review etc.

INTRODUCTION

The high quality is one of the main steps to have satisfied customer, which has an important effect on customer retention (Sharma & Patterson, 1999). This retention is however seen as one of the major challenges particularly in the field of internet based services where the user finds it very easy to switch from one application to another (Liu & Khalifa, 2003). In order to satisfy the customers the businesses need to work on improving their quality (Saha & Zhao, 2005). Thus, there arises the need to identify these quality factors from customer's point of view.

As an interface between users and mobile services of the organisations, mobile applications quality will surely affect user adoption and usage (Lee and Benbasat, 2004). In comparison with the internet sites, mobile applications have certain limitations, such as lower resolution, smaller interface, and slower responses because of the restrictions of the handheld devices and mobile terminals. In addition to this, the mobile users are mostly on the move when they use these mobile applications and they might find it difficult to concentrate their attention while using the mobile applications. Hence, the mobile application developers need to improve and provide better quality mobile applications to users (Zhou, 2011).

LITERATURE REVIEW

In order to develop a quality model that could be both effective and appropriate for evaluating the mobile applications, an extensive review of the current literature is carried out. For the literature review, only the refereed articles from some of the prominent online sources ranging from 2000 to 2014 were selected. The review examined the quality factors and the models used in the evaluation of mobile applications.

INFORMATION SOURCES

To start with, the first step to carry out this research was to identify the main sources to collect the relevant literature. The online databases such as Google Scholar, EBSCO, JGATE, ACM Library and IEEE were shortlisted for the search. The search strings, which were considered during the search to select the important literature for review, were "Mobile Application quality factors" and "Software Quality models".

ELIGIBILITY CRITERIA

Only those studies have been included for the review that covered some or the other aspect of mobile application or software quality factors and their association with consumer satisfaction. The review of the literature has not been confined to any time but

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most of the publications reviewed fall between the periods from 2000 to 2014 as the quality of software was not a big concern before this time. Due to the shortage of relevant literature in the given area of study, we have included both the empirical and conceptual studies, which discussed the association between software and its quality. To further maintain the authenticity of the study only the papers from peer-reviewed sources were included.

STUDY SELECTION PROCESS

Prior to selecting the research studies, a review criterion was decided on by all the researchers to ensure a consistent strategy to select the relevant articles. A total number of 659 articles were shortlisted from the above stated online databases. The strings “Mobile Application” and “Software Quality” only restricted the search. Following this, the titles of all the 659 articles were reviewed and as many as 517 articles were excluded.

Then the abstracts of the remaining 142 papers were thoroughly examined to find out if they contain some component of:

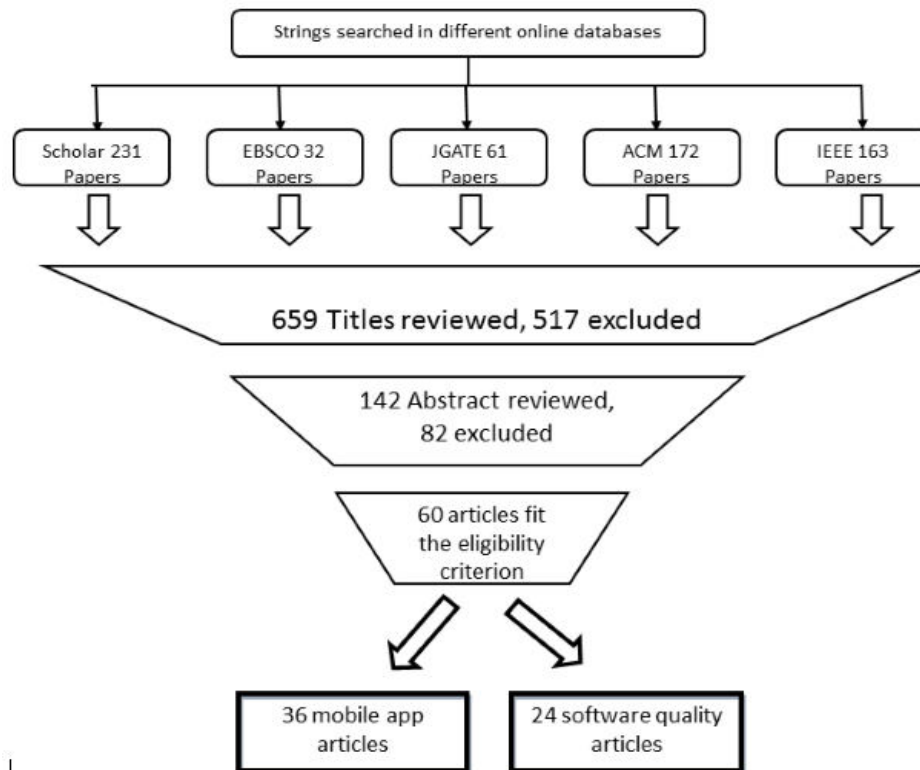
- Mobile application along with its quality factors.
- Contained some software component and its quality determination.
- Evaluation of some software or mobile application.

The publications, which could not meet the above said criterions, were excluded from the study. Finally, the remaining 60 papers, which were shortlisted to be included in the final review to identify the factors of quality model, were reviewed and examined on the following grounds.

- Attributes considered for quality evaluation.
- Type of the study conducted in the paper.
- Sub topic which is been focused upon in the paper.

At every stage of this selection process duplicates were excluded. The pictorial representation of the above stated selection process is depicted below in the figure.

Figure-1: Selection Process for Literature Review



Sources: Authors Compilation

TERMS DEFINED

Mobile Application

The presence of these mobile software “applications” or “apps” are gradually becoming ubiquitous in the daily lives of the users and this proliferation of mobile applications is expected to carry on with the growth in smartphone usage globally (Rakestraw et. al., 2012). The statistic containing data on the number of mobile applications existing for download in few of the leading app stores in July 2014 shows the availability of 1.3 million apps on Google Play for the Android users and 1.2 million on Apple's App Store (Statista, 2014).

Mobile applications are said to be the lighter version of the same computer applications (Research on India, 2012) which are otherwise meant for desktop and laptops. These applications are specifically meant to be installed on smartphones and other hand held portable devices.

Software Quality

Software quality is defined in terms of interaction between user and system facilitated by the technology used in software (Bailey & Pearson, 1983; Srinivasan, 1985). System quality usually represents the appropriate intangible or tangible results of information system (Landrum & Prybutok, 2004; Pitt, Watson, & Kavan, 1995). The quality of software can be defined in term of the software quality factors, the attributes that the users consider important for the software to possess (Ahmad, Beg & Haleem, 2013). These quality factors collectively influence the system use, which must lead to user satisfaction and positive experience, resulting in increased intention to use, and thus actual use (Guimaraes & Igbaria, 1997).

RESEARCH METHOD

To develop the quality model for evaluation of mobile applications, the two research questions RQ1, and RQ2 were established. The following research questions were used to identify the important quality factors of the mobile apps from different quality models considered by various authors covered in the selected literature.

RQ1: What factors are considered while measuring the quality of mobile applications?

RQ2: Which models are used to evaluate the quality of mobile applications?

RQ1: WHAT FACTORS ARE CONSIDERED WHILE MEASURING THE QUALITY OF MOBILE APPLICATIONS?

The following research question focused on the need to find out which quality factors could be considered while evaluating the mobile applications. Table lists the quality factors obtained from the literature along with their brief explanations.

Table-1: Quality Factors Obtained from Literature Review

Quality Factors	Explanation	Source
Functionality	To provide functions which meet the stated and implied needs of users under the specified conditions.	ISO 9126
Usability	The extent to which a product can be used with effectiveness, efficiency and satisfaction in a specified context of use.	ISO 9241- 11 (Guidance on Usability) (1998)
Data Integrity	Ability to keep information even after mobile app is paused or killed.	Zahra, Khalid & Javed (2013)
Reliability	Extent of disruptions by failures at consumers end.	Kekre, Krishnan & Srinivasan (1995)
Portability	Tendency to run on multiple platforms and devices.	Zahra, Khalid & Javed (2013)
Efficiency	Capability to provide appropriate performance relative to the amount of resources used.	Choi & Stvillia (2013)
Privacy	Accessing the user contacts, user's calendar information, determining the user's location.	Appthority
Accuracy	Should be error free and accurate in performance.	Hussain & Kutar (2009)
Maintainability	The capability of the software product to be modified.	Fahmy, Haslinda, Roslina & Fariha (2012)
Testability	The software is easily and effectively testable.	Nguyen, Delaunay & Robach (2002)
Flexibility	The ease with which software can be modified for use in applications other than those for which designed.	Eden & Mens (2006)
Reusability	Process of creating software from the existing components.	Thakral & Sagar (2014)

Understandability	Ease with which the program can be understood.	Ahmad, Beg & Haleem (2013)
Expandibility	Effort required increasing the software's capability.	Ahmad, Beg & Haleem (2013)
Security	Is the software secure to use.	Hussain & Kutar (2009)
Completeness	The extent or completeness of user's solutions to tasks.	Hussain & Kutar (2009)

Sources: Authors Compilation

RQ2: WHICH MODELS ARE USED TO EVALUATE THE QUALITY OF MOBILE APPLICATIONS?

A variety of software quality models covering different aspects of quality have been covered in the literature. These models are used in evaluating the systems on a list of defined quality factors. Some of the common software quality models used by the researchers in their works in the covered literature are as under:

Table-2: Software Quality Models

Model/Author	Perspective	Factors
McCall Model / J. A. McCall (1977).	Product Operations, Product Revisions and Product Transitions.	Correctness, reliability, efficiency, integrity, usability, maintainability, testability, flexibility, portability, reusability and interoperability.
Boehm Model / B. W. Bohem (1978).	High-Level, Intermediate-Level and Low-Level Characteristics.	Portability, reliability, efficiency, human engineering, testability, understandability and modifiability.
Metrics for Usability Standards in Computing (MUSiC) Model / Bevan & Macleod (1994).	Usability model.	Evaluation, effectiveness, efficiency, productivity, learning, satisfaction, and cognitive workload.
QUIM (Quality in Use Integrated Measurement) Model / Seffah & Donyaee (2006).	Usability model.	Efficiency, effectiveness, productivity, satisfaction, learnability, safety, trustfulness, accessibility, universality, and usefulness.
FURPS Model / Robert Gardy (1994).	Functional Requirements and Non-Functional Requirements.	Functional requirements (F) are defined by input and expected output while non-functional requirements (URPS) consist of usability, reliability, performance and supportability.
ISO 9126 Model / International Organisation for Standardization / International Electro-technical Commission ISO/IEC (1991).	Quality Model; External Metrics; Internal Metrics; and Quality in Use Metrics.	Characteristics namely Functionality, Reliability, Usability, Efficiency, Maintainability and Portability and 21 sub-characteristics.
D & M IS Success Model / DeLone & McLean (1992).	Technical, semantics and effectiveness.	Information quality, system quality and service quality.
Updated D & MIS success model / DeLone & McLean (2003).	E-commerce environment.	Information quality, system quality and service quality, IS use, user satisfaction and behavioural intention.

Sources: Authors Compilation

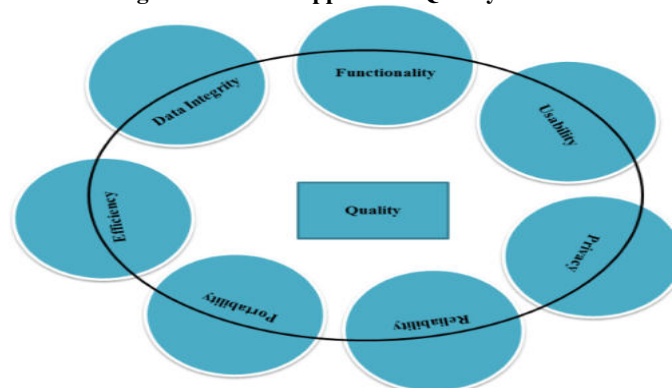
RESULTS & DISCUSSION

The traditional model discussed in the above given table were mainly developed for the desktop applications. As an interface between users and mobile services of the organisations, mobile applications quality will surely affect user adoption and usage (Lee and Benbasat, 2004).

In comparison with the internet sites, mobile applications have certain limitations, such as lower resolution, smaller interface, and slower responses because of the restrictions of the handheld devices and mobile terminals. In addition to this, the mobile users are mostly on the move when they use these mobile applications and they might find it difficult to concentrate their attention while using the mobile applications. Hence, the mobile application developers need to improve and provide better quality mobile applications to users (Zhou, 2011). Therefore, there is a genuine need to develop a model, which would fit the exact needs of the mobile applications, as they are slightly different from the desktop applications.

Based on the review of the existing literature a model for evaluating the quality of mobile applications has been developed.

Figure-2: Mobile Application Quality Model



Sources: Authors Compilation

CONCLUSION

By following a systematic review of the existing literature, we have tried to identify the contextual factors that could contribute to the success of a mobile application. This methodological review was an important step in developing a better understanding of the feature that could influence the overall quality of software or more specifically mobile application. In the preliminary review, more than 20 factors was identified to be related to quality of mobile application. Although some of the factors like maintainability and expandability, portability and flexibility etc., were found to be very closely related. Whereas some of the factors such as privacy and security, were detected to be totally ignored in the existing literature. So to overcome these gaps, in this study a genuine effort has been made to systematically identify the quality factors of mobile application.

The findings from this study will contribute to developing a mobile application quality model comprising of the factors to be considered while developing a more sustainable and good mobile app. The model so developed can serve as a knowledge base in indexing, describing, promoting and ranking the mobile applications.

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JOB SATISFACTION AND ORGANIZATIONAL COMMITMENT IN INDIAN INFORMATION TECHNOLOGY INDUSTRY: AN EMPIRICAL STUDY

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ABSTRACT

Employees are attached to the job not the employer is gaining acceptance in the Indian Information Technology (IT) industry. Attrition is a major challenge but managements started accepting that as a fact. The human resource managements are focusing on transactional leadership rather than transformational leadership. Pay for the performance is the focus and management investments on initiatives to promote job satisfaction are taking back seat. The objective of the study is to find out if the employee job satisfaction is still relevant. The study is based on an online survey conducted. The participants are Information Technology professional working in Hyderabad. The analysis is done using SPSS 20.0. The correlations among job satisfaction, pay satisfaction, like the employer and intention to quit are studied. The employees with high job satisfaction also like their employer and their intention to quit is relatively less. Mostly employees are not satisfied with the pay. The Pay satisfaction may not result in employee retention. The factors that help employee job satisfaction are well established by earlier studies and managements have to focus on those factors. Pay is a hygiene factor and essential for employee retention, but not sufficient. Information Technology employees still love their employer in India and likely to stay with the employer they like.

KEYWORDS

Attrition, Job Satisfaction, Pay Satisfaction, Employer, IT Industry etc.

Abbreviations

CS: Customer Support
IT: Information Technology
PMIPCC: Project Management Institute Pearl City Center
SI: Systems Integration

INTRODUCTION

“Love the job but not the organization” is the modern mantra advocated by Indian IT icon, Sri. N.R. Narayana Murthy of INFOSYS. Traditionally organizational love and job satisfaction are the keys to retain the employees. Time has changed many concepts and human psychology. However, the question is whether employees have become so dispassionate. Do they opt for a change even if they love the organization? Does the employee look for opportunities outside the organization in spite of having job satisfaction? How much of focus managements have to give for the employee job satisfaction? Attrition is still a major concern for IT industry. Organizations are adapting many initiatives to retain the talent. The main theme in many IT firms is performance based pay. The theme is based on the concept that “Pay them well and they will stay, otherwise they look for avenues outside”. There is a need to validate this concept. We would like to examine the job satisfaction, pay satisfaction and attrition in Indian IT industry. We have conducted a survey on these aspects and conducted quantitative analysis. The findings are presented in this article.

REVIEW OF THE LITERATURE

Attrition: Attrition is a major concern for majority of IT firms in India (Choi Sang Long, 2014; Tustin Nupur, 2010.) Attrition may be desired to weed out black sheep but certainly harmful beyond certain point. (Meier J Kenneth, 2007) The statement that “Attrition is a fact of life and the growth of IT industry is causing the attrition” is a myth. The attrition is not correlated with the industry growth or firm growth. (Akella Sastry, 2016) The reasons for attrition are attributed to many aspects of human resource management namely pay, career growth, training, educational opportunities, recognition and supervisor support. (Sindhu Shikha, 2014; K Usha, 2013; Gupta Sangeeta, 2011, Priya, 2011) Positive job attitude, job satisfaction and supervisor support help the management in employee retention. (Borman D Geoffrey, 2008; A Pandu, 2012) Supervisor can control job dissatisfaction, lack of commitment and stress to reduce intention to quit. (Agrawal promila, 2011; Gosh Koustab, 2011; Firth Lucy, 2004).

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Job Satisfaction: Job satisfaction is to be included in human resource management studies in spite of well-established fact by many studies that job satisfaction is positively related to employee performance. (Judge A Timothy, 2001) Job satisfaction is highly correlated with intention to quit. (Gann Niharika, 2011; Tett P Robert, 1993) Fair and skilled job assignments have positive effect on employee job satisfaction (Punia B K, 2008) Workload, stress and fatigue causes' job dissatisfaction. Relations with supervisor as well as job assignment influence work environment. (Johri Rajeev, 2015) Resource availability, task autonomy and social support are positively related to work satisfaction. (Anja Van den Broeck, 2010) Clearly, the factors responsible for job satisfaction are dependent on organizational environment. Job satisfaction influences Organizational citizenship behavior by mediating employee personality traits. (Ilies Remus, 2009).

Pay for Performance: Employee recruitment as well as retention can be achieved by proper compensation. (S Poornima, 2013; Ritter, 1997) It is also stated that pay for performance is second best option, and not sufficient. (Bertelli M Anthony, 2005) Many times employees are not convinced that the link between pay and performance is properly established. (Wright E Bradley, 2012; Perry L James, 2006) In Indian IT industry, most of the firms are imposing bell curve in performance rating and neither managers nor employees are happy with fitting the employees into some predefined pattern. (Sanyal MK, 2014).

NEED AND IMPORTANCE OF STUDY

Attrition control is placed very high on the corporate agenda. Job satisfaction and attrition control are influenced by similar factors. Traditionally it is believed that job satisfaction results in employee commitment to the organization. If the employees do not believe in organizational commitment but only love their job then the job satisfaction has no relation with employee intention to quit. Even if employer is successful in ensuring job satisfaction, the employee may continue to leave the organization. Then the employee attrition may be entirely due to external reasons. Hence, the organizational initiatives may not have much effect on employee attrition. Employee may be leaving in spite of best efforts by managements. So far, the research suggests that managements have to focus both on employee job satisfaction and pay satisfaction in order to retain the employees. Earlier studies have indicated that job satisfaction ensure increase in performance and reduces attrition (Borman D Gefrey, 2008; A Pandu, 2012). It is found that Organizational citizenship behavior and job satisfaction are interrelated (Ilies Remus, 2009). There is an emphasis on work life balance (Johri Rajeev, 2015). There are many impediments for achieving employee job satisfaction compared with providing pay for performance (Ritter, 1997). It is essential to understand comparative effect of job satisfaction and financial rewards on employee attrition. Transaction leadership advocates rewarding desired performance, which has a short time, returns where as transformational leadership shows results in long term. Transactional leadership is not recommended for highly skilled work force like IT employees. (Paarlberg E Laurie, 2010) If employees have no organizational commitment, transactional leadership may be better option to get higher output from employees. Whereas, if job satisfaction and love for the organization ensures organizational commitment, managements have to focus on long term initiatives. The need is to understand the effect of job satisfaction and pay satisfaction on employee intention to quit. Based on the outcome of the study, the managements can fine-tune the human resource policies in Indian IT industry.

OBJECTIVES

- To determine the relation between employee attrition and job satisfaction.
- To determine the relation between employee attrition and pay satisfaction.
- To compare pay satisfaction, job satisfaction, attrition across role, nature of job and age groups.

HYPOTHESIS

The following hypotheses are tested in this study.

- H₁ - Employee job satisfaction reduces the intention to quit.
- H₂ - Employee pay satisfaction reduces the intention to quit.
- H₃ - Employee intention to quit is same across all levels of employees.
- H₄ - Employee intention to quit is same across all nature of works.
- H₅ - Employee intention to quit is same across all age groups.

RESEARCH METHODOLOGY

The study is aimed at studying attrition, job satisfaction, love for the job and pay satisfaction. The study is conducted by way of online questionnaire. The survey instrument is prepared based on five point likert scale. Intention to quit is included as it is a better measure of attrition rather than actual attrition. The job satisfaction and pay satisfaction are directly included in the study as direct queries. The love for the organization is queried as "Do you like the employer?" and the variable is named as like employer. The job satisfaction, pay satisfaction, intention to quit and like employer are measured on likert scale. The demographic variables captured are role, nature of job and age. The target population is employees working in IT industry. We have selected PMIPCC

members as our sample frame. PMIPCC members are having at least five years of experience and are career oriented. Employees working in any industry located in Hyderabad can join as PMIPCC members. The online survey request is mailed to around thousand members. Only the IT industry employees are requested to participate in the survey. We have received 95 responses but considered only 72 responses. The remaining responses are ignored due to inadequacy of data. The sample has adequate representation from team leaders, project managers and senior managers. The representation of Employees working in application software development, infrastructure management and IT enables services is adequate. Thus, the sample has adequate representation from IT industry. The statistical tool used is SPSS20.0 from IBM. The methods used are one way ANNOVA for comparison and bivariate analysis for correlation.

RESULTS AND DISSCUSSIONS

The data is subjected to statistical analysis using SPSS 20.0. The Pearson as well Spearman correlation coefficients among variables is calculated. The comparison is done using ANNOVA. The descriptive statistics are given below in Table 1.

Table-1: Descriptive Statistics

	Mean	Std. Deviation	N
Job Satisfaction	3.46	1.074	72
Intention to Quit	3.32	1.161	72
Like Employer	3.85	1.044	72
Pay Satisfaction	2.76	.971	72

Sources: Authors Compilation

The job satisfaction and like employer have values higher than neutral value. Even intention to quit is higher than neutral value. Only pay satisfaction is below neutral indicating that employees are not satisfied with the pay in general. Before analyzing the means, let us examine the correlations.

Correlations: We have examined the correlations at 90% confidence level with 2-tiled test. We have calculated both Pearson correlation coefficient and Spearman correlation coefficient. The correlation coefficients lie between 0 and 1 and the values nearer to 1 indicate very high correlation and the values near to 0 indicate very low correlation. The values above 0.5 are considered as correlated and values below 0.5 are considered as not correlated. The negative value of correlation coefficient indicates inverse correlation. The correlation coefficients are given in Table 2 below.

Table-2

Variable1	Variable 2	Pearson Coefficient	Spearman Coefficient	Remarks on Correlation
Job Satisfaction	Like Employer	0.742	0.753	High
Job Satisfaction	Intention to Quit	-0.662	-0.670	High
Job Satisfaction	Pay Satisfaction	0.564	0.608	Above average
Like Employer	Intention to Quit	-0.668	-0.663	High
Like Employer	Pay Satisfaction	0.534	0.536	Above average
Pay Satisfaction	Intention to Quit	-0.457	-0.438	Below average

Sources: Authors Compilation

Job satisfaction and like employer are positively and highly correlated. The correlation between pay satisfaction and job satisfaction is also positive but above average. Pay satisfaction and like employer are correlated above average. This indicates employees love the organization if they are satisfied with the job. Pay satisfaction also results in the employee liking the employer.

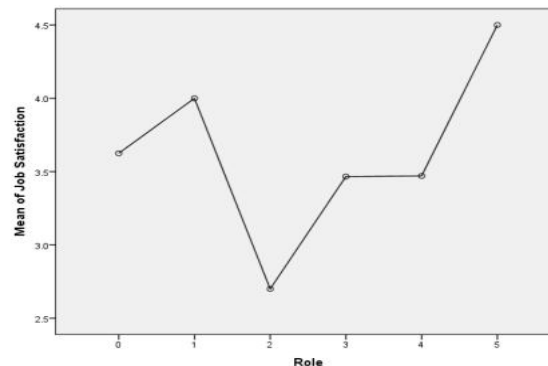
Job satisfaction, like employer and pay satisfaction are negatively correlated with intention to quit. Increase in job satisfaction/pay satisfaction /like employer results in decrease of intention to quit. Correlation coefficients for job satisfaction and intention to quit are above 0.65 indicating that job satisfaction considerably reduces intention to quit. We have statistical evidence that hypothesis 1 H1 is true.

Pay satisfaction is correlated with job satisfaction and like employer. The correlation coefficients are above 0.5. The correlation is positive and above average. This clearly shows that increase in pay increases job satisfaction. The correlation coefficients between pay satisfaction and intention to quit are below 0.5 indicating that the correlation is weak and below average. We can conclude that pay raise decrease the intention to quit but not substantially. We could not find strong statistical evidence that hypothesis 2 H2 is true.

All the four variables have been analyzed using one way ANOVA. The comparison is done based on roles assigned, nature of jobs and age groups. The roles considered are team member, team leader, project manager, senior manager, top management and other support services. The age groups formed are 20 to 30, 31 to 40, 41 to 50 and 51 to 60. The SPSS output results are given in Annexure I. The statistics based on roles are given in Table 3 and Table 4 of Annexure I. The analysis statistics based on nature of work are given Table 5 and Table 6 of Annexure I. The statistical output for age group wise is given in Table 7 and Table 8 of Annexure I.

Job Satisfaction: The job satisfaction has a mean of 3.46 indicating that employees are satisfied with their job. The Graph 1 shows relation of job satisfaction with the role.

Graph-1: Job Satisfaction vs. Role

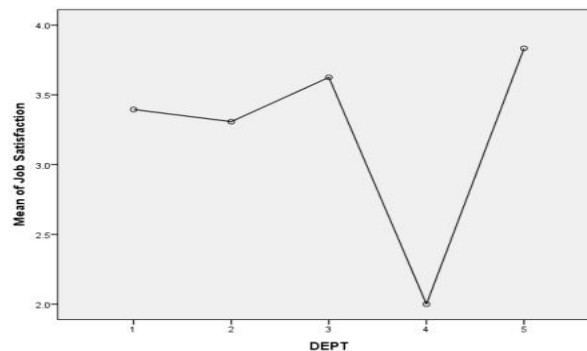


Sources: Authors Compilation

Note: 1 – Team Member; 2 – Team Leader; 3 – Project Manager; 4 – Senior Manager; 5 – Top Management; 0 - Others

The F value for Job satisfaction across roles is 2.091(d.f. between groups 5, d.f. within groups is 66) and is less than critical value of F value (2.37 for $\alpha = 0.05$). There is no significant difference in job satisfaction across roles statistically. The job satisfaction varies from 2.7 to 3.47 for team leaders, project managers and senior managers. The team members and top management have no significant effect on the analysis. The job satisfaction graph for nature of work wise is given Graph 2 below:

Graph-2: Job Satisfaction vs. Department (Nature of Job)



Sources: Authors Compilation

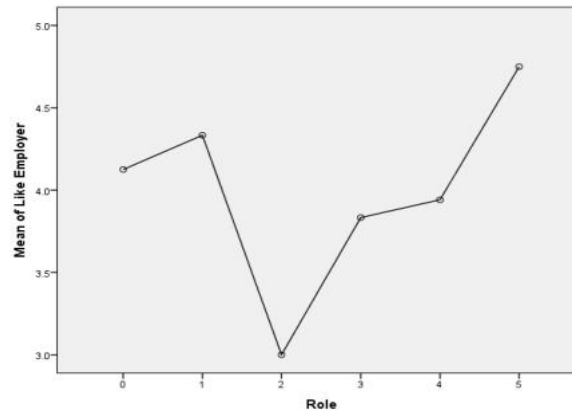
Note: 1 – Application S/W development/ SI; 2 – Infrastructure management/ CS; 3 – IT Enabled services; 4 – Education and Training; 5 – Support services

The F value for job satisfaction across nature of job is 0.971 which is less than critical value of F (2.53, $\alpha = 0.05$, $df_1=4$, $df_2 = 67$). The job satisfaction has no significant difference across various natures of jobs. The job satisfaction varies from 3.31 to 3.83 excluding education & training area of working. The job satisfaction varies from 3.35 to 4.0 between age groups (Table 7). The difference between age groups is not significant. The job satisfaction does not vary with the role or area of working or with age group. The employee job satisfaction is above average.

Like Employer: The mean for like the employer is 3.85, which is higher than job satisfaction. The calculated F value for like the employer for comparison across roles is 2.406 which is more than critical value of F (2.37, $\alpha = 0.05$). Hence, the employee liking for the employers varies based on the roles assigned to them. The mean for like employer varies from 3.0 to 3.94 for team leaders, project managers and senior managers. Team leaders have lowest value for like employer.

The graph 3 below shows the like the employer across the roles.

Graph-3: Like Employer vs. Role



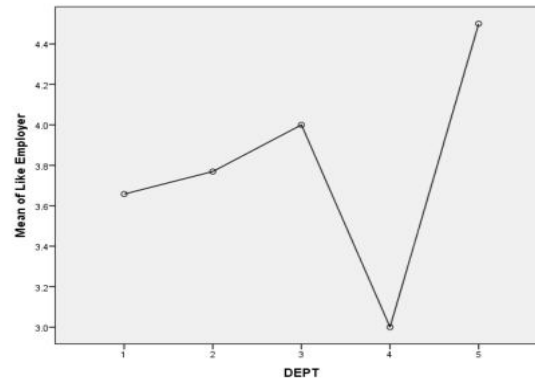
Sources: Authors Compilation

Note: 1 – Team Member; 2 – Team Leader; 3 – Project Manager; 4 – Senior Manager; 5 – Top Management; 0 – Others

The F value for like the employer across the nature of job is 1.788, which is less than critical F value. There is no difference in liking based on nature of job. The mean of like employer varies from 3.66 to 4.5 and statistically same across areas of working. Education & training has no effect on statistics because of inadequate representation.

The graph 4 shows the employee liking across various natures of jobs.

Graph-4: Like Employer vs. Department (Nature of Job)



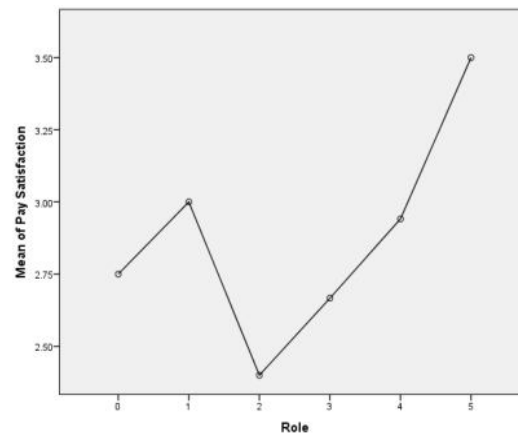
Sources: Authors Compilation

Note: 1 – Application S/W development/ SI; 2 – Infrastructure management/ CS; 3 – IT Enabled services; 4 – Education and Training; 5 – Support services

The mean varies from 3.80 to 4.40 across age groups and the difference is not statistically significant. The mean value for like the employer does not vary with age or area of working, but varies with the role assigned.

Pay Satisfaction: The mean of pay satisfaction is 2.76 indicating that employees are generally not satisfied with pay. The calculated F value for pay satisfaction across roles is 0.946, which is less than critical value. The pay satisfaction across roles is same and employees are not satisfied with their pay. The graph 5 below shows Pay satisfaction across roles.

Graph-5: Pay Satisfaction vs. Role

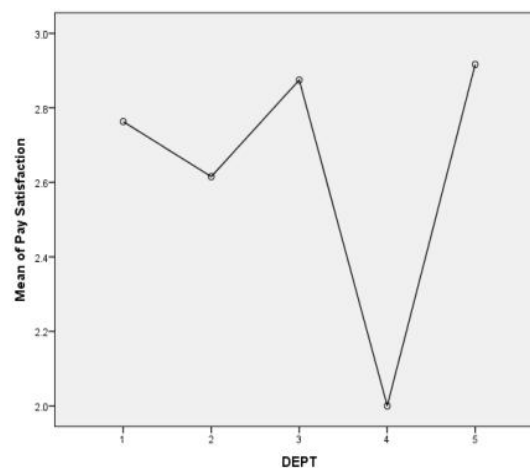


Sources: Authors Compilation

Note: 1 – Team Member; 2 – Team Leader; 3 – Project Manager; 4 – Senior Manager; 5 – Top Management; 0 - Others

The calculated F value across various natures of job is 0.318, which is less than critical value. The mean for pay satisfaction is statistically same across various jobs. The Graph 6 shows the pay satisfaction across nature of jobs.

Graph-6: Pay Satisfaction vs. Department (Nature of Job)



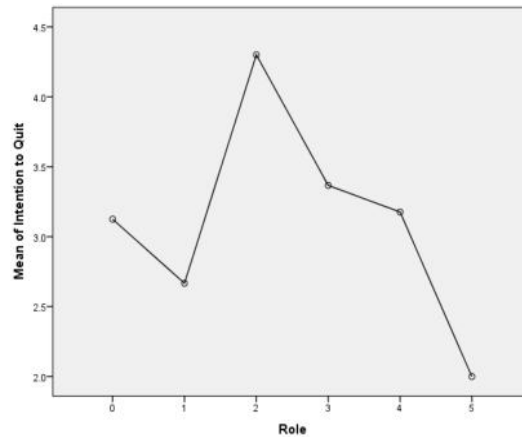
Sources: Authors Compilation

Note: 1 – Application S/W development/ SI; 2 – Infrastructure management/ CS; 3 – IT Enabled services; 4 – Education and Training; 5 – Support services

The pay satisfaction varies from 2.71 to 3.2 and statistically same across age groups. We can conclude that employee satisfaction is neutral across age groups. Thus, employee pay satisfaction is not related to role, job, or age group.

Intention to Quit: The mean for intention to quit is 3.32 indicating that more people are planning to quit. The graph 7 shows the mean value for different roles.

Graph-7: Intention to Quit vs. Role



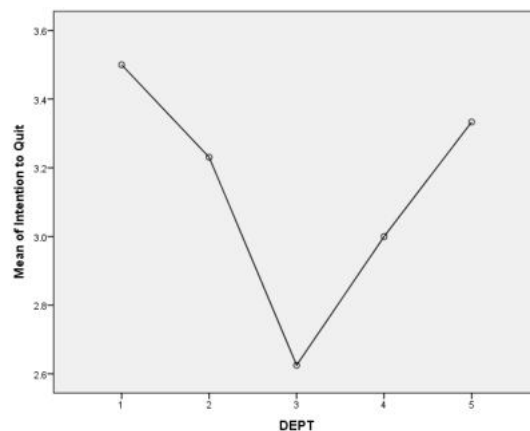
Sources: Authors Compilation

Note: 1 – Team Member; 2 – Team Leader; 3 – Project Manager; 4 – Senior Manager; 5 – Top Management; 0 – Others

The calculated F value for intention to quit is 3.181 which is more than critical F value of 2.37 for $\alpha = 0.05$. The intention to quit is not same across roles. Intention to leave fast is more in team leaders. As employee grows up the ladder, intention quit decreases. Intention to quit is low in top management. The hypothesis 3 H3 is not true.

The F value for intention to quit across nature of jobs is 0.983, which is lower than critical F value 2.53. The mean for intention to quit across natures of jobs is statistically same. The Graph 8 shows the means for various IT areas of work.

Graph-8: Intention to Quit vs. Department (Nature of Job)



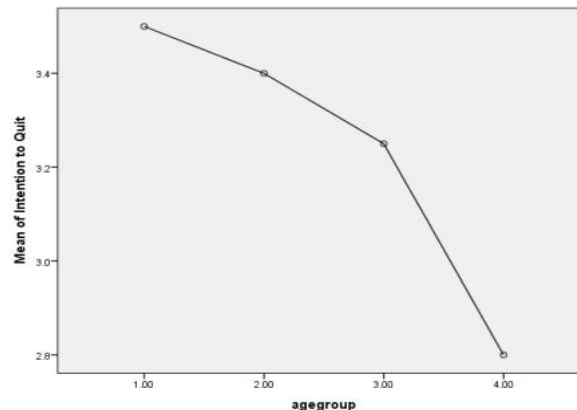
Sources: Authors Compilation

Note: 1 – Application S/W development/ SI; 2 – Infrastructure management/ CS; 3 – IT Enabled services; 4 – Education and Training; 5 – Support services

The intention to quit varies from 2.63 to 3.5. The graph shows intention to quit is low for IT enabled services. However, statistically, the mean for intention to quit across different work areas is same. There is statistical evidence that hypothesis 4 H4 is true.

Intention to quit across age groups is also subjected to one way ANNOVA. The Graph 9 shows intention to quit across age groups.

Graph-9: Intention to Quit vs. Age Group



Sources: Authors Compilation

Note: Age group 1 – 20 to 30; Age group 2 – 31 to 40; Age Group 3 – 41 to 50; Age Group 4 – 51 to 60

The calculated F value is 0.435, which is lower than critical F value of 2.76 for $\alpha = 0.05$. The mean value of intention to quit varies from 2.8 to 3.5. The value of intention to quit is decreasing with age. Statistically the difference in values is not significant. The intention to quit is more than neutral value and it across age groups. The hypothesis H5 is statistically true.

FINDINGS

Job satisfaction and like employer are highly correlated. If employee has job satisfaction, employee likes/ loves the organization. The intention to quit is inversely correlated to job satisfaction. Employees with high job satisfaction are less likely to leave the organization. Pay satisfaction and job satisfaction are also correlated. Increase in pay increases job satisfaction as well as love for employer, but moderately. Pay satisfaction also decreases the intention to quit but the effect is low. The job satisfaction helps the managements to retain the employees. Job satisfaction does not depend on the role assigned or nature of work or age group. Employee's love for employer does not depend on role and age group but varies with nature of work. Pay satisfaction has no relation with role assigned or nature of work or age group. Employees are mostly not satisfied with pay. Intention to quit is more in middle level employees. Intention to quit does not vary with age or nature of work. Employees are more inclined to change the job.

CONCLUSION

Recommendations and Suggestions: Managements have to focus on employee job satisfaction. Job satisfaction ensures employee continuity. Employee's pay is a hygiene factor and does not help in retaining the employee. Managements have to provide adequate compensation to all the employees. Managements have to take human resource initiatives to retain the employees by focusing on factors like proper job assignment, training, support the employees with proper tools and work environment. Transactional leadership may not help in retaining talent, but transformational leadership helps in employee organizational commitment.

Limitations: The study has adapted survey method and results are dependent on self-reporting. The usual limitation of all such studies applies to this study also. The sample is from PMI members and they are working in multiple organizations. The study does not consider individual organizational factors. The female population in IT industry is significant but our sample does not have adequate female sample. Our sample consists of employees of more than 5 years of experience and hence no adequate representation from team members. The majority of the sample belongs to age group from 30 to 50 years. In addition, the sample does not have employees working in education and training.

Scope for Future Research: The future research should consider conducting the study organization wise across the country. The study can include other factors that help in job satisfaction to understand the relation in-depth. The future research should have sample from all age groups and areas of working.

Conclusion: There is a growing trend of job-hopping in the IT industry. Except employees in the top management, most of the employees have intentions to change. At the same time, increasing job satisfaction decreases the attrition. Management can focus human resource initiative to increase employee commitment.



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ANNEXURE

Table-3: Descriptives (Role)

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Pay Satisfaction	0	8	2.75	1.389	.491	1.59	3.91	1	5
	1	3	3.00	0.000	0.000	3.00	3.00	3	3
	2	10	2.40	1.075	.340	1.63	3.17	1	4
	3	30	2.67	.959	.175	2.31	3.02	1	4
	4	17	2.94	.827	.201	2.52	3.37	2	4
	5	4	3.50	.577	.289	2.58	4.42	3	4
	Total	72	2.76	.971	.114	2.54	2.99	1	5
Job Satisfaction	0	8	3.63	1.188	.420	2.63	4.62	1	5
	1	3	4.00	0.000	0.000	4.00	4.00	4	4
	2	10	2.70	1.418	.448	1.69	3.71	1	5
	3	30	3.47	.900	.164	3.13	3.80	1	5
	4	17	3.47	1.068	.259	2.92	4.02	1	5
	5	4	4.50	.577	.289	3.58	5.42	4	5
	Total	72	3.46	1.074	.127	3.21	3.71	1	5
Like Employer	0	8	4.13	.835	.295	3.43	4.82	3	5
	1	3	4.33	.577	.333	2.90	5.77	4	5
	2	10	3.00	1.247	.394	2.11	3.89	1	4
	3	30	3.83	.913	.167	3.49	4.17	2	5
	4	17	3.94	1.144	.277	3.35	4.53	2	5
	5	4	4.75	.500	.250	3.95	5.55	4	5
	Total	72	3.85	1.044	.123	3.60	4.09	1	5
Intention to Quit	0	8	3.13	.641	.227	2.59	3.66	2	4
	1	3	2.67	.577	.333	1.23	4.10	2	3
	2	10	4.30	1.059	.335	3.54	5.06	2	5
	3	30	3.37	1.189	.217	2.92	3.81	1	5
	4	17	3.18	1.074	.261	2.62	3.73	1	5
	5	4	2.00	1.155	.577	.16	3.84	1	3
	Total	72	3.32	1.161	.137	3.05	3.59	1	5

Sources: Authors Compilation

Note: 1 – Team Member; 2 – Team Leader; 3 – Project Manager; 4 – Senior Manager; 5 – Top Management; 0 – Others

Table-4: ANOVA (Role)

		Sum of Squares	df	Mean Square	F	Sig.
Pay Satisfaction	Between Groups	4.478	5	.896	.946	.458
	Within Groups	62.508	66	.947		
	Total	66.986	71			
Job Satisfaction	Between Groups	11.198	5	2.240	2.091	.077
	Within Groups	70.677	66	1.071		
	Total	81.875	71			
Like Employer	Between Groups	11.920	5	2.384	2.406	.046
	Within Groups	65.400	66	.991		

	Total	77.319	71			
Intention to Quit	Between Groups	18.574	5	3.715	3.181	.012
	Within Groups	77.079	66	1.168		
	Total	95.653	71			
critical F =	2.37	$\alpha=0.05$				

Sources: Authors Compilation

Table-5: Descriptives (Nature of Job)

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Pay Satisfaction	1	38	2.76	1.051	.170	2.42	3.11	1	5
	2	13	2.62	1.044	.290	1.98	3.25	1	4
	3	8	2.88	.641	.227	2.34	3.41	2	4
	4	1	2.00					2	2
	5	12	2.92	.900	.260	2.34	3.49	1	4
	Total	72	2.76	.971	.114	2.54	2.99	1	5
Job Satisfaction	1	38	3.39	1.128	.183	3.02	3.77	1	5
	2	13	3.31	1.251	.347	2.55	4.06	1	5
	3	8	3.63	1.061	.375	2.74	4.51	2	5
	4	1	2.00					2	2
	5	12	3.83	.577	.167	3.47	4.20	3	5
	Total	72	3.46	1.074	.127	3.21	3.71	1	5
Like Employer	1	38	3.66	1.122	.182	3.29	4.03	1	5
	2	13	3.77	.927	.257	3.21	4.33	2	5
	3	8	4.00	.926	.327	3.23	4.77	3	5
	4	1	3.00					3	3
	5	12	4.50	.798	.230	3.99	5.01	3	5
	Total	72	3.85	1.044	.123	3.60	4.09	1	5
Intention to Quit	1	38	3.50	1.059	.172	3.15	3.85	2	5
	2	13	3.23	1.166	.323	2.53	3.94	1	5
	3	8	2.63	1.408	.498	1.45	3.80	1	4
	4	1	3.00					3	3
	5	12	3.33	1.303	.376	2.51	4.16	1	5
	Total	72	3.32	1.161	.137	3.05	3.59	1	5

Note: 1 – Application S/W development / SI; 2 – Infrastructure management / CS; 3 – IT Enabled services; 4 – Education and Training; 5 – Support services

Sources: Authors Compilation

Table-6: ANOVA (Nature of Job)

		Sum of Squares	df	Mean Square	F	Sig.
Pay Satisfaction	Between Groups	1.249	4	.312	.318	.865
	Within Groups	65.737	67	.981		
	Total	66.986	71			
Job Satisfaction	Between Groups	4.485	4	1.121	.971	.429
	Within Groups	77.390	67	1.155		
	Total	81.875	71			
Like Employer	Between Groups	7.459	4	1.865	1.788	.141
	Within Groups	69.860	67	1.043		
	Total	77.319	71			
Intention to Quit	Between Groups	5.303	4	1.326	.983	.423
	Within Groups	90.349	67	1.348		
	Total	95.653	71			
Critical F		2.53	$\alpha = 0.05$			

Sources: Authors Compilation

Table-7: Descriptives (Age Group)

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Pay Satisfaction	1.00	2	3.00	0.000	0.000	3.00	3.00	3	3
	2.00	45	2.71	.968	.144	2.42	3.00	1	4
	3.00	20	2.75	1.070	.239	2.25	3.25	1	5
	4.00	5	3.20	.837	.374	2.16	4.24	2	4
	Total	72	2.76	.971	.114	2.54	2.99	1	5
Job Satisfaction	1.00	2	4.00	0.000	0.000	4.00	4.00	4	4
	2.00	45	3.42	1.097	.164	3.09	3.75	1	5
	3.00	20	3.35	1.040	.233	2.86	3.84	1	5
	4.00	5	4.00	1.225	.548	2.48	5.52	2	5
	Total	72	3.46	1.074	.127	3.21	3.71	1	5
Like Employer	1.00	2	4.00	0.000	0.000	4.00	4.00	4	4
	2.00	45	3.80	1.120	.167	3.46	4.14	1	5
	3.00	20	3.80	.951	.213	3.35	4.25	2	5
	4.00	5	4.40	.894	.400	3.29	5.51	3	5
	Total	72	3.85	1.044	.123	3.60	4.09	1	5
Intention to Quit	1.00	2	3.50	.707	.500	-2.85	9.85	3	4
	2.00	45	3.40	1.250	.186	3.02	3.78	1	5
	3.00	20	3.25	.967	.216	2.80	3.70	1	5
	4.00	5	2.80	1.304	.583	1.18	4.42	1	4
	Total	72	3.32	1.161	.137	3.05	3.59	1	5

Note: Age group 1 – 20 to 30; Age group 2 – 31 to 40; Age Group 3 – 41 to 50; Age Group 4 – 51 to 60

Sources: Authors Compilation

Table-8: ANOVA (Age Group)

		Sum of Squares	df	Mean Square	F	Sig.
Pay Satisfaction	Between Groups	1.192	3	.397	.411	.746
	Within Groups	65.794	68	.968		
	Total	66.986	71			
Job Satisfaction	Between Groups	2.347	3	.782	.669	.574
	Within Groups	79.528	68	1.170		
	Total	81.875	71			
Like Employer	Between Groups	1.719	3	.573	.516	.673
	Within Groups	75.600	68	1.112		
	Total	77.319	71			
Intention to Quit	Between Groups	1.803	3	.601	.435	.728
	Within Groups	93.850	68	1.380		
	Total	95.653	71			
Critical F		2.76	$\alpha = 0.05$			

Sources: Authors Compilation

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APPLICATIONS OF INFORMATION TECHNOLOGY FACTORS IN UNORGANIZED RETAIL SECTOR: AN EMPIRICAL STUDY

Chetipelly Suhakar⁴³ Chette Srinivas Yadav⁴⁴ Dr. D. Harikanth⁴⁵

ABSTRACT

This study is conducted with an objective to check information technology application in unorganized retail sector in India. Data collected through structured questionnaires by giving to 170 retailers of which 50 retailers were using IT. Data analysis is done through factor analysis with help of 50 samples in the sector. The study found that factors viz., Inventory Management, Working Capital Management, Accounting and auditing and Personnel management have significant relationship. The findings and implication are discussed.

KEYWORDS

Retail Sector, Un-Organized Retail Sector, Information Technology, Computerization etc.

INTRODUCTION

The word "Retail" originates from a French-Italian word “*retailier*” which means to break bulk. Retailing is the set of activities that markets products or services to final consumers for their consumption. They buy in relatively large scale and supplying them to customers on a relatively small scale. Retailing is the last stage in the movement of goods and services to the consumer. Retail therefore consists of all activities involved in the marketing of goods and services directly to the consumers for their personal, family or domestic use. Retailer is a person, Agent, Agency, Company, or Organization who is instrumental in reaching the goods, merchandise, or services to the end user or the ultimate consumer. Retailing involves all activities incidental to selling to ultimate consumer or the end user. The retail industry in India exists in multi-fold organized (Modern) and unorganized retailing (traditional).

Sternquist (2007) defined traditional retail as consisting of small and independent stores in a system characterized by fragmented markets, long channels (i.e., path products take from the manufacturer to retailer), geographical competition, limited product variety, flexible prices with bargaining (i.e., prices are not fixed and a better deal can be reached through haggling), and informal credit (i.e., credit extended by the small retailer itself). Whereas, contemporary retail (organized) refers to Western retail formats that are operated by corporate and modern management techniques (Mann & Byun, 2011). In 2006, unorganized retailing accounted for 96% of the total Indian retail, and the organized (non-traditional) retail sector accounted for the remaining 4% (Kaur & Singh, 2007). The Indian retail industry has received global attention as an outgrowth of an emerging economy going through significant change (Sinha & Kar, 2007). India is booming economy significantly contributes to the growth of organized retailing in India. Changing governmental policy also has an impact on the growth of organized retail (Ghosh, Ray, & Shah, 2011). Organized retailing in India is growing rapidly, and it is expected to capture 20% of the country's retail market by 2020 (“Retail Global,” 2011), a marked increase from the present 7.5% (“Pulse of Indian Retail,” 2014). In particular, growth in the number of shopping malls is inevitable as they provide better shopping experiences desired by today's Indian consumers (Saraf, 2005).

In India, the most of the retail sector is unorganized. In India, the retail business contributes around 11 percent of GDP. Of this, the organized retail sector accounts only for about 4 percent share, and the left over share is contributed by the unorganized sector, which is mostly a family owned business in India. The major challenge facing the organized sector is the competition from unorganized sector. Unorganized retailing has been there in India for centuries, these are named as mom-pop stores. The major advantage in unorganized retailing is consumer familiarity that runs from generation to generation. It is a low cost structure; they are mostly operated by owners, has very low real estate and labour costs and has low taxes to pay.

The usage of computers, information technology (IT) and computer systems applications in functional areas of business enterprises is now a commonplace. The recent times application oriented Web-based technology, information & telecommunication technology has force to increase the capabilities, operational efficiency, human affiance and overall efficiency in the organization as a whole. The most common information technology (IT) applications are keeping accounting transaction records (such as a cash receipts journal, receivables ledger, and general journal) and preparing statement and reports.

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**Advantages of IT Applications in Retailing Sector**

Ang and Pavi (1994) they opined that IT affects at three level firstly at individual level, secondly at organizational level and finally societal level.

- Consumers can also gain advantages from computerization as they have access to product information that can be used to support purchasing decisions.
- It takes away the tedious time-consuming jobs and allows retailers to provide certain services to customers in a lesser amount of time.
- To compete with local and global competitors in terms of cost efficiency and labour productivity.
- It could be stated that computerization is essential in retail sales and helps our society work more efficiently and cost effectively.

RESEARCH QUESTION

Do retailers in unorganized sector use Information technology? If yes, what are the areas of applications? What its impact on organization?

RESEARCH METHODOLOGY

Need for Study: The study is conducted to know IT application in functional areas of unorganized retail sector and its efficiency on operations.

Objectives of Study: The Impact of information technology factors in unorganized retail sector in India.

Study Site: The study is conducted at Jagital district of telangana state of India.

Nature of study: Nature of study is purely explorative and conclusive in nature.

Data Collection Method: The study considers primary data as well as secondary data. A primary source was collected through structured questionnaires and secondary sources through website, textbooks and journals.

The Questionnaire Development: A polite study is conducted and questionnaires are developed through interaction with local retailers and experts in the market. Questionnaires are designed under three stages, first and second are closed in and thirdly an open ended. First part of questionnaire is general questions related to nature of business, ownership structure, personnel position, usage of IT or not. Second part of the questionnaire is of application of IT factors impact on their organization. Final part of questionnaire is open ended.

Operational Definition of Unorganized Retailers: Unorganized retailers for the study have to meet below criteria:

- Sole trade concern,
- Partnership firm (Unregistered),
- Local presence,
- Single Branch in local area.

The Sample Nature: The samples of the study are 170 retailers of which 50 are unorganized retailers were IT Users.

Sampling Procedure: The samples are selected based on convenient and cooperation of people within specified strata.

The Field Work: The questionnaires are given to retailers in Jagital District (Jagital Town, Korutla, Metpelli and Raikal) and interviews were conducted.

Statistical Tools: The study considers descriptive statistic, factor analysis (KMO and Bartlett's Test) and Reliability and Validity test.

Period of Study: The survey is conducted during June 2016 to September 2016.

Limitation of the Study: Study conducted in jagital dist and with limited sample of unorganized sector only.

DATA ANALYSIS AND INTERPRETATION

Table-1: Showing IT User in Various Sectors and Ownership Structure

Sector	IT user	Non-IT users	Sole (IT Users)	Partnership (IT Users)
Textiles & Apparel	10	20	9	1
Book shops	2	8	2	0
Pharmaceuticals	9	22	8	1
Fancy Shop & Gift Shops	4	8	4	0
Fashion shops	3	22	2	1
Grocery Stores:			20	2
a. Kirana Shop				
b. Small society shop				
c. Departmental stores				
d. Super Market				
e. Malls	22	40		
Total	50	120	45	5

Sources: Authors Compilation

Table-2: Showing Various Areas of Applications

Code	Measures	Mean	Std. Deviation	Total	% of Variance	Cumulative %
X1	Check Stock Level	3.88	.746	10.358	47.082	47.082
X2	Fast, slow and Non-moving stock	3.52	.762	2.247	10.213	57.295
X3	Inventory Audit	3.58	.702	1.712	7.783	65.078
X4	Stock Report	3.74	.723	1.440	6.545	71.623
X5	Control inventory	3.68	.653	1.183	5.377	77.000
X6	Closing stock	3.90	.763	.940	4.271	81.270
X7	Pricing	3.70	.707	.700	3.184	84.454
X8	Cash Balance	3.86	.833	.642	2.920	87.375
X9	Cash Sales	3.42	.835	.528	2.401	89.776
X10	Credit Sales	3.54	.613	.461	2.095	91.871
X11	Credit Purchase	3.70	.735	.379	1.724	93.595
X12	Sales Forecasting	3.50	.614	.291	1.321	94.917
X13	Maintain Accounts	3.80	.808	.256	1.162	96.079
X14	Auditing	3.80	.606	.203	.922	97.001
X15	Tax Liability	3.82	.919	.152	.691	97.691
X16	Consolidation of Accounts	3.48	.886	.126	.572	98.264
X17	Profit or Losses Position	3.52	.505	.114	.520	98.784
X18	Billing	3.68	.741	.089	.405	99.188
X19	Attend More Customer	3.62	.567	.066	.299	99.487
X20	Reduces Waiting Time	3.86	.783	.053	.240	99.727
X21	Reduces Physical Stress & Tyranny	3.80	.670	.033	.152	99.879
X22	Smooth Working Conditions	3.54	.646	.027	.121	100.000

Sources: Authors Compilation

Table-3: Showing Factors with Mean, Standard Deviation, Alpha and Significances

S. No.	Factor Name	Mean	Standard Deviation	Cronbach's Alpha	F	Sig	Variables
1	Inventory management	26	3.714	0.857	3.541	0.002	7
2	Working capital management	14.52	2.460	0.825	6.910	.00001	4
3	Accounting and auditing	14.90	2.468	0.753	3.562	0.016	5
4	Customer Relationship management	7.54	1.328	0.683	2.899	0.095	2
5	Personnel management	14.46	1.809	0.696	3.555	0.016	4
Total	Overall	80.94	10.809	0.944	3.691	0.00001	22

Sources: Authors Compilation

Table-4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.779
Bartlett's Test of Sphericity	Approx. Chi-Square	998.427
	Df	231
	Sig.	.000

Sources: Authors Compilation

Table-5: Loading of Selected Variables on Key Factors (Loading Criteria >0.5)

Code	Measures	Factor-I	Factor-II	Factor-III	Factor-IV	Factor-V
X1	Check Stock level	0.780				
X2	Fast, slow and Non- moving stock	0.619				
X3	Inventory Audit	0.668				
X4	Stock Report	0.835				
X5	Control Inventory	0.700				
X6	Closing Stock	0.860				
X7	Pricing	0.860				
X8	Cash Balance		0.814			
X9	Cash Sales		0.839			
X10	Credit Sales		0.736			
X11	Credit Purchase		0.938			
X12	Sales Forecasting					0.641
X13	Maintain accounts			0.842		
X14	Auditing			0.647		
X15	Tax Liability			0.802		
X16	Consolidation of Accounts			0.739		
X17	Profit or Losses Position			0.805		
X18	Billing				0.860	
X19	Attend More Customer					0.747
X20	Reduces Waiting Time				0.812	
X21	Reduces Physical Stress & Tyranny					0.675
X22	Smooth Working Conditions					0.719

Sources: Authors Compilation

FINDINGS

The Kaiser-Meyers-Olkin test was done to measure the homogeneity of variables and Bartlett's test of sphericity was done to test for correlation among the variables used. The KMO value for the instrument was 0.779 and hence the factors analysis is appropriate for the given data set. Bartlett's test sphericity chi-square statistics is 998.427, which shows the 22 statements are correlated and hence the instrument was accepted for further study.

The factors of retention were large in number and were interrelated, factor analysis was done to extract and club the factors responsible for attrition. Principal components analysis was used for extraction and varimax for rotation. As per the Kaiser criterion, only factors with the Eigen values greater than one were retained (Kaiser.H.F1960). First four in the initial solution have Eigen values greater than one. Together, they account for almost 55% of variability in the original variables. There is a significant relationship between variables.

Factor 1: The name given to this factor is "Inventory Management". This consists of seven variable contributes which contributes mean of 26 and Standard deviation of 3.714% and factor loading is 0.76, greater than .55. Reliability of data is tested through Cronbach's alpha, value is 0.857 exceeding 0.7, is acceptable.

Factor 2: The name given to this factor is "Working Capital Management". This consists of four variables contributes mean of 14.52 and Standard deviation of 2.46 and factor loading is 0.83, greater than .55. Reliability of data is tested through Cronbach's alpha, value is 0.825 exceeding 0.7, is acceptable.

Factor 3: The name given to this factor is "Accounting and auditing". This consists of five variables contributes mean of 14.9 and Standard deviation of 2.46 and factor loading is 0.76, greater than .55. Reliability of data is tested through Cronbach's alpha, value is 0.75 exceeding 0.7, is acceptable.



Factor 4: The name given to this factor is "Customer Relationship management". This consists of two variables contributes mean of 7.54 and Standard deviation of 1.328 and factor loading is 0.83, greater than .55. Reliability of data is tested through Cronbach's alpha, value is 0.68 less than 0.7, is acceptable because overall value is 0.94 which more reliable.

Factor 5: The name given to this factor is "Personnel management". This consists of four variables contributes mean of 14.46 and Standard deviation of 1.80 and factor loading is 0.69, greater than .55. Reliability of data is tested through Cronbach's alpha, value is 0.69 less than 0.7, is acceptable since overall value is 0.94 which more reliable.

CONCLUSION

The study found that most of IT users were grocery stores. IT Users most of them were sole trader and having one retail outlet to meet local demand. Information technology application in un-organized retail sector in India, data collected through structures questionnaires by giving to 170 retailers of which 50 retailers were using IT. Data analysis is done through factor analysis with help of 50 samples in the sector.

The study found that factors viz., Inventory Management, Working Capital Management, Accounting and auditing, and Personnel management have significant relationship and data found to be reliable. Customer relationship management does not show significant relationship. Factor-II viz., working capital management has greater impact on retailers over other factors.

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A STUDY ON SOCIETIES PERCEPTION TOWARDS BPO WITH SPECIAL REFERENCE TO IT SECTOR OF CHENNAI

B. Padma Sri⁴⁶

INTRODUCTION

In this world, all human beings earn money to meet their own and their family's basic needs to live. The needs of the human beings in the developed world have been increased and they are numerous and every person has to work more to satisfy their needs. In earlier days the literacy rate was low and the vacancy for the jobs were high but it is vice versa in this recent situation where the literacy rate is high but the job vacancy for the educated people is very low. The recent trend in India is that the educated people are exported to the foreign countries due to the factors like the job offers, the presence of MNC's to enter in our country, the economy of the abroad country, etc. There is a high competition in every field, so everyone has to develop their skills and knowledge. Due to globalisation there are a lot of changes which is advantageous and also disadvantageous like placing an order or buying products from their any place through internet, communication with people who is in a long distance, paying the bills using mobiles or by other gadgets, etc. In ancient days human beings memorise all information and they will recall it whenever it is necessary but in this modern world it has been replaced by many electronic gadgets like computer, cell phone, etc. Information Technology (IT) deals with the computer hardware, software. Information technology is also known as "Information and Communications Technology (ICT)". It is a fast growing field where there is a lot of foreign investment. It is classified into four sectors like BPO sector, IT service, software products and engineering services and finally hardware services. This paper studies about the BPO sector among four sectors as mentioned above. Business Process Outsourcing (BPO) sector is a subset of outsourcing that involves the contracting of the operations and responsibilities of a specific business process to a third-party service provider. BPO is also known as ITES-BPO. BPO sector is the fast growing sector. BPO sector needs a lot of manpower for doing the work. It mainly deals with the customer or client's satisfaction. In this sector employees should enjoy to do their job then only the expected output can be attained otherwise the goal can't be attained. BPO is classified into Knowledge Process Outsourcing (KPO) and Legal Process Outsourcing (LPO). Knowledge Process Outsourcing (KPO) involves outsourcing of core functions which may or may not give cost benefit to the parent company but surely helps in value addition. Biotechnology, Research and Development (R&D), animation and design, etc are jobs available in KPO. KPO targets on new inventions which attracts more customers and rarely targets on cost welfare. Legal Process Outsourcing (LPO) means a corporation incurring the legal support services from an outside law firm or legal support services company. Every firm should have at least one legal expert who will solve abrupt problems using his knowledge in legal studies using the evidences (Company financial statement, document of contracts with other companies, etc).

OBJECTIVES OF STUDY

- To know the society's perception on BPO sector.
- To identify the Corporate Social Responsibility (CSR) in BPO sector.
- To study the services provided to the society in BPO sector.
- To analyse the need and the changes required in the future BPO sector.
- To suggest optimistic perception towards BPO sector.

NEED FOR STUDY

India is fast growing in service sector from all over the world in which the IT sectors are most profit producing sectors. This study is mainly conducted to get society's point of view about the BPO sector and also to know whether this sector respects the human or not. Engineering graduates are more and the vacancy for the job for them is very less and they are not doing the jobs which are not related to their field. Most of the students from arts, engineering are doing jobs in IT sectors for low pay, but at the same time the service sector contributes more to the GDP of our country and it stands first sector among three sectors.

LIMITATIONS

- The information's were collected through e-sources not collected from interviewing the respondents.
- The study deals only with BPO sector's nature, working, its advantages and disadvantages not with other sectors in Information Technology.

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REVIEW OF LITERATURE

Title: Women in the Work Place – BPO Industry.

Author: C. M. Sudha Arogya Mary.

Year: 2012

Abstract: Women are not only the backbone of nuclear and joint family but also the national economy. They are the fulcrum, foundation upon which the super edifice of any family and the economy built upon. The future of any economy with special reference to socio-economic, religious and cultural development of the family and the nation depends upon the women folk. There cannot be any two different opinions as to the personality of women. They always have an edge over others especially their counterpart via men. It is an acknowledged truth that women are the best. One of the appreciable, salient and worth mentioning point to accept by everybody is the preference and forbearance of women. Many have proved beyond doubt that women have the capability and the capacity to handle any issue / problem in a smooth and amicable way. For the BPO job women are the best to answer, clarify any query / doubt raised by the client by their sweet voice and polite way of putting things. Above all, recently Ms. Sunitha William has proved to the world that women are capable of achieving the goal. This paper tries to highlight the prospects and problems of women in their work place and the suitability of women for the BPO industry.

Title: Sexual Behavior among Unmarried Business Process Outsourcing Employees in Chennai: Gender Differences and Correlates Associated with It.

Author: Bimal Charles, Saumya Rastogi, Asirvatham Edwin Sam, Joseph D. Williams, Aarthi Kandasamy.

Year: 2016

Abstract: Premarital sex is often associated with high risk sexual behavior such as early age of initiation, multiple partners and inconsistent condom use. Evidence shows that such sexual behavior pre-disposes to sexually transmitted diseases including HIV. This paper tried to investigate the correlates of premarital sexual behavior among male and female business process outsourcing (BPO) employees to highlight the gender differences that exist in relation to it. Materials and Methods: Data were collected from 526 unmarried BPO employees during behavioural surveillance survey in Chennai, in the year 2009. The results showed that about one-third of respondents (males - 39.6%, females - 26.1%) had experienced premarital sex. Men reported having had their first sexual intercourse at 12 years and women at 16 years of age. While the prevalence of premarital sex was found to be high, the percentage using a condom during last sex was also high, especially, among the female employees (82.4%). Logistic regression showed that monthly individual income, work in shifts, migration, peer influence and friends with previous sexual experience were significant predictors of premarital sex among the male BPO employees. Visit to night clubs was significantly associated with a higher prevalence of premarital sex among the female employees. The study concludes that there is a significant gender dimension in the premarital sexual behavior among the BPO employees and that even as the sexual behavior of the young people is transitioning; their ability to negotiate safe sex behavior is also increasing. It is recommended to enhance efforts to advocate safe sex behavior among young adults employed in the BPO industry.

Title: Physical Illness faced by Women Employees Working in BPO Industry.

Author: P.Banu, V.Gomathi.

Year: 2014.

Abstract: BPO and IT industries are the fastest growing industries in India .Nowadays women are working almost in all types of professions which that there is no gender differences in their work. The educated women now find employment opportunities in BPO's and IT industries. It has been noticed that BPO is one of the industries, which has been witnessed a high scope for women and also helped them more. According to the survey, out of 400 million of workforce in India, around 30-40 percent consists of females. Women working in these industries facing many problems like physical, psychological and discrimination at work and it also affect their work and family. These problems are caused by long working hours, irregular shifts, high targets, insufficient holidays and mental pressure, etc. This article outlines the various health problems faced by Women Employees in BPO.

Title: Problem and Prospects of Indian BPO Sector.

Author: Alka Raghunath, Dr. Murli Dhar Panga.

Year: 2013.

Abstract: BPO is one of the popular business practices in today's competitive environment. India has enormous opportunities emerging from globalization and consequent lowering of tariff barriers. The Indian BPO industry is constantly growing. However, along with the Phenomena Increase in BPO to India there has been a backlash against outsourcing. Information Technology has given India formidable brand equity in the global markets. Indian BPO companies have a unique distinction of providing efficient business solutions with cost and quality as an advantage by using state of art technology. This article explains overview of BPO industry in India comparative strength, weakness, opportunities and thread Indian BPO industry.

COMPANY PROFILE

As of 2012, around 2.8 million people work in outsourcing sector. Annual revenues are around \$11 billion, around 1% of GDP. Around 2.5 million people graduate in India every year. Wages are rising by 10–15 percent as a result of skill shortage. The



industry has been growing rapidly. It grew at a rate of 38% over 2005. For the FY06 financial year the projections is of US\$7.2 billion worth of services provided by this industry. The base in terms of headcount being roughly 400,000 people directly employed in this Industry. India thus has some 5–6% share of the total Industry, but a commanding 63% share of the offshore component. The related Industry dependent on this are Catering, BPO training and recruitment, transport vendors (home pick up and drops for night shifts being the norm in the industry), security agencies, facilities management companies. The south Indian city of Chennai is fast emerging as a destination for information technology outsourcing and has seen a growing number of IT parks being built here. Most of the upcoming complexes are being built along the IT Corridor and the northern suburb of Ambattur. There are many BPO companies in Chennai which brings more foreign investment and increases the economy of India. Profile of few BPO companies in Chennai has been described in the following paragraphs

Reliance BPO

The Reliance Group is among India's top three private sector business houses on all major financial parameters, with assets in excess of Rs.180,000 crore, and net worth to the tune of Rs.89,000 crore. Across different companies, the group has a customer base of over 150 million, the largest in India, and a shareholder base of over 12 million, among the largest in the world. Through its products and services, the Reliance Group touches the life of 1 in 10 Indians every single day. It has a business presence that extends to over 20000 towns and 5 lakhs villages in India, and 5 continents across the world. The interests of the Group range from communications (Reliance Communications) and financial services (Reliance Capital Ltd), to generation, transmission and distribution of power (Reliance Energy), infrastructure and entertainment. RCIL (Railtel Corporation of India Limited) BPO is a premium 'business process outsourcing services provider' of the Reliance Group. One of India's largest state-of-the-art service providers, RCIL BPO offers end-to-end solutions focusing on Telecom, BFSI (Banking, Financial Services and Insurance), and Utility and Entertainment industry verticals. Clients prefer it for both quality and cost advantages. The company has been consistently delivering quality services to its clients, thereby generating unmatched business value to its customers through its centers of excellence. Its operating philosophy is to provide value-added work flow solutions to its customers, utilizing the best of skill sets to ensure continuous improvements in its service offerings. The team comprises 14,100 strong work forces across multiple locations with skills in Customer Service Operations, project management, process improvement, technology and customer relationship management. It offers services to over 160 million customers in 17 (Indian and foreign) languages, handling more than 1 million calls and attending to over 97,000 transactions per day from its 21 centers across India to assure business continuity. RCIL BPO has multi-redundancy, robust technology and a strong disaster recovery mechanism.

SITEL (Systems International Telemarketing) India

SITEL is a telemarketing and outsourcing business headquartered in Nashville, Tennessee. It maintains 108 sites in 21 countries. Prior to its acquisition by ClientLogic, described below, it had 70 call centers in 25 countries and over 30,000 employees. It maintains offices in its previous headquarters location of Omaha, Nebraska but its headquarters was moved to ClientLogic's headquarters in Nashville. The original SITEL was founded in 1985 by James F. Lynch After the signing of its first major client in 1988, Allstate Insurance, SITEL's client list rapidly grew. Today the company serves many Fortune 500 companies, and some of the world's largest, most well known brands. In June 1985, SITEL became the first publicly traded, independent teleservices company and was listed on the NASDAQ through an initial public offering (IPO). Six months later, they moved from NASDAQ to the NYSE as 'SWW'. In October 2006, SITEL announced a merger with ClientLogic, another outsourcing firm. On January 30, 2007, ClientLogic Corporation finalised its acquisition of SITEL Corporation. Less than one month later, on February 20, 2007, ClientLogic announced it was adopting a new corporate name and global brand. The combined company would now be called SITEL. On 21 September 2015, SITEL announced it had been acquired by Group Tactically.

Serco India

Serco Group plc is a British outsourcing company based in Hook, Hampshire. It operates public and private transport and traffic control, aviation, military weapons, detention centres, prisons and schools on behalf of its customers. Serco has been involved in a variety of controversies having a history of problems, failures, fatal errors and overcharging. Serco was founded in 1929 as RCA Services Limited, a United Kingdom division of the Radio Corporation of America and initially provided services to the cinema industry. It changed its name to Serco in 1987 and has been a London Stock Exchange listed company since 1988. On 29 December 2008, Serco acquired SI International. In November 2014 its share price, which stood at 674p before the taxpayer scandal broke in 2013 collapsed to 218.7p, after four profit warnings. The new chief executive Rupert Soames sold off "scores of divisions". He said the company was suffering from ministers' improved ability at driving a bargain, and claimed that "the Government has got much more adept at writing contracts and transferring risk to the private sector". On 17 November 2014, it was announced that Alastair Lyons would resign from his position as chairman of Serco. Lyons referred to "operational missteps" for which he took "ultimate responsibility", but said he had not been forced out. Serco made a loss of £991 million in 2014, reducing to a loss of £69.4 million in 2015. Sir Roy Gardner was appointed as Non-Executive Chairman on 28 May 2015: he is also a senior adviser to Credit Suisse Group AG.

Info-search BPO

Info-search BPO services Private Limited., is a Global Offshore BPO & Call Center Outsourcing Company based in Chennai, India, serving International Businesses. Info-search offers both B2B and B2C services for a variety of industries. Our customer



service call center works on your behalf managing your back office tasks with our business process & backend support services; handles customers queries through various Inbound & Outbound contact center processes, manages core business practices with knowledge process services and does Web design services through Dream Designs, another department of Info-search. Info-search BPO is a part of Info-search Group. The group was launched by 3 friends who having distinct domain experience and rich industry knowledge in the year 2000. Info-search BPO division began its journey on March 2005. It is an Indian company with a competence of IT enabled services that incorporates the BPO services, Call Center services, Web designing services (Web related outsourcing services). Initially the BPO division was seated with just 10 numbers but it has grown to over 250 seats in 2008 itself. Info-search BPO is being recognised as one of the best offshore BPO and call center company in this short span of journey. In addition to this, it has become an ISO 9001:2008 certified company for offering an excellent and quality-driven services.

SOCIETY'S PERCEPTION TOWARDS BPO SECTOR

In all work there will be a certain pros and cons which everyone will face, they have to overcome those obstacle to perform the work through which they can gain profit. BPO sector is a place where there will be employees who graduated from different fields but they work here for the same pay and the pay will differ only based on their designation. Business Process Outsourcing is improving its standard through ground breaking activities. For example: India is the first country to classify BPO sector into KPO and LPO sectors. There is no gender inequality in this sector where men and women will recruit equally. Most of the people think that in BPO sector, most of the afield companies and our domestic companies will cater their job which is part of their company to other companies to finish their work through which they can reduce the cost of doing that project (including workers pay, buying goods, etc.) and also for the less consumption of time. The skills required for in BPO sector are English fluency while speaking and while writing a document, forbearance, typing, listening skill, analytical skills, etc. If in case an MNC company offers certain tasks or projects to the inland companies then there will be difference in time, so the working timings for our employees will be based on the timings followed in abroad.

Senior citizens perceives that performing jobs in BPO do not have any safety and security to the workers especially women workers during night shifts. The other main reason is that this sector brings the changes in our customs and tradition. There is a wide variety of job in this sector and the recruitment the employees for their company is also taken place regularly without any gender inequality to fill those vacancies. Execution of the task assigned to these jobs is not an easy task as every says, it is very difficult to do.

The jobs can be classified as voice based jobs, non voice based jobs and semi voice based jobs. Call Centre is most famous job in BPO sector which strikes first to everyone in the society. Some of the BPO jobs are mentioned below, Multimedia & Animation, Book keeping & Financial Services, Business Consulting, CAD/CAM, Call Center, Data Entry, DTP, Typesetting, Handwriting Services, HR Services, Internet Marketing, Legal Services, Medical Billing, Proofreading, Editing, Software and Technology, Transcription, Web Design & Development, Writing & Translation.

CORPORATE SOCIAL RESPONSIBILITY AND BPO SECTOR

Now-a-days Corporate Social Responsible is undetectable from BPO sector, because it not only elate the society, it will help the employees to know their talents which is hidden in them, and employee satisfaction will be in a peek and also reduce the attrition rate of the employees in this sector. The employees can come out with new ideas to help the needy through which their innovation can be identified. All employees will be engaged in CSR activities which also reduces the stress they face in the work place, employee recognition, it will refresh the employees and it will attract most of the people which leads to increase in the customer for the companies. The general CSR activities are, BPO sector has a good scope in future period also. Though it has a good scope there are some factors it will weaken this sector, so these problems has to be solved so that the sector can sustain its position.

In the present situation though sector recruits more employees, the employees are ready to quit their job if they find a job which is in a higher level when compared to jobs in BPO sector and it is found that most of the employees work period in this sector is less than five years. BPO sector's growth will be declined in the future period if they are money minded and getting work done by the employees at low cost and getting maximum profit them from their clients. This has to be changed and employees should receive the fair amount of pay for their work and the employee satisfaction and client or customer satisfaction plays a major role in this sector. If employee is satisfied with his/her work then they can satisfy the customers which will gain more profit to the sector. BPO sector should not be a temporary work place for the employees and it has to be changed as a BPM (Business Process Management).

The activities or work of the employees should be eco-friendly and it should not cause any harm to the environment. BPO companies should have equal or more number of projects from inland companies compared to MNC companies because if any other country shows the good progress then the MNC companies will and whose economy is lower than India then the MNC companies the main reason for this say is that though the projects from MNC company is reduced, India can withstand it's position using the projects from the inland companies.

Figure-1



Sources: Authors Compilation

FINDINGS

- The salary for employees in BPO sector is not higher when compared to IT Software sector.
- Lot of employees are given salary during their training time itself through which they attract more number of people to apply for job in this sector.
- Most of the employees work temporarily in this sector to gain experience for the search of other technical jobs.
- There is no innovation in the job performed by the employees which is routine when compared to other sectors.
- Some Companies swaps the employees from BPO sector to the other sectors (like software sector, hardware sector, etc) if the employees has an identical skills in their work.
- Though there are chotta motta BPO companies still there is a greater rate of employment is provided.
- The work schedule for the employees is chaotic where the night shifts are not sequentially and routine which leads to lot of health disorders to employees.
- Usage of drugs by employees is increased to overcome the stress from night shifts.
- Since most of their time is spend in doing the work they are restricted from a social contact and they lack to know the current affairs.

SUGGESTION

- A sequential and routine night shift has to be allotted to all employees so that they won't suffer from health disorder and the work will also be completed.
- A pessimistic illusion has risen in adapting of unethical issues like smoking, drinking, druggist, etc be a better stress reliever for employees but the fact is vice versa.
- Innovation and creativity can be enhanced to employees for improving the working skills within the organization.
- Employees can be provided with positive environment and comfort zone during working on order to reduce the risk of shifting of organization by the employees.
- The working time can be reduced for the safety of the employees and to prevent the health issues.

CONCLUSION

There was a tremendous development of BPO sector for past decades though there is no awareness among the people in society about the development of BPO sector. The BPO is a sector where it needs a less skills when compared to IT Software sector like speaking English fluently, listening skills, etc. Though the most of the people in Indian society (employee of this sector or non employee of this sector) who doesn't even have knowledge about the BPO sector and does not have a good impression on the BPO sector, there are more number of employees in this sector because of one main reason to satisfy the day-to-day needs to survive in this society irrespective of their educational qualification, interest on the job, goal, etc. The employees perceives that the work in this sector won't be tough when compared to jobs in other sectors (namely IT service, software products and engineering service) before joining the job. Most of the people selects this sector to work only after when they fail to attain the highly qualified jobs, hence it is understood that for most of the people this sector act as a secondary choice when it comes for job selection. BPO sector also contributes to the cultural and economically changes in the society due to work schedules, company rules and regulations, etc. Though this sector has lot of drawbacks but this is the sector which brings more benefits to our country's economy. Among three major sectors (namely Primary sector, Secondary sector and Service sector) contribution to Indian economy, IT sector brings more profit and increases the economy of India but BPO sector which one among the IT sector plays a vital major role in economic growth. There is an equal positive and negative dilemma in society's perception for the employees' career path. Therefore whatever may be the job whether it is hard or easy jobs, either which may bring more profit or loss but it depends on the employees interest to do that job through which he/she can achieve many things.

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CASHLESS MOBILE PAYMENTS SYSTEM: A RELIABILITY ANALYSIS

V. Magesh⁴⁷

ABSTRACT

India's recent Demonetization and subsequent push towards cashless economy has brought mobile payment systems into focus. This paper analyses the two main system of cashless payments- Mobile Wallet and Unified Payments Interface (UPI) from reliability point of view. The better reliable system has lower cost of operation and lower transaction failure leading to better and seamless payments ecosystem. Mobile Wallet System is a mobile-based virtual wallet where certain amount is preloaded in the account created with the mobile wallet service provider and is spent online or offline in merchants listed with the mobile wallet service provider. The Unified Payments Interface (UPI) is a payment system, which allows users to make a transaction through aliases. The customer can pay directly from a bank account to different merchants, both online and offline, without the hassle of typing credit card details, IFS Code, or net banking/wallet passwords. The Unified Payments Interface and Mobile Wallet Systems were compared and reliability of the system was analyzed using innovative Reliability Distribution. It was found that Unified Payments Interface is better and superior as the failure rate in the payment is less by a factor of 2.5 and reliability is more. It is suggested that customers should chose Unified Payments Interface over Mobile Wallet System.

KEYWORDS

Mobile Wallet, Unified Payment Interface, Reliability Analysis, IFS Code, Payment Gateway etc.

INTRODUCTION

Demonetization of high value currencies by India and subsequent efforts to create cash less ecosystem by Government of India has brought cashless payment system into limelight. The major payment systems being promoted are Mobile Wallets and Unified Payment System. Mobile Wallet is a mobile-based virtual wallet where certain amount is preloaded in the account created with the mobile wallet service provider, and is spent online or offline in merchants listed with the mobile wallet service provider. In simple terms, mobile wallet allows users to make payments through smartphones, tablets and related electronic devices. **"India Mobile Wallet Market Forecast & Opportunities, 2020"** report states that the mobile wallet market in India is forecast to reach US\$ 6.6 billion by 2020. Increase in awareness about the benefits of mobile wallets, rising smartphone sales and mobile internet penetration rates drive growth in India mobile wallet market. **Nielsen report** suggests that **Paytm** is the most popular mobile payment app among Android smartphone owners in urban India and **Freecharge** is the second most popular service with 26% reach and 40 minutes of usage per month. **Mobikwik** (17% reach and 29 minutes usage) is the next most popular service followed by **My Airtel** (10% and 18 minutes usage), **Oxigen Wallet** (7% and 17 minutes usage), **My Vodafone** (6% and 17 minutes usage), **Paytm Wallet** (5% and 14 minutes usage) and **Pockets by ICICI** (4% and 23 minutes usage).

The Unified Payments Interface (UPI) is a payment system, which allows users to make a transaction through aliases. The customer can pay directly from a bank account to different merchants, both online and offline, without the hassle of typing credit card details, IFS code, or net banking/wallet passwords. The major 29 banks have already tied up with the RBI-promoted National Payments Corporation, which launched the UPI. The major 10 commercial banks in India already have mobile apps ready for UPI interface. Since UPI is simple and has less chance of failed transaction, UPI will be a tough competitor for Mobile Wallet. A higher reliability also leads to lower transaction costs and seamless payment experience. This paper analyses the reliability of both Mobile Wallet System and Unified Payment Interface and suggests which of the two systems is better for customers.

REVIEW OF LITERATURE

There are many studies related to mobile payment ecosystem. The Boston consulting Group (2016) explored varied payment system including Bank led, Telco led prepaid wallet, Ecommerce and Payment banks. Adoption curve, key barriers, trigger for digital payment was studied and analyzed. Mallet N. (2006) explored consumer adoption of mobile payments. Deloitte & Assocham India 2011 Report analysed payment mobile systems. Hexa research in 2016 researched Mobile Wallet Market Size, Market Share, Application Analysis, Regional Outlook, and Growth, Trends, Competitive Scenario and forecasts from 2012 to 2020. The absence of system reliability study specific to mobile and UPI payment triggered this research paper.

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SCOPE OF STUDY

The scope of study is limited to analysis of Mobile Wallet and Unified Payment Interface based on available secondary data. The study is a pioneering effort to compare and determine which one of the payment systems is more reliable and helpful for the customer. The study is applicable to related systems in banking and e-commerce.

OBJECTIVES OF STUDY

- To analyze system reliability of Mobile Wallet System.
- To analyze system reliability of Unified Payments Interface.
- To compare reliability and suggest which is the better system for the customers.

SOURCES OF DATA

Only secondary data was used for the study. Secondary data were collected from Nielson research papers, Telecom Regulatory Authority of India's technical papers and Wolfram database.

MEASUREMENT AND PAYMENT PROCEDURE:

The Mobile Wallet Payment follows the following pathway:

Customer Mobile -> Mobile Wallet Website -> Payment Gateway -> Bank Website -> Mobile Service Provider for sending PIN -> Bank Website-> Confirmation of Transaction on Customer Mobile.

It can be seen that the pathway has six nodes. A transaction failure of any node will result in failure of the entire mobile wallet payment system. To measure the reliability of the system, Reliability Analysis is carried out using Mathematical Version 10 software. The failure probability of mobile data connection was obtained from Telecom Regulatory Authority of India (TRAI) research papers. As there is no reliable data on mobile data connection drop rates, the data on Average Call Drop Rate was taken as a proxy for Data Connection Drop Rate. Call Drop Rate is the percentage of calls, which, once they have been correctly established are interrupted prior to their normal completion by the user, the cause of the early termination being within the operator's network. The Payment Gate way failure rate was obtained from Instamojo data of Credit Card, Debit Card and Net Banking transactions failure rate.

The Unified Payment Interface pathway is depicted below:

Customer UPI Mobile App -> Bank Website -> Confirmation of Transaction on Mobile App.

It can be deduced from the UPI pathway that the number of nodes is only two. This reduces the failure rate of the system. Similar to Mobile Wallet pathway, Average Call Drop Rate was taken as a proxy for Data Connection Drop Rate.

ANALYSIS OF DATA AND INTERPRETATION OF RESULTS

Call Drop Rate: The average Call Drop Rate is obtained from the Call Drop Rate of the telecom majors shown in table 1.1

Table-1.1: Average Call Drop Rate

Company Name	Call Drop Rate (%)
Aircel	5.18
Idea	2.84
Vodafone	4.28
Airtel	8.04
Reliance	17.29
Tata	0.84
Total Average	6.411

Sources: TRAI "Technical Paper on Call Drop Rate", 2015

It can be concluded from table 1.1, that the Average Call Drop Rate is 6.411%. Since Call Drop Rate is taken as a proxy for Mobile Data connection failure rate, it can be deduced that the Mobile Data connection failure in 100 transactions is 6.411%.

(A). Reliability Analysis of Mobile Wallet System

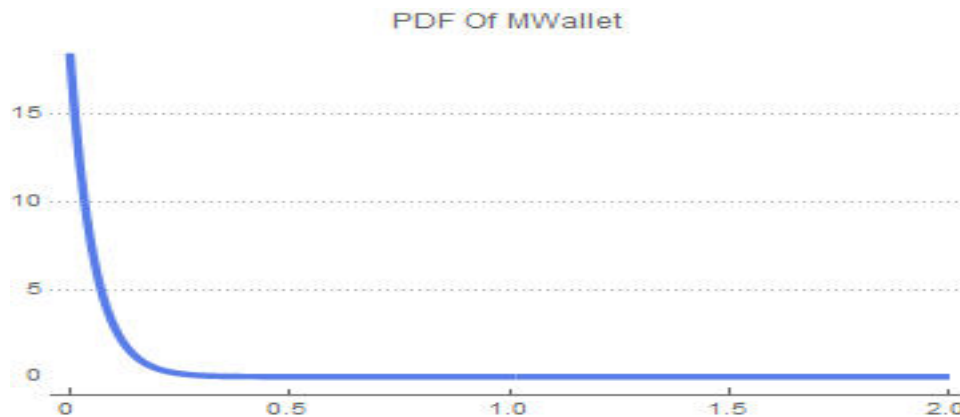
The Mobile Wallet System's reliability is obtained using series connected reliability system. Series connected system is used as failure of any one of the six nodes in the Mobile Wallet System path will lead to transaction failure. The six nodes in the Mobile Wallet pathway is assigned letters from A to F. The failure rate is represented by Lambda and probability distribution of failure rate of node is exponential. The Reliability Distribution is:

$\mathcal{R}_{walltet} = \text{ReliabilityDistribution}[A \& B \& C \& D \& E \& F, \{\{A, \text{ExponentialDistribution}[\lambda_1]\}, \{B, \text{ExponentialDistribution}[\lambda_2]\}, \{C, \text{ExponentialDistribution}[\lambda_3]\}, \{D, \text{ExponentialDistribution}[\lambda_4]\}, \{E, \text{ExponentialDistribution}[\lambda_5]\}, \{F, \text{ExponentialDistribution}[\lambda_6]\}\}];$
From the above reliability distribution function, the mean time to failure is obtained. The mean time to failure is:

$$\frac{1}{\lambda_1 + \lambda_2 + \lambda_3 + \lambda_4 + \lambda_5 + \lambda_6}$$

Using the mobile data connection failure in 100 transactions of 6.411 and the payment gateway failure rate of 2.1%, the probability distribution function is plotted as shown in figure 1.1

Figure-1.1: Mobile Wallet Probability Distribution



The "Mean time to Failure" is calculated by using Mathematical:

$$\{\text{Mean}[\mathcal{R}_{wallte}], \text{Median}[\mathcal{R}_{wallte}]\}$$

The Mean Time to Failure = 0.0540

The Median Time to Failure = 0.0374

(B). Reliability Analysis of Unified Payment Interface

The Mobile Unified Payment Interface system's reliability is obtained using series connected reliability system. Series connected system is used as failure of any one of the two nodes in the system path will lead to transaction failure in Unified Payment Interface. The two nodes in the Mobile Wallet pathway are assigned letters A and B. The failure rate is represented by Lambda and probability distribution of failure rate of node is exponential. The Reliability Distribution is:

$\mathcal{R}_{UPI} = \text{ReliabilityDistribution}[A \& B, \{\{A, \text{ExponentialDistribution}[\lambda_1]\}, \{B, \text{ExponentialDistribution}[\lambda_2]\}\}];$

From the above reliability distribution function, the mean time to failure is obtained. The mean time to failure for Unified Payment Interface is:

$$\frac{1}{\lambda_1 + \lambda_2}$$

Using the Mobile Data connection failure in 100 transactions of 6.411 and the Payment Gateway failure rate of 2.1%, the probability distribution function for the Unified Payment Interface is plotted in figure 1.2

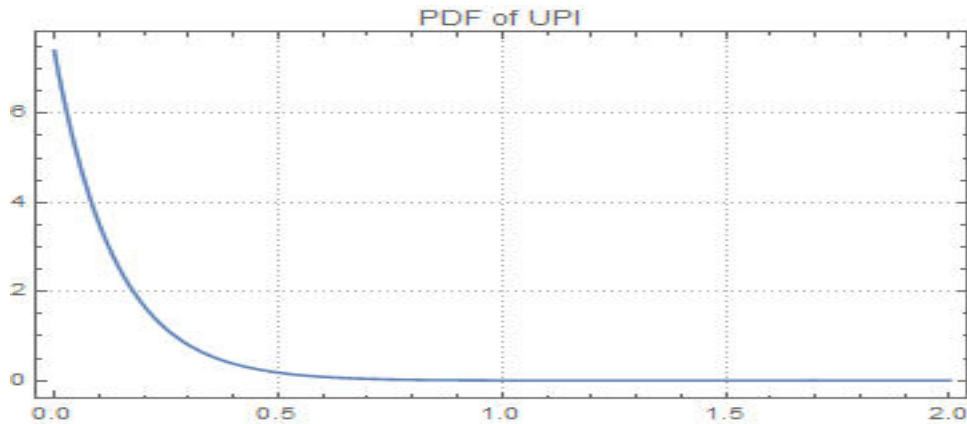
The “Mean time to Failure” for Unified Payment Interface is calculated by using Mathematical:

$$\{\text{Mean}[\mathcal{R}\text{UPI}], \text{Median}[\mathcal{R}\text{UPI}]\}$$

The Mean Time to Failure = 0.1349

The Median Time to Failure = 0.0935

Figure-1.2: Mobile Wallet Probability Distribution



(C). Comparative Analysis the Two Systems

Based on aforementioned reliability calculations, it can be discerned that the Unified Payment Interface’s mean time to failure is superior to the mean time to failure of Mobile Wallet System by a factor of $0.1349 / 0.0540 = 2.4981$.

The 6 nodes of Mobile Wallet System are inferior to the two node of Unified Payment Interface as the chance of system failure is higher in Mobile Wallet pathway due to higher number of nodes in series. If one of the nodes fails, the entire system will fail and payment will not go through in Mobile Wallet System.

MAJOR FINDINGS

- The Unified payment Interface has Mean Time to Failure of 0.1349 and Median Time to Failure Rate of 0.0935.
- The Mobile Wallet System has Mean Time to Failure of 0.0540 and Median Time to Failure Rate of 0.0374.
- Unified Payment Interface’s Mean Time to Failure is superior to the Mean Time to Failure of Mobile Wallet System by a factor of 2.5.

SUGGESTIONS

- The Unified Payment Interface is found to be of superior reliability and ‘Time to Fail’ is higher hence customers should chose Unified Payment System over Mobile Wallet for e-commerce and m-commerce transactions.
- The Mobile Wallet companies like Paytm should encourage users to transfer money in their virtual mobile wallet. This will reduce the nodes in the pathway in payments routed through Mobile Wallet, improve the reliability, and increase the Time to Failure of the Mobile Wallet system.
- Mobile Wallet companies can tie up with banks to incorporate Unified Payment Interface in their mobile apps.

CONCLUSION AND IMPLICATIONS FOR FUTURE RESEARCH

The Unified Payment Interface and Mobile Wallet Systems were compared and reliability of the system was analyzed using innovative Reliability Distribution. It was found that Unified Payment Interface is better and superior as the failure rate in the payment is less and reliability is more. It is suggested that customers should chose Unified Payment Interface over Mobile Wallet. Further research in the areas of combining Mobile Wallet with Unified Payment System can be carried out. Since the failure rates of mobile data connections and payment gateways are not comprehensive, a deeper and wider data collation in this area should be encouraged and further research should be done based on refined data.



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