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A study on the normal charging controller system for the solar energy Pros and Cons

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Abstract

Renewable Energy System is now becoming the important alternative to the conventional energy system. This is due to the fact that the renewable energy resource is environment friendly and causes zero pollution to the atmosphere. In addition to this the conventional energy is suffering from fossil fuel for the production. Due to this more and more encouragement is given to the renewable energy system. One such renewable energy system is the solar energy system which is gaining more and more market in India. This is also called a clean and green energy system. Every solar energy system is comprising of a set solar panel, charge control system, energy storage system and inverter system. Here the role of solar charging system is very important. This system should accept solar energy from the solar panel and supply it to either storage system or inverter system. The amount of energy from solar varies from time to time which depends upon the angle of solar incident. Similarly the load for the inverter changes from time to time. The variation in the solar energy and load requirement has to be balanced by the charge controller. The objective of this paper is to study the performance of the various solar charge controller and suggestion to improve the efficiency of the same. Here the available solar charge controllers are studied and performance is noted and improvement suggestion is given. The outcome of this paper is the performance of the current charge controllers, special features of the same and new proposal for the performance improvement.

Keywords: Solar charge controller, Solar energy, Charge controller performance, Renewable energy.

Introduction

The solar energy system uses the photon from the sunlight and converts the photon into electrical energy using silicon. [1] About 47% of the photon from the sun reach the earth's atmosphere. Rest of the energy is either reflected by the cloud or absorbed by the dust particles. [2] This results in variation in solar energy from time to time due to the changes in the atmosphere. The 12V solar panel consists of 36 solar cells which exposed to sunlight. These cells are manufactured using silicon which emits electron when it comes in contact with the photon from the sun light. Each cell thus produces 0.5V of potential difference during sunlight. The amount of current generated depends upon the size of each cell. If the cell is large the current will be more whereas if the cell is smaller then the current will be less. So the total power of the solar panel depends on the product of the amount of voltage difference and the current. [3] There are varieties of solar panel available with different power ratings. These solar panels are available with either 12V or 24V voltage differences. The charging voltage and charging current solely depends upon the amount of sunlight which falls on the panel. [4] This results in continuous variations in the charging of the battery backup. This results in need of charging controller to be installed to balance the solar charging to the battery backup to maintain the long life of the battery. [5]

The 12V solar panel produces a potential difference of 18V during the peak output and decreases gradually when the intensity of sunlight decreases. The potential difference and the current directly proportional to the incident photon on the surface of the panel.[6] This panel is used to charge a battery of 12V. A charge controller is used to control the incoming solar energy to charge the battery. Here the problem is the input voltage of 18V from the panel which gets reduced to 12V with the help of a charge controller. The difference in the voltage gets wasted into heat. This heat is a waste. A solar panel which is used to charge 24V battery (2 batteries in series) has an output of 36V potential difference out of which the charge controller reduces the voltage to 24V. Normally when the solar energy is used at a large scale the panels are set up in a series manner to get the voltage of 240V. The charge controller gives the output to be at 240V when it receives 360V as input voltage. A difference of 120V is wasted in this process.

The solar energy system uses three different type of charge controllers namely

- A simple single stage or two stage controllers.

- A PWM charge controllers.

- Maximum power point tracking (MPPT) charge controllers.[7]

A Simple Charge Controller: In the case of simple charge controller the input voltage from the solar panel undergoes a simple one or two stage shunt transistor with a zener diode which decides the regulated output voltage i.e. 12V. [8] When the desired voltage of the battery backup is reached then the charge controller simply shorts the panel voltage and thus the energy produced later will be given to a protective diode as well as the resistance load to avoid the short circuit for the panel. This is the reason why the charge controller is not in use.

A PWM Charge Controller: In this case a modified charge controller is used to charge the battery backup as well as to protect the solar panel from short circuit. Here a new technique is used where in the charge controller used a micro controller chip which charges the battery bank using PWM method. In this method the battery will be under boost charging until the

battery voltage reaches a reference voltage (14.5 V for 12V battery). After that a small pulse will be trickled to maintain the battery voltage. [9]

A MPPT Charge Controller: This is an improved charge controller which improves the efficiency of the solar energy production as well as utilization. This technology uses MPPT algorithm which converts the input solar DC energy into output AC energy. This AC energy is reconverted into DC energy to provide the energy required to the battery. This algorithm has boost converter as well as buck converter. [10]

Objective:

The objective of this paper is to study the performance of three types of solar charge controller and compare the performances and derive at a model which overcomes the problems observed in the above three charge controllers.

Methodology:

The study of individual charge controller is done with the block diagram, performance and the drawbacks of the same. Then the suggestion over the improvement over the charge controller to get rid of the drawbacks is given. The analysis of the proposed model is done. Then the conclusion is given.

A Simple Charge Controller: The block diagram of a simple single stage or two stage solar charge controller is as shown in the figure 1.

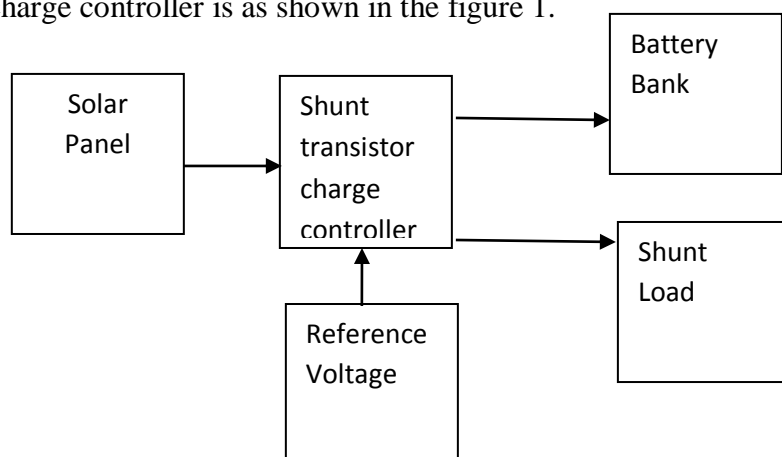


Figure 1: A simple one or two stage solar charge controller

As mentioned in the figure a shunt transistor acts as a charge controller for the solar input towards the battery. The shunt transistor takes a reference voltage with the help of a zener diode. This reference voltage allows the transistor to charge the battery until the reference voltage is reached. Once the battery voltage reaches the reference voltage then the transistor stops the battery from charging. Here the input energy from the solar panel passes through the shunt load resistor once the battery is full.

A PWM Charge Controller: More efficient charge controller compared to the simple solar charge controller is PWM charge controller. The block diagram of the same is shown in the figure 2.

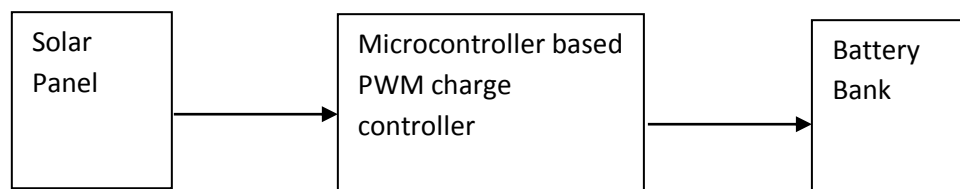


Figure 2: A PWM solar charge controller

This is a charge controller wherein depending on the energy stored in the battery bank the charging pulses will have different pulse widths. If the energy stored is less and more charging is required then the pulse width of the charge controller will be large. As the battery stores the energy the pulse width of the controller reduces. Finally when the battery is full a spike pulse will be generated by the controller to maintain the battery voltage. This technique does not allow the battery to overheat and battery life will be improved.

A MPPT Charge Controller: A latest technology in the field of solar charge controller is recently introduced. This technology is called maximum power point tracking (MPPT) controller. The block diagram of the same is as shown in the figure 3

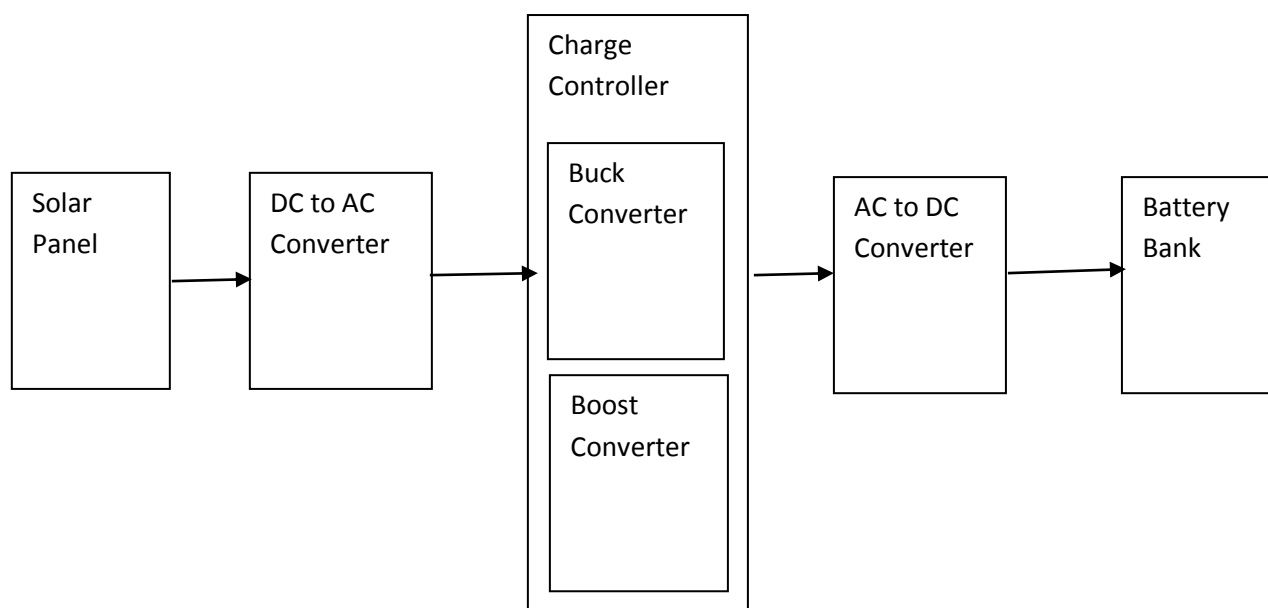


Figure 3: A MPPT Charge Controller.

The main idea behind this charger is to charge the battery bank to the maximum extent. Here a MPPT algorithm is used by the controller which will convert the input solar DC energy into AC energy. This energy is then undergoes either a Buck controller or a Boost controller to transfer every charge to the battery bank or to the DC load.

The New Proposed Model

By studying the performance of three types of the solar charge control a proposed model of the charge controller is introduced wherein the drawbacks of the previous is considered for the increased efficiency of the solar energy.

The simple shunt type single stage or two stage transistor based charge controller is waved off because of its performance during the full battery bank mode.

The MPPT as well as the PWM based charge controller is combined to get more efficiency in solar energy utilization. The energy produced undergoes the MPPT technology to consider all the energy produced during peak hours as well as non peak hours. The PWM charge controller is used to charge the battery optimally. The advantage of using PWM charge controller is it increases the life of the battery bank as the battery bank do not heat during charging. The bubble formation during charging will be reduced.

The new proposed model of the solar charge controller is as shown in the figure 4.

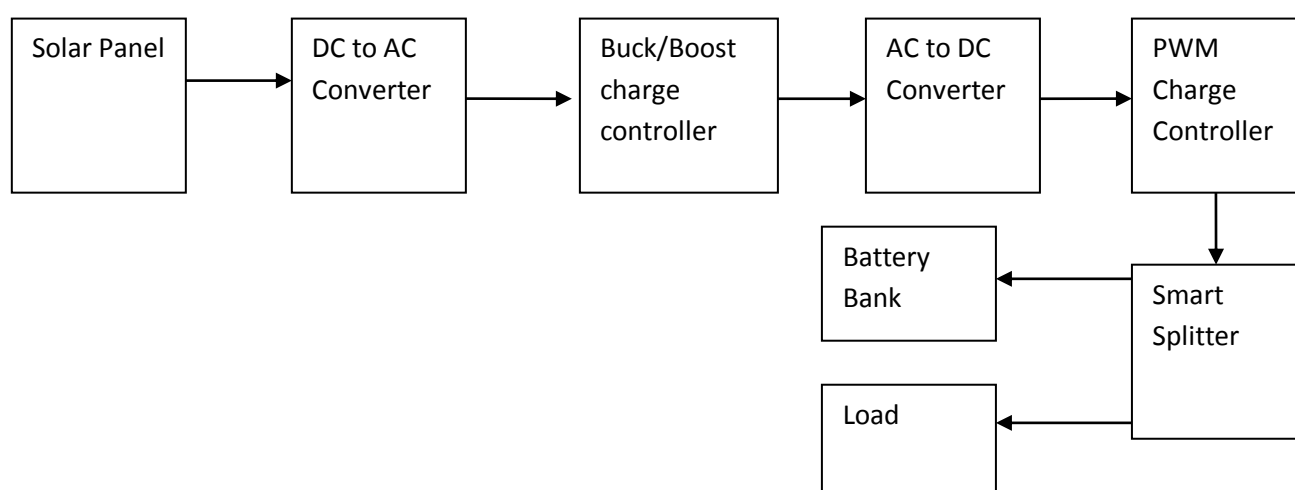


Figure 4: Proposed model of solar charge controller.

Analysis: The performance of all the present solar charge controllers is compared with the proposed model using the table 1.

Table1. The Comparison between the various solar charge controllers.

Sl. No	Parameter	Single stage Shunt transistor	PWM	MPPT	New Proposed Model
1.	Load Short after Battery Charge	Yes	No	No	No

2.	Battery Boiling	More	Less	Less	Less
3.	Battery Life	Less	More	More	More
4.	Trickle Charging	-	Yes	No	Yes
5.	Buck Charging	-	No	Yes	Yes
6.	Boost Charging	-	No	Yes	Yes
7.	After Charging	Solar Panel may be shorted	Solar energy is wasted	Solar energy is diverted to DC load	Solar Energy can be diverted to both DC as well as AC load

Conclusion: The performance of the different solar charge controller is studied. The major observation is that after full recharge of the battery bank the solar energy is either wasted or the resistive load is connected to the solar panel. This will reduce the life of the solar panel. Even MPPT solar charger diverts the load to Dc load, may not be useful to the commercial applications. The new proposed charge controller is combining the feature of both MPPT as well as PWM. This charger will take the input voltage and current to charge the battery bank by converting the power into the requirement of the battery bank. This proposed charge controller will work in all conditions whether the input voltage is less than the battery voltage or more. In addition to this the charge controller will manage the load both DC as well as AC when battery bank does not require power to charge.

References

1. Bach, U., Lupo, D., Comte, P., Moser, J. E., Weissörtel, F., Salbeck, J. & Grätzel, M. (1998). Solid-state dye-sensitized mesoporous TiO₂ solar cells with high photon-to-electron conversion efficiencies. *Nature*, 395(6702), 583.
2. Hansen, J. E. (1971). Multiple scattering of polarized light in planetary atmospheres part II. Sunlight reflected by terrestrial water clouds. *Journal of the Atmospheric Sciences*, 28(8), 1400-1426.
3. Masoum, M. A., Dehbonei, H., & Fuchs, E. F. (2002). Theoretical and experimental analyses of photovoltaic systems with voltage and current-based maximum power-point tracking. *IEEE Transactions on energy conversion*, 17(4), 514-522.
4. Hoeber, C., Robertson, E., Katz, I., Davis, V., & Snyder, D. (1998, February). Solar array augmented electrostatic discharge in GEO. In *17th AIAA International Communications Satellite Systems Conference and Exhibit* (p. 1401).
5. Gibson, T. L., & Kelly, N. A. (2009, September). Solar photovoltaic charging of lithium-ion batteries. In *Vehicle Power and Propulsion Conference, 2009. VPPC'09. IEEE* (pp. 310-316). IEEE.
6. Klampaftis, E., Ross, D., McIntosh, K. R., & Richards, B. S. (2009). Enhancing the performance of solar cells via luminescent down-shifting of the incident spectrum: A review. *Solar Energy Materials and Solar Cells*, 93(8), 1182-1194.
7. Hankins, M. (2010). *Stand-alone solar electric systems: the earthscan expert*

handbook for planning, design and installation. Routledge.

8. Masheleni, H., & Carelse, X. F. (1997). Microcontroller-based charge controller for stand-alone photovoltaic systems. *Solar energy*, 61(4), 225-230.
9. Masheleni, H., & Carelse, X. F. (1997). Microcontroller-based charge controller for stand-alone photovoltaic systems. *Solar energy*, 61(4), 225-230.
10. Grzesiak, W. (2006, May). MPPT solar charge controller for high voltage thin film PV modules. In *Photovoltaic Energy Conversion, Conference Record of the 2006 IEEE 4th World Conference on* (Vol. 2, pp. 2264-2267). IEEE.

Digital Finance: The Concept and Emergence with reference to academic affairs

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Abstract

The concept and term Digital Finance is important and valuable in current age. In generally it is the application of Information Technology and Computing in Financial affairs. The field is closely associated with the Banking, Commerce, Management and Economics. The term Financial Technology is also closely associated with the Digital Finance. Digital finance is an advance concept to move healthy and modern financial services in difference sectors viz. agriculture, transportation, healthcare, tourism education etc. Digital finance is responsible for the greater financial inclusion; it is also responsible and dedicated for the expansion of basic services. It is a fact that today more than 50% community in the developing world having their own a mobile phone and thus the concept of Digital Finance is increasing and importantly the challenge is massive because 2.5 billion individuals may have problem in digital fiancé inclusion. It is worthy to note that about 200 million small businesses is also have bad access to basic financial services due to various services. Country like India also has various other problems e.g. India has about 155,000 post offices and majority are in rural areas and thus they are playing a critical role in enhancing financial inclusion, and indirectly these are responsible for the financial services which include banking, insurance etc. It is a fact that due to the importance of Digital Finance many universities in the world has started the program in Digital Finance not only in Certificate level but also in Masters level. This paper is talks about the basics of Digital Finance and its educational affairs also. Paper highlighted the emerging areas also.

Keywords:Digital Finance, Education, Business Information Systems, Emerging Technology, Business Promotion, Developed Country

Introduction

The world is moving towards best in digitalization and computerizations. Business and Finance is now become integral part of technology [2], [11]. Digital Finance is about applications of different kind of Information Technology components on Finance and similar affairs and among these components few important are include—

- Networking Technology
- Web Technology
- Multimedia Technology
- Software Technology
- Database Technology and allied

Financial affairs are including various direct and indirect issues on business, insurance and banking. The term Digital Finance not only now a concept but also a field of study and in some context an emerging area of research and development affairs [1], [5].

Digital financial inclusion is an important term and as digital access uses formal financial services by excluded and underserved populations and importantly such kind of concepts and services suited to the customers' needs and delivered with affordable cost to customers and sustainable for providers (*The core IT components of Digital Finance is depicted in Fig: 1*).

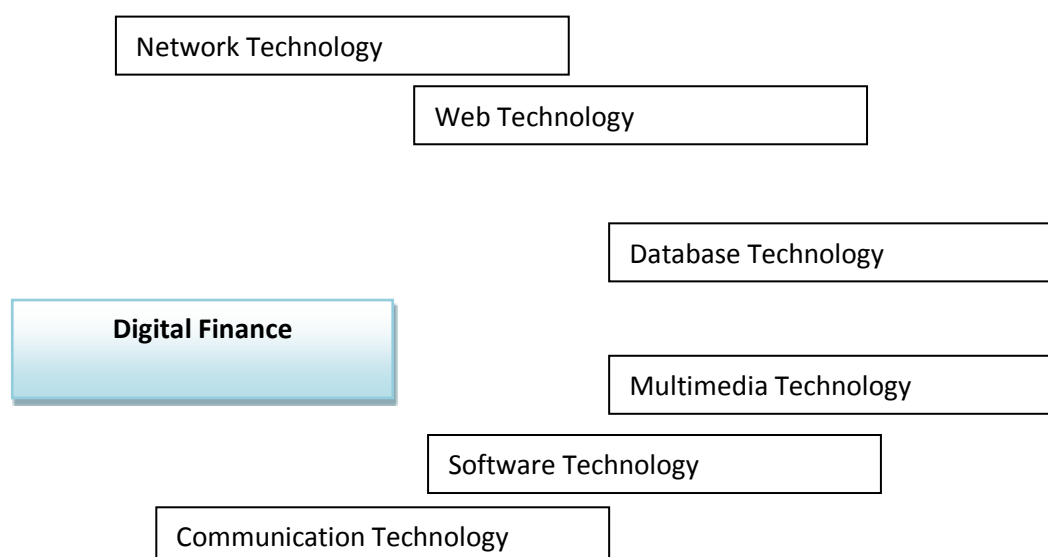


Fig: 1-Depicted basic components of IT and vis-à-vis Digital Finance

It is worthy to note that 200 million small businesses are also have bad access to basic financial services and nation like India also has various other problems. In recent past India done much better in small financial sectors and there Digital Finance play a great role. Moreover, India has about 155,000 post offices and majority are in rural areas and thus they are playing a critical role in enhancing financial inclusion empowered by IT and Computing technologies [2], [3].

Objective

The core aim and agenda of this paper is including (but not limited to the following)—

- To learn about the basics of Digital Finance and similar and allied areas of Digital Finance.
- To know about the characteristics of Digital Finance and similar domain/ fields in brief manner.
- To know about the stakeholders and gradients of Digital Finance and similar areas in brief.
- To learn about the academic program on Digital Finance and allied areas available in International universities and higher educational institutions.

Digital Finance and its Inclusion: Digital Financial Inclusion

Today Digital Finance play a leading role in better customer relationship management; n generally following four function are treated as most important and valuable for the Digital Finance Inclusion—

- A full-service bank offering a “basic” or “simplified” transactional affairs leading to payments and similar affairs.
- A limited-service based systems for the account via mobile device or any other electronic payment card systems.
- Important issue is mobile network operator (MNO) e-money issue for better and healthy Digital Finance inclusion.
- A nonbank and non-MNO e-money issue for sustainable Digital Finance inclusion.

These 4 functions normally work by the three components and these are include the *first one*, Digital transactional platform the *second one*, An agent network and the *third* one client access device [6], [7]. Here in all sorts, place, payments, transfer, credit, savings and insurance etc play a leading and great role. The Fig: 2 depicted the core stakeholders in Digital Finance at a glance.



Fig: 2-Stakeholders in Digital Finance

Digital Finance and Educational Programs

The Development in Digital Financial and Management systems is growing rapidly internationally and as a result various university have been started program in the field of Digital Finance and allied areas, according to the study it has been noted that many universities started offering program on this with Masters Degrees [4], [8], [12]. The study employed in this work is use of simple Google search engine with the title ‘Master in Digital Finance’ and there ten (10) page results has been analyzed and reported in this work. Apart from the Digital Finance, following areas have been identified in this study and these include—

- Digital Currency
- Digital Marketing
- Digital Business
- Digital Innovation

Importantly, these results have been opted by only using the adopted search strategy and there are numerous programs also may be find-out by using different course/ nomenclature. The result of top ten pages on the required subjects is depicted in Table: 1.

Table: 1-Digital Finance and allied programs (few popular)

Sl. No.	Name of the Program	Institute/ University	Country
1	Masters in Management (Digital Business)	HEC, Paris	France
2	MSc-Digital Marketing & Data Science	EMLYON Business School	France
3	MSc- Digital Currency	University of Nicosia	Cyprus
4	Masters in Financial Management, Digital Banking and Internet Finance	Global Business School, Barcelona	Spain
5	MSc-Data Analytics and Digital Business	EDHEC Business School	France
6	MSc-Digital Innovation	UCD Graduate Business School	Ireland

It has been studied that, most of the programs are offered in the European countries and leading nation in this regard is France. It is also worthy to note that most of the program are also offered in the School/ College/ Department of Business or Management instead of IT or Computing related department.

Digital Finance and Possible Educational Programs: Indian Context

Internationally universities played a lead role for the development of the domain Digital Finance, as far as India is concerned only a few institutes have started the program on the subject with the nomenclature of Certificate / Diploma. Though not single institutes have started the program at Bachelors or Masters levels.

India is one of the large education systems in the world with more than 40000+ Higher Educational Institutes offering Bachelors to Doctoral Degrees and there are huge intake capacity. As far as Digital Finance and allied areas the field may be offered in allied stream as a Major/ Specialization with the Subject like Management/ Business Administration,

Commerce. Even in Information Technology also. Some of the possible specialized program in Digital Finance and allied areas are depicted in Table: 2 and Table: 3 respectively.

Table: 2-Digital Finance and allied programs (few popular)

Sl. No.	Possible Bachelors Program (Commerce Track)	Possible Masters Program (Commerce Track)
1	B.Com (Digital Finance)	M.Com (Digital Finance)
2	B.Com (Digital Finance and Business)	M.Com (Digital Finance and Business)
3	B.Com (Digital Finance and Big Data)	M.Com (Digital Finance and Big Data)
4	B.Com (Big Data and Financial Market)	M.Com (Big Data and Financial Market)
5	B.Com (Financial Technology)	M.Com (Financial Technology)
6	B.Com (Business & Financial Informatics)	M.Com (Business & Financial Informatics)

Whereas in Table: 3 Digital Marketing and allied areas have been proposed with Management and Business Studies context.

Table: 2-Digital Finance and allied programs (few popular)

Sl. No.	Possible Bachelors Program (Management Track)	Possible Masters Program (Management Track)
1	BBA/ BBM (Digital Finance)	MBA/ MMA (Digital Finance)
2	BBA/ BBM (Digital Finance and Business)	MBA/MMA (Digital Finance and Business)
3	BBA/ BBM (Digital Finance and Big Data)	MBA/ MMA (Digital Finance and Big Data)

Conclusion

The areas and stakeholders in the field of Digital Finance and allied areas are increasing and growing rapidly. Many universities internationally have designed and developed various programs in this field for providing right and adequate manpower in the field [9], [10], [13]. Developed nations already done various initiatives and activities in this space and in

developing nations various initiatives. Indian Universities and business and commercial venture can develop joint program in the field with other concentration leading to Arts, Science and Technology etc. As Financial affairs are including various direct and indirect issues on business, insurance and banking thus the concept is emerging and growing rapidly.

Reference

- [1] Aithal, P. S., (2015). Concept of Ideal Business & Its Realization Using E-Business Model. *International Journal of Science and Research (IJSR)*, 4(3), 1267 - 1274, DOI : <http://doi.org/10.5281/zenodo.61648>.
- [2] Aithal, P. S. (2015). Mobile Business as an Optimum Model for Ideal Business. *International Journal of Management, IT and Engineering (IJMIE)*, 5(7), 146-159. DOI : <http://doi.org/10.5281/zenodo.163880>.
- [3] Altbach, P. G. (1993). The dilemma of change in Indian higher education. *Higher Education*, 26(1), 3-20.
- [4] Barbesino, P., Camerani, R., & Gaudino, A. (2005). Digital finance in Europe: Competitive dynamics and online behaviour. *Journal of Financial Services Marketing*, 9(4), 329-343.
- [5] Chen, H., Chiang, R. H., & Storey, V. C. (2012). Business intelligence and analytics: from big data to big impact. *MIS quarterly*, 1165-1188.
- [6] Gomber, P., Koch, J. A., & Siering, M. (2017). Digital Finance and FinTech: current research and future research directions. *Journal of Business Economics*, 87(5), 537-580.
- [7] Langley, P., & Leyshon, A. (2017). Platform capitalism: the intermediation and capitalisation of digital economic circulation. *Finance and society*, 3(1), 11-31. Maurer, B. (1998). Cyberspatial sovereignties: Offshore finance, digital cash, and the limits of liberalism. *Indiana Journal of Global Legal Studies*, 493-519.
- [8] Paul, P. K., & Dey, J. L. (2011). Data Science Vis-à-Vis efficient healthcare and medical systems: A techno-managerial perspective. In *Power and Advanced Computing Technologies (i-PACT), 2017 Innovations in* (pp. 1-8). IEEE.
- [9] Paul, P. K., & Ghose, M. K. (2018). A Novel Educational Proposal and Strategies Toward Promoting Cloud Computing, Big Data, and Human-Computer Interaction in Engineering Colleges and Universities. In *Advances in Smart Grid and Renewable Energy* (pp. 93-102)
- [10] Varvel Jr, V. E., Bammerlin, E. J., & Palmer, C. L. (2012, February). Education for data professionals: A study of current courses and programs. In *Proceedings of the 2012 iConference* (pp. 527-529). ACM.
- [11] <https://www.liferay.com/resources/1?title=digital-business>

[12] <https://www.i-scoop.eu/digital-business/>

[13] <https://digitalbusinessblog.wordpress.com/tag/digital-business/>

A Conceptual Approach to Empower the Youth through Life Skill Education

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Abstract

In a constantly changing environment, having life skills is an essential part of being able to meet the challenges of everyday life. The dramatic changes in global economies over the years have been matched with the transformation in technology and these are all impacting on education, the workplace and our home life. The cut-throat competition, unemployment, lack of job security, etc... are some of the major concerns for the educated and as a result, they are caught in the mad race. This new challenge requires immediate and effective responses from a socially responsible system of education. 'Education' is important, but education to support and live a better life is more important. To cope with the increasing pace and change of modern life, students not only need to learn the existing life skills but also need to brush up on new life skills such as the ability to deal with stress, frustration & depression. Today's students will have many new jobs over the course of their lives, with associated pressures and the need for flexibility. Hence Integration of Life Skills in the curriculum serves the need to redefine and reshape the global landscape of learning. Life Skill education will instill among the students a passion for Lifelong learning; in pursuit of knowledge and making them sustainable, competitive and employable. The present paper focuses on the conceptual approach on need for life skill education which would contribute to the healthy development of young Individuals.

Keywords: Life Skills, Education, Empowerment, Problem Solving Ability, Volatile Environment, Decision Making

INTRODUCTION

Over the past two decades, educators, employers, and policymakers have increasingly placed great emphasis on the development of life skills as a way to prepare young people for success in today's rapidly changing and globalized world. However, the range of how different organizations define life skills is vast. The WHO has defined life skills as "abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life," while UNICEF has defined them as a "large group of psychosocial and interpersonal skills that can help people make informed decisions, communicate effectively, and develop coping and self-management skills that may help lead a healthy and productive life. Life skills enable individuals to translate knowledge, attitudes and values into actual abilities – i.e. what to do and how to do it. Life skills are abilities that enable individuals to behave in healthy ways, given the desire to do so and given the scope and opportunity to do so (Pooja Yadav and Naved Iqbal, 2009).

LITERATURE REVIEW

Felisa Deskeo (2002) in their study on the Importance of Adding Life Skills to Standard Curricula found that inadequacy of all the academic subjects applicable to real life situations are really not very useful when it comes to survival in the real world. Adding life skills to standard school curricula would make young people become more productive when they finish school and start finding job and starting a family of their own. The study further states that Children will achieve more in life if they know the basic skills in life which will help them handle things as they go with their day to day activities. It is important to add life skills to standard school curricula. If this is added to the school curricula there is no problem at all with the students when they grow up and get a job of their own. Margret Francis (2007) in their study on Life Skills Education in "Changing Minds found that life skill education is a basic learning need for all young people and will help the young people to empower in challenging situations. Various skills like leadership, responsibility, communication, intellectual capacity, self esteem, Interpersonal skill etc. extends its maximum level, if it is practicing effectively among the youth. Researcher further insists on creating life skill education programs compulsory for youth, for this an effective and influential implementation strategy will be required to help the youth to internalize it in their life. According to the author special skills like leadership, communication, self-understanding, decisions-making, working with groups, interaction and socialization enhance to the quality of life of youth. Pooja Yadav and Naved Iqbal (2009) undertook a study on Impact of Life Skill Training on Self-esteem, Adjustment and Empathy among Adolescents. In their study they found that Life skill training do show positive results in bringing change in adolescent's attitude, thought and behavior by providing supportive environment to them.

R. Dinesh and Dr. R Belinda(2014) in their study Importance Of Life Skills Education For Youth tried to understand what are the Life Skills which are needed by most of the students to overcome the lags created by our education system. Their study also tried to understand the major troubles of students in their education and the strategies which can be adopted to overcome those troubles In their study they found that that efforts has to be made to enable the education of learner in a more comprehensive manner by providing the right content on Life Skills Education through the most viable usage of strategies for the teenage group. This can make our current young minds to act in par with the demands of the society. Rajni Dhingraa and Kirti Singh Chauhanb(2017) undertook a study on Assessment of life-skills of adolescents in relation to selected variables with the objective to assess the life-skills of the selected adolescents and to determine the variation in their life-skills with their SES and education of parents. On statistical analysis it was found that Sample adolescents had average level of life skills. Dimension wise analysis revealed that they scored least in the dimension of coping with stress, pointing to the need for more emphasis on acquisition of this skill to deal with the ever demanding requirements of everyday life. A highly significant correlation found between parental education and levels of life-skills of adolescents, further fortify the notion that education plays a crucial role in making parents aware of the needs of their children.

OBJECTIVES AND METHODOLOGY OF THE STUDY

This is a conceptual paper which it tries to understand how individuals can deal effectively with the demands and challenges of everyday life through life skill education. It also tries to understand the need for life skill approach for a healthy development of the young individuals. The study of life skills remains a complex area, with a variety of definitions, frameworks and concepts, and little consensus. In the present study the data has been collected through review of concerned literature

THE CHALLENGES FACED BY THE OF THE PRESENT YOUTH

Although young people around the world are more and more likely to pursue formal education, upon graduation they often find that they are not adequately prepared for the world of work. Because skills relevant to key growth sectors of the modern economy – both technical and “soft” skills – are often not covered in traditional education systems, employers often find a “skills mismatch” between the competencies youth need to succeed in the workplace and those they actually possess. This is a critical challenge for today’s youth, and one key approach to overcoming this challenge is through the provision of life skills training.

The skills mismatch has continued to grow with globalization and as many countries transition to a more service-oriented economy. Employers are finding that regardless of their level of education, most new hires lack communication and client-relations skills; organizational and prioritization skills such as time-management; and flexibility and

adaptability. Entry-level employees in many emerging markets may be technically overqualified, but lack teamwork and interpersonal skills, making collaboration with colleagues and problem-solving between team members difficult.

Modern day youth of India lives in the most interesting phase of the history. As the Indian economy went globalized and the internet is already an integral part of our lives, we have fairer chances of making it big than any of the previous generations. Young mind is being considered, as the most productive members of the society, due to their physical and intellectual capability. But in real scenario, most of them are unable to utilize their potential in an appropriate way due to lack of guidance and motivation. Today's youth face lot of challenges in life like lack of Confidence, Issues with communication, restricted body language, huge potential and creativity but don't know how to express, lack of positive attitude, hesitant in Decision making and lot more such challenges. This new challenge requires immediate and an effective response from a socially responsible system of education. Education, now a days is hence, very important, but the kind of education, to support and live life better is more important (Ravindra Prajapati, Bosky Sharma, Dharmendra Sharma, 2017). Hence Life skill education can help an individual to meet these challenges and demands and make a difference in his life as well as the society as a whole.

CONCEPT OF LIFE SKILL EDUCATION

Life skills education is designed to facilitate the practice and reinforcement of psychosocial skills in a culturally and developmentally appropriate way; it contributes to the promotion of personal and social development, the prevention of health and social problems, and the protection of human rights. According to UNICEF, Life Skills are a behavior change or behavior development approach designed to address balance of three areas that is Knowledge, Attitude, Skills.

The world bodies such as UNICEF, UNESCO, and WHO list the ten core Life Skills as:

Self-awareness	Critical thinking
Creative thinking	Decision making
Problem Solving	Effective communication
Interpersonal relationship	Empathy
Coping with stress	Coping with emotion

Today as the demands and expectations of the society and job market have changed, it becomes important to add to this category some essential skills and knowledge on the basis of day to day requirements and factors like driving, swimming, banking, household work, socializing, creative thinking, problem solving, optimistic mindset, stress management, taming our ego's, anger management, being technology savvy, and many more skills in and

around these areas. Those who can excel in these would be able face the challenges of life in a better way.

NEED FOR LIFE SKILLS

Nowadays, youth are under a lot of stress because of academic pressure, temptations unleashed by social media and such other reasons. The 'model' solutions they adopt to deal with stress and conflict are often full of negativity. Life skills based education focuses on sharing knowledge, attitudes and skills which support behaviours that help young people take greater control of their lives by making healthy life choices, gaining greater resistance to negative pressures, and minimising harmful behaviours. These life skills aim at the following objectives

- To provide young people with strategies to make healthy choices that contribute to a meaningful life.
- Making an informed decision
- To enable young people to analyze their capacities to enhance the function in a most productive way,
- To allow the youth get along with other people and would be able to adjust with their environment and making responsible decision
- To enable an individual to develop a concept of oneself
- To enable an to understand oneself and lead to growth in personal responsibility,
- To empower the young people to face challenging situations

POSITIVE OUTCOMES OF SKILL EDUCATION

There is growing evidence that these life skills are associated with a range of positive outcomes at school and later in life. These life skills can have an impact both education and labour market outcomes. Some of the benefits of life skills are as follows:

- **Improve economic outcomes for youth:** Life skills programs have been shown to increase the earning potential of young people. Besides they position youth to obtain jobs of better quality and formality, measured by written contracts and employer-paid insurance. Today life skills appear to be amongst the ones most highly valued by the future employers.
- **Improve education outcomes for youth:** Recent research has demonstrated that when young people are provided interventions that include non-academic supports in social-cognitive skills, learning outcomes improve as do completion/graduation rates.
- **Increase employer satisfaction with new hires:** Life skills programs strengthen young people's abilities in many areas that employers consider particularly important when hiring new employees. Employers often report a higher level of satisfaction

with entry-level employees who have gone through life skills training than those who have not.

- **Changes in personal behavior and social attitudes of youth:** Life skills programs allow youth to create a life plan and equip them with the skills to take steps toward achieving their goals. They also help young people to better understand healthy personal behaviors, thus decreasing outcomes such as drug and alcohol use, and interpersonal violence. As a result, they help to increase young people's sense of self-esteem and expectations for their future and the future of their children.

BENEFITS OF LIFE SKILL

Benefits to Individuals: In everyday life, the development of life helps the youth to find new ways of thinking and problem solving. They recognise the impact of their actions and teaches them to take responsibility for what they do. It also helps them to make a healthy decisions and make them to understand why they have made those choices. It helps the youth to develop a greater sense of self awareness and appreciation for others.

Benefits for employment: While students work hard to get grades many still struggle to get good employment. Today even key employability skill matter like time management, people management, working well as a part of a team, adaptability to different roles and flexible working environment. These life skills would even impart these employability skills to an individual and it would help them in meeting the requirements of job market.

Benefits to society: The more an individual develops life skills individually, the more these affect and benefit the world in which they live. Individuals get to know about their responsibility towards the society

Cultural benefits: Life skill education helps to clarify the needs of young people growing up in modern societies. It is of particular value to the youth growing up in multicultural societies

Health benefits: Life skills education address the combination of psychological and social factors that contribute to healthy behaviour. The promotion of personal and social skills is an important aspect of health promotion intervention that aim to empower the individual to promote his /her health as well as the health of others and community.

LIFE SKILL APPROACH

One best-practice model for contributing to the healthy development of youth is a life skills approach. A key aspect of human development - as important to basic survival as intellect - is the acquisition of socio cognitive and emotional coping skills. This has been shown to have impact on behaviors. For more than a decade, research on interventions that address these

specific skill areas has shown their effectiveness in promoting desirable behaviors, such as sociability, improved communication, effective decision making and conflict resolution, and preventing negative or high-risk behaviors, such as use of tobacco, alcohol and other drugs, unsafe sex, and violence. Life skills are essentially those abilities that help promote mental well being and competence in young people as they face the realities of life (Pooja Yadav and Naved Iqbal,2009)

The life approach that we have designed based on the concerned literature review consists of Identifying core life skills needs to meet future challenges as well as the needs of corporate world, developing relevant information on needed skills, designing or tuning our curriculum according to needs and implementing these life skill through a effective methodology using roles, case analysis, group discussion, brain storming session and so on. The Life Skills Programme can be designed in such a way that it can be infused into other school subjects or it can be introduced as a new subject. Whatever design is followed, it must ensure greater potential for success. School education plays an important role in Life Skills Development among individuals, especially in the current time when traditional mechanisms for passing on Life Skills are no longer adequate, considering the influences that shape a young individual's development.

CONCLUSION

The youth is considered to be the best asset of any country and investment in the human resource promises flabbergasting returns. However, if we are to develop the citizens for a better nation tomorrow, we are supposed to not only develop their talent but also recognize and counter the challenges Indian youth are facing in present day. In conclusion it can be stated that life skills education, have been an effective strategy for promoting positive and healthy development of the youth and they play a significant role in overall development of an individual. A relevant and proper implementation of life skill education is a need of an hour, for today's society. Now if at all we can incorporate and absorb these important life skills in our education system and give high priority and importance right from the early days of schooling till professional education, then it would create huge impact and make a difference in not only each individuals lives and their families but also make our society, country and the world an amazing place to live in.

REFERENCES

- Felisa Deskeo (2002), "The Importance of Adding Life Skills to Standard Curricula", shodhganga.inflibnet.ac.in/jspui/bitstream/10603/139235/8/08
- Francis, M. (2007), "Life Skills Education". www.changingminds.org.
- Pooja Yadav and Naved Iqbal(2009), "Impact of Life Skill Training on Self-esteem, Adjustment and Empathy among Adolescents", Journal of the Indian Academy of Applied Psychology ,October , Vol. 35, Special Issue, 61-70.

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- Renjith R Pillai (2012), “Importance of life skill education for children and adolescent”, <https://www.researchgate.net/.../308916956>
 - R.Dinesh and Dr.R.Belinda(2014), “Importance Of Life Skills Education For Youth” ,Social Sciences, Volume - 4 | Issue - 12 | Dec Special Issue - 2014 | ISSN No- 2249-555X
 - Ravindra Prajapati, Bosky Sharma, Dharmendra Sharma (2017), “Significance Of Life Skills Education”, Contemporary Issues in Education Research – First Quarter 2017 Volume 10, Number 1.
 - Rajni Dhingraa, Kirti Singh Chauhan (2017), “Assessment of life-skills of adolescents in relation to selected variables”, International Journal of Scientific and Research Publications, Volume 7, Issue 8, August, ISSN 2250-3153
 - Carl Cullinane and Rebecca Montacute (2017), “LIFE LESSONS Improving essential life skills for young people”, <https://www.suttontrust.com/>
 - Assoc. Prof. Emine Özmete, “Building life skills for Empowerment of Young People: A Conceptual Analysis” <http://www.sdergi.hacettepe.edu.tr/makaleler/OZMETE-lifeskills>
 - <https://www.iyfnet.org/library/strengthening-life-skills-youth-practical-guide-quality-programming>
 - <http://www.ijsrp.org/research-paper-0817.php?rp=P686697>.

Study of Some General-Purpose Technologies which Contributed for Sustainable Society

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Abstract:

General Purpose Technologies' (GPT) are characterized by pervasiveness where they have an inherent potential for technical improvements, and innovation complementarities, meaning that the productivity through research and development in related sectors increases due to the consequence of innovative applications through such general-purpose technologies. Thus, as general-purpose technologies progress, they spread throughout the economy, eventually bringing about generalized productivity gains. Examples include the steam engine, railroad, interchangeable parts, electricity, electronics, material handling, mechanization, control theory (automation), the automobile, the computer, the Internet, and nanotechnology. In this paper, we have identified, analysed, and compared Information Communication and Computation Technology (ICCT), and Nanotechnology (NT) as two most important general-purpose technologies due to their abilities to solve both basic problems and advanced need of the society. The paper also contains a conceptual and predictive proposal on how various general-purpose technologies including ICCT and NT are potentially contributing towards creating a techno-society and based on further progress and spread of such technologies to every dimension of human life to reach the ultimate level of civilization in or around this earth.

Keywords : General purpose technologies, Information Communication and Computation Technology (ICCT), Nanotechnology (NT), Technologies for social development.

1. INTRODUCTION :

A general-purpose technology or GPT is a term coined to describe a new method of producing and inventing that is important enough to have a protracted aggregate impact. Electricity and information technology (IT) probably are the two most important GPTs till 20th century. A GPT can be a product, a process, technology or an organisational system [1].

Whole eras of technical progress and growth appear to be driven by a few ‘General Purpose Technologies’ (GPT's), such as the steam engine, the electric motor, and semiconductors. GPT's are characterized by pervasiveness to many sectors, inherent potential for technical improvements, and innovation complementarities to many applications, giving rise to increasing scale of operation. A notable writer Ruttan [2] identified the development of six general-purpose technologies:

- Interchangeable parts and mass production
- Military and commercial aircraft
- Nuclear energy
- Computers and semi-conductors
- The Internet
- The space industries

Based on his reading of the histories of these technologies, Ruttan finds that military and defense-related procurement has been a major source of technology development. He believes that the current technological landscape would look very different in the absence of military and defense-related contributions to commercial technology development. However, from his research, Ruttan determines that commercial technology development would have occurred in the absence of military procurement but more slowly, e.g., the aircraft, computer, and Internet industries. He cites nuclear power as an example of a general-purpose technology that would not have developed in the absence of military and defense-related procurement [2].

Economist Richard Lipsey and Kenneth Carlaw [3] suggested that there have only been 24 technologies in history that have been identified as true GPTs. They define a transforming GPT follows four criteria which are listed below:

- (1) GPT is a single, recognisable generic technology.
- (2) Initially GPT has much scope for improvement but comes to be widely used across the economy.
- (3) GPT has many different uses in many areas to solve problems or to provide comfortability.
- (4) GPT creates many spill over effects to spread its base to many sectors.

2. HOW GENERAL PURPOSE TECHNOLOGIES ARE DIFFERENT

General purpose technologies have the potential to reshape the economy of the world and boost productivity across all sectors and industries. Such transformations are far more than simple technical

innovation, or a new discovery. However, such technologies often require a wholesale remaking of infrastructure environments, of business models, and of cultural norms. There are three fundamental features of GPTs that differentiate them from other technologies which are (1) Pervasiveness – The GPT should spread to most sectors. (2) Improvement – The GPT should get better over time and, hence, should keep lowering the costs of its users. (3) Innovation spawning – The GPT should support to invent and produce new products or processes. Most technologies possess each of these characteristics to some degree, and thus a GPT cannot differ qualitatively from these other technologies [1].

3. ICCT & NT AS GENERAL-PURPOSE TECHNOLOGIES & SYSTEMS

3.1 ICCT as GPT :

It is observed that Information Communication and Computation Technology (ICCT) is showing all the three characteristics of GPT. In the 21st century, ICCT is grown and spread its roots to all industries and industry sectors from A to Z due to its pervasiveness property as shown in Table 1. The Improvement and Innovation spawning properties of Information Communication and Computation Technology (ICCT) as general purpose technology are created major stake holding areas including Big data and business Analytics, Cloud Technology, Artificial Intelligence, Internet of Things (IoT), Digital Marketing, 3D Printing, Virtual Reality, and optical computing.

(i) Big data and business Analytics :

The emerging subfield of ICCT named big data and business analytics focus on handling huge amount of data continuously generated in any business or data capturing process and analyses it using various quantitative analytical techniques and mathematical models to study the pattern and descriptive information, predictive information, and prescriptive information for supporting the decision makers to take optimum decisions to the problems related to future aspects of the business. Predictive analytics in various functional areas like Marketing analytics, Retail Analytics (Customer Analytics / Supply Chain Analytics), Pricing Analytics, Financial analytics, Social media analytics, sports analytics, and Healthcare analytics are finding importance in the business environment for effective decision making. Further Prescriptive Analytics for optimizing the decisions with multiple objectives / portfolio analytics, optimizing complex decisions / salesforce analytics, and Retail Analytics etc are also have futuristic impact on effective business decisions [4-7].

(ii) Cloud Technology :

Cloud computing is one of the advances in computer technology and is uses information communication technology as well. Due to the ubiquity of cloud computing facility with flexibility in scaling it has become an important topic of research and provides the value for computing processes in the business. The cloud computing model offers so-called Business Intelligence (BI) for any kind of business decisions via the Internet. Using cloud computing model, one can offer a rented hardware as well as software to process the data online. Thus, cloud computing model has three variations as

Software as a Service (SaaS), Infrastructure-as-a-Service (IaaS) and Platform-as-a-Service (PaaS) to provide ubiquitous computing service solutions to the business. The cloud computing solution to any business will allow companies to reduce their investment cost and maintenance cost for without compromising to have access to BI solution which will give the business an edge on their competition [8-15]. Cloud computing is subfield of the Information Communication and Computation Technology (ICCT).

(iii) Artificial Intelligence :

Artificial intelligence (AI) is an area of computer science which focus on the creation of intelligent machines that makes decisions like human beings. The main functions of artificial intelligence machines are to recognize the environment such as speech recognition, Learning, Planning, Problem solving, and hence decision making. Artificial intelligence machine mimics cognitive functions of human beings associated with other human minds, such as learning & memorising and decision making for problem solving. ICCT has created a platform for AI to be introduced and developed for adding intelligent thinking components in electronic systems used in any industrial sectors [16].

(iv) Internet of Things (IoT) :

It is a network of various electronic, computing, and optical devices/objects including human beings connected virtually by means of internet or intranet for enabling them to send and receive data and information. These objects are provided with unique identifiers (UIDs) and are capable to transfer data and information over a network without requiring human-to-human or human-to-computer interaction by using IOT technology. Such a connection of physical things/objects to the Internet makes it possible to access remote sensor data and to control the physical world from a distance. The mash-up of captured data with data retrieved from other sources, eg, with data that is contained in the Web, gives rise to new synergistic services that go beyond the services that can be provided by an isolated embedded system [17]. Internet-of-Things (IoT) is not in any new disruptive technology but is the pervasive deployment and innovation of ICCT.

(v) Digital Marketing :

ICCT created a new business model called E-business/ M-business model. This model consists of ubiquitous selling proposition. *Digital marketing* is the *marketing* of products or services using *digital* technologies as per such new business model using mainly on the Internet, but also including mobile phones, display advertising, and any other *digital* medium. At a high level, *digital marketing* refers to advertising delivered through *digital* channels such as search engines, websites, social media, email, and mobile apps. Digital marketing is emerged as an essential future marketing activity using ICCT general purpose technology [18].

(vi) 3D Printing :

3D printing is an ICCT application where various materials are joined or solidified using various processes under the control of computer to create a three-dimensional object. In 3D printing, an object is created by laying down successive layers of material until the object is created. 3D printing can be divided into metal, fabrics, bio and a whole host of other industries with many applications in many industries worldwide. 3D printing is a variant of ICCT general purpose technology and has wide scope in various industrial automation and home automation processes. 3D printing comprises of many other technologies along with ICCT. Some of the 3D printers make use of nanomaterials and nanocomposites [19].

(vii) Virtual Reality :

Virtual reality is an artificial environment that is created with the help of computer-based software and presented to the user in such a way that the user suspends belief and accepts it as a real environment. On a computer, virtual reality is primarily experienced through two of the five senses: sight and sound. Currently, the virtual reality is mainly developed and used in simulated training and education as well as the simulated game environment. But it may further find its applications in many other areas including business as augmented reality and may enter the group of general purpose technology [20].

(viii) Optical computing:

High speed computers based on optical signal switching and optical signal processing are expected to breakthrough with their full potentials and capabilities using optical logic gates and flip-flops fabricated by nanocomposites are expected to breakthrough in this century. High speed computation and data storage using nanotechnology based optical computers are going to revolutionize the entire computer industry. Optical computation is joining both general purpose technologies of Nanotechnology and ICCT through the processes of design & production as well as operation & applications respectively [21].

Table 1 : Industries and Industry sectors which use and benefit from ICCT

S. No.	Industries	Industry Sectors/Segments	ICCT Applications
1	Agricultural & Allied Industries	Agricultural products, Forestry & logging, Fishery.	Remote sensing using satellite technologies, Geographical information systems, Agronomy and soil sciences, Weather prediction & forecasting etc.

2	Auto components	Engine & Drive Transmission Parts, Suspension & Braking Parts, Electricals, Body and Chassis Parts, Equipment etc.	Product Lifecycle Management, Research & Development Manufacturing automation Sales automation Post sales solution
3	Automobiles	Commercial vehicles, Passenger cars, Three & two-wheelers.	Use of IT in new vehicle design, systems control, manufacturing, sourcing, and marketing.
4	Aviation	Civil aviation, Military aviation	Airport operations, Air-cargo operations, Airline management, Air- ticketing, Security etc.
5	Banking & Insurance	Public Banking Private banking International banking Life insurance General insurance	E-banking, Online banking, Online and mobile services, ERP and networking, Transactional services, ATM management etc.
6	Cement	Cement Production, Cement transportation	Energy efficiency in production Transportation management, Quality monitoring etc.
7	Consumer Durables	Consumer electronics (brown goods) Consumer appliances (white goods)	Production automation, Supply chain management, Online sales, Online payment, Online customer support, etc.
8	E-Commerce	E-procurement E-marketing E-payment	E-cart, Internet, Secured online payment, Customer support, E- advertisement
9	Education & Training	Education, Training	Online education, Online training, E- gadgets, online evaluation etc.

10	Engineering & Capital Goods	Transport equipment, Capital goods, other machinery/equipment and light engineering products such as castings, forgings and fasteners.	Made to order, Order processing, Supply chain management, Quality control systems Online customer management, ERP etc.
11	Financial Services	Credit unions, Banks, Credit-card companies, Insurance companies, accountancy companies, Consumer-finance companies, stock brokerages, Investment funds, etc.	Operational automation, Online transactions, Online services, electronic business, etc.
12	FMCG	Packaged foods, Beverages, Toiletries, Over-the-counter drugs, Other consumables.	Retail management Supply chain management E-distribution Business to Business E-Commerce
13	Healthcare	Hospitals, <i>Medical</i> devices, Clinical trials, Outsourcing, Telemedicine, <i>Medical</i> tourism, <i>Health</i> insurance and <i>Medical</i> equipment	Communication, Computerization of medical records, Networking of various departments in a hospital, Tele-medicine services
14	Infrastructure	Transportation, Communication, Sewage, Water and electric systems	Basic Communication and Computation
15	IT & ITES	E-Communication Cloud computing, Mobile applications E-services	Business Automation Business process outsourcing Resource sharing Ubiquitous business

		E-Business	
16	Manufacturing	Raw materials, Food manufacturing, Textiles	Automated procurement Quality control Online marketing
17	Media & Environment	Print media, Radio, TV media, Social media, and film,	Digital techniques Online media Internet based social networks etc
18	Pharmaceuticals	Pharmacy Drug production Clinical practice	Online pharmacy Drug information Clinical information sharing
19	Ports	Ports Terminal management Shipping	Automation of all activities
20	Power	Coal Hydro Renewable energy	Automation of all activities Control of wastage
21	Railways	Goods trains Passenger trains Railways Infrastructure	Online booking E-communication Safety
22	Real Estate	Residential sector Commercial sector	Tele communication Entertainment
23	Retail	Convenience Stores, Specialty Stores, Department Stores, Supermarkets, Hypermarkets, Discount Stores, Multichannel Stores.	Communication Online transactions Online store Online payment

			E-inventory etc.
24	Science & Technology	Research & Development Emerging technologies Bio-technology Space technology Nanotechnology etc.	Back ground support Online Journals Research data Space data & Travel Design 7 development
25	Services	Warehousing and truck transportation services, Information sector services, Commodities, Securities and other investment services	Process Automation Customer service Information E-Business models Online payment
26	Telecommunications	Telecom equipment (the largest), Telecom services (next largest), Wireless communication.	Electronic signal Radiofrequency signal Wireless data Video and audio communication
27	Tourism & Hospitality	Food and beverages, Travel and Tourism, Lodging, Recreation.	Geographical Positioning systems, Online booking Audio & Video recording & Processing.

ICCT has made a major impact due its associated new business models called e-business model and m-business models. These business models provided both business organizations and customers to use ubiquitous concept of selling and buying the goods and services from anywhere, anytime and any amount of time. The business model developed using ICCT general purpose technology is very close to ideal business model [22-24].

3.2 Nanotechnology as GPT :

The major stakeholders of Nanotechnology as general-purpose technology are Universal drinking water system, Universal Renewable energy system, Optical computation, Embedded intelligence, Chameleon chips, Flying cars, Space travel, and anticipated Immortality [25-26].

(i) Nanotechnology treated Seeds for Innovations in Agriculture : NT solutions in agriculture reduce applications of plant protection products, minimize nutrient losses in fertilization, and increase agricultural yields through optimized nutrient management. It also provides nanotech-based tools to detect diseases in a rapid manner, improve the ability of plants to absorb nutrients and promote the molecular treatment of diseases. Use of nano-sensors supports the use of precision farming methodologies to a multifold increase of crop yield. Nanotech-enabled “smart” devices can preventive and warn to choose diseased plant even before they detected by the farmers and simultaneously provide remedial measures. These nanotech systems can also be used to monitor the delivery of chemicals [27].

(ii) Universal drinking water system : Nanotechnology has shown opportunity in solving another fundamental problem of many people of the world which is the scarcity of drinking water. Though we have abundant water in the sea, it is non-potable and hence not useful for drinking and irrigation. Nanotechnology filters are promising solutions to filter soluble and insoluble impurities mixed from the water both in small scale and large scale. This innovation leads to scalable universal drinking water system. Nanotechnology will provide a solution for this challenge of providing abundant drinking water through inexpensive methods of water purification by detection of the molecular level of contaminants, and improved nanomembrane based filtration systems. This helps the conversion of seawater to drinking water at a very low cost [28].

(iii) Automobiles : Automobiles is one of the largest industries in the world. Automobile industry is trying to make a breakthrough in improving the efficiency, durability, and cost of vehicles using nanotechnology solutions along with decreasing the pollution by using hydrogen fuel or electric engines. The major expected impact of nanotechnology innovations on Automobile sector in order to solve the problems in automobile efficiency, durability, cost, and environmental pollution to produce electric/pollution free vehicles with nanotechnology-based auto-components, auto-engines, auto-tyres, auto-electronics, auto-seat materials, auto-bodies, aeroplanes, space crafts, and rockets [29].

(iv) Renewable energy system : The nanotechnology impact on seven areas of energy sector including solar energy, wind energy, nuclear energy, oil-fuel based energy, artificial photosynthesis, energy storage and effective energy management to promote nanotechnology-based energy as ubiquitous energy are discussed and reviewed. The paper includes possible innovations and research opportunities in nano-modified solar cells, Nano-influenced Fuel storage cells, and nanotech based artificial photosynthesis [30-32].

(v) **Optical computation** : High speed computers based on optical signal switching and optical signal processing are expected to breakthrough with their full potentials and capabilities using optical logic gates and flip-flops fabricated by nanocomposites are expected to breakthrough in this century. High speed computation and data storage using nanotechnology based optical computers are going to revolutionize the entire computer industry. Optical computation is joining both general purpose technologies of Nanotechnology and ICCT through the processes of design & production as well as operation & applications respectively.

(vi) **Embedded intelligence** : Embedded intelligence is a technique to modify the ability of a product, process or service to reflect on its own operational performance, usage load, or in relation to the end-user or environment in terms of satisfactory experience and smart improvement. This improvement through self-reflection, facilitated by information collected by sensors and processed locally or remotely, must be considered from the design stage such as to improve the product features, enhance the product lifetime and performance, increase the quality of process or service delivery, or ensure customer satisfaction and market acceptance [33-36]. Embedded intelligence aims at delivering smarter products, systems or services to industry through their integration and purposeful use for a given application. Embedded intelligence (EI) system/service application contains various components/processes which include design for EI, intelligent software, packaging & interconnect, manufacturing solutions and/or system services. Nanotechnology supports the integration of embedded processors with sensors, intelligence, wireless connectivity and other components with high level operating systems, middleware and system integration services.

(vii) **Chameleon chips** : A chameleon chip is a self-configurable electronic or optical circuit to modify the output signal characteristics as per the system requirements. It has an erasable hardware configuration. It is also possible to rewire it by itself through adapted programming tasks. Chameleon chip consists of many functional blocks which are connected parallel to each other with many computational units which can process signals simultaneously. While reconfiguring these chips as per desired, the connections are automatically changed. i.e., the connections between blocks and inside blocks are changed. After loading the software, the old hardware design will be erased and a new hardware design is generated by activating some connections and inactivating some other connections. Hence the system defines the configuration of hardware for loaded software. Chameleon chips can be realized using dye doped nanocomposite materials [25].

(viii) **Space Travel** : The growing population and diminished resources on earth suggest identifying an opportunity for space exploration. Space exploration also helps us to monitor the health of our planet, a source of resources and an outlet for our imagination. Using carbon nanotubes to make the cable needed for the space elevator, a system which could significantly reduce the cost of sending material into orbit. Nanotechnology will create the ability for humans to operate in space more safely.

Applications, where nanotechnology will impact space exploration, are propulsion fuels, coatings, structural materials, smart uniforms, electronics and life support environments. These will be more efficient, stronger, self-healing and lighter than what is currently available [37-40].

(ix) **Anticipated Immortality** : The dream of every human being is to a leave long time with good health. This can be achieved using nanotechnology innovations. There are two ways in which nanotechnology may be able to extend our lives. One is by helping to eradicate life-threatening diseases such as cancer, and the other is by repairing damage to our bodies at the cellular level - a nano version of the fountain of youth. The most exciting possibility exists in the potential for repairing our bodies at the cellular level. Research in this regard is very active at the laboratory level to achieve and realize these dreams in the 21st century itself [25].

Table 2 : Industries and Industry sectors which use and benefit from Nanotechnology

S. No.	Industries	Industry Sectors/Segments	NT Applications
1	Agricultural & Allied Industries	Agricultural products, Forestry & logging, Fishery.	Nanotechnology based optimized nutrient management, Nanosensors, Nanotechnology based genetic transformation, Nanoencapsulation of nutraceuticals, Nanofertilizers
2	Automobiles	Commercial vehicles, Passenger cars, Three & two-wheelers.	Nanomaterials for energy storage, increasing body strength, efficient engine and body parts
3	Aviation	Civil aviation, Military aviation	Light & strong materials for airplane
4	Banking & Insurance	Public Banking Private banking International banking	Increased efficiency of ICT components and devices

		Life insurance General insurance	
5	Cement	Cement Production, Cement transportation	Nanomaterials for increasing strength, controlling hardness
6	Consumer Durables	Consumer electronics (brown goods) Consumer appliances (white goods)	Increased performance efficiency of goods and devices
7	E-Commerce	E-procurement E-marketing E-payment	Increased efficiency of ICT components and devices
8	Education & Training	Education, Training	Increased efficiency of ICT components and devices
9	Engineering & Capital Goods	Transport equipment, Capital goods, other machinery/equipment and light engineering products such as castings, forgings and fasteners.	Nanomaterial based light weight components with enhanced durability. Nanocomposite based battery and solar panels to enhance efficiency.
10	FMCG	Packaged foods, Beverages, Toiletries, Over-the-counter drugs, Other consumables.	Nanomaterial based cosmetics, paints, food packaging, drugs & sports equipment etc.
11	Gems & Jewellery	Gems Jewellery	Nanotechnology based artificial gems and jewellery
12	Healthcare	Hospitals, <i>Medical</i> devices, Clinical trials, Outsourcing, Telemedicine, <i>Medical</i> tourism, <i>Health</i> insurance and <i>Medical</i> equipment	Nanomaterial based building materials, Nanomedicine, Nanotechnology based controlled drug delivery

13	Infrastructure	Transportation, Communication, Sewage, Water and electric systems	Nanomaterial based parts, filters, power storage devices
14	IT & ITES	E-Communication Cloud computing, Mobile applications E-services E-Business	Nanomaterial based electronic and photonic components
15	Manufacturing	Raw materials, Food manufacturing, Textiles	Nanomaterials used for fabrication to improve the strength and performance
16	Media & Environment	Print media, Radio, TV media, Social media, and film,	Nano ink, Nanotechnology based electronic and photonic components
17	Pharmaceuticals	Pharmacy Drug production Clinical practice	Nanomaterial based medicines, Nanomaterial based controlled drug delivery
18	Ports	Ports Terminal management Shipping	Improved mechanical tensile strength
19	Power	Coal Hydro Renewable energy	Improved technology of power generation, Improved performance of turbines, Solar panel with improved efficiency, Wind turbines with increased durability
20	Railways	Goods trains	Nanomaterial based improved

		Passenger trains Railways Infrastructure	performance
21	Real Estate	Residential sector Commercial sector	Nanomaterial based quality and durable construction materials
22	Renewable Energy	Solar Energy Wind Energy Nuclear energy	Improved efficiency Improved strength Improved safety
23	Retail	Convenience Stores, Specialty Stores, Department Stores, Supermarkets, Hypermarkets, Discount Stores, Multichannel Stores.	Quality and efficient products
24	Roads	Roads Bridges	Nanomaterials for durable roads and bridge construction
25	Science & Technology	Research & Development Emerging technologies Bio-technology Space technology Nanotechnology etc.	Research for new smart materials, new smart components, new and improved devices through improved properties
26	Steel	Iron Ore Steel Steel products	Parts with improved strength and increased durability
27	Telecommunications	Telecom equipment (the largest), Telecom services (next largest), Wireless communication.	Components with Improved efficiency, Improved strength, small size.

28	Textiles	Dying, Treads, Weaving machines	Improved colouration, Improved strengths, Stain-free fabrics, Durable Weaving machines, etc.
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3.3 Similarities between the ICCT and NT :

Even though both ICCT and NT are emerging as general-purpose technologies, they are not seeming to be competing technologies. Nanotechnology supports industries to do innovations in material and manufacturing processes to improve the performance quality towards optimum systems whereas the ICCT supports industries to do innovations at application and service side of businesses. Thus, both NT and ICCT works like complementary to each other instead of competitive technologies. Thus, both technologies are expanding with time to many industries by showing all the three characteristics of GPT with Pervasiveness, Improvement over time, and Innovation spawning abilities.

1. In both technologies, productivity growth rates are below those attained in the decades immediately preceding the GPT's arrival.
2. Measures of reallocation and invention – the entry and exit of firms to these business market, investment by new firms relative to incumbents, and grants of patents and trademarks – are all higher during both the GPT's.
3. Expansion to various industries rises gradually during each GPT time.
4. Both technologies are supporting each other and hence interrelated and complementary to solve many problems in the organizations and in the society.

3.4 Differences between the Information Communication & Computer Technology and Nanotechnology :

1. Innovation measures are growing much faster for ICCT than for Nanotechnology – patents and trademarks surge much more strongly during the ICCT era, and the price of IT is falling 100 times faster, at least, than did the price of Nanotechnology.
2. ICCT is spreading more slowly than did nanotechnology, due to the fact that ICCT is an application type technology rather than Nanotechnology which is a manufacturing technology.
3. The productivity slowdown is stronger in the Nanotechnology era than the ICCT era.
4. Nanotechnology supports various products preparation and quality improvement whereas ICCT improves many applications in various industrial sectors.

5. Nanotechnology has anticipated hidden environmental problems and challenges which is not a case in ICCT.

The differences seem to be quite important. But overall the evidence clearly supports the view that technological progress is uneven, that it does entail the episodic arrival of GPTs, and that these GPTs bring on turbulence and lower growth early on and higher growth and prosperity later.

3.5 Measuring the three characteristics of ICCT as GPT :

(1) Pervasiveness of the GPT : The first characteristic is the technology's pervasiveness. The spread of ICCT in various industry segment is immense and the details are given in table 1.

(2) Improvement : As per this characteristics, the ICCT should get better over time and, hence, should keep lowering the costs of its users. ICCT is playing this role more effectively. The technology through its digital model lowered the cost of various processes and their applications to a minimum level due to the strategy of attaining the cost leadership by various competitors in different industries. The continuous improvement in both minimizing the size and enhancing the speed of ICCT devices, the customers and hence the society is continuously getting benefits.

(3) Innovation spawning : The ICCT as GPT supports to invent and produce new products or processes. ICCT based innovative new products and processes in high speed computing, electronic communication, business analytics, virtual reality, artificial intelligence, 3D printing, digital marketing, cloud computing, Internet of things technologies are becoming more popular and hence ICCT is growing beyond general purpose technology and marching towards so-called universal technology.

3.6 Measuring the three characteristics of NT as GPT :

(1) Pervasiveness of the GPT : The first characteristic is the technology's pervasiveness. Nanotechnology finds its applications in almost every industrial sector as shown in table 2. It has spread its roots in solving both fundamental problems of human beings and offering luxurious facilities in every part and parcel of human life.

(2) Improvement : The GPT should get better over time and, hence, should keep lowering the costs of its users. This is happening nanotechnological solutions. The improvements in material properties and hence the overall performance of devices in almost all industrial sectors support this property of nanotechnology.

(3) Innovation spawning : The nanotechnology as GPT supports to invent and produce new products or processes. In agriculture, it supports to develop new sensors, a new way of controlling genetic transformation, optimization of nutrient management, nanoencapsulation of nutraceuticals, nano-

fertilizers etc. It also helps to produce potable water from seawater. It supports to fabricate highly efficient long-life batteries for electric vehicles and allows to fabricate high efficiency solar panels and strong and durable windmills. It also helps to develop an innovative process of controlled drug delivery. Finally, it also supports the most anticipated technology of lifespan expansion of human beings so that is predicted as the ideal technology and technology of the 21st century.

4. CONTRIBUTION OF GPT'S TOWARDS DEVELOPING SUSTAINABLE SOCIETY

The symptoms of a GPT proposed by different authors with the three characteristics – its pervasiveness, its rate of improvement, and its innovation-spawning tendency are clearly observed in both the technologies ICCT and NT. Apart from these, additional symptoms as listed below are also observed in the case of these two technologies :

1. Productivity slows down initially – The new technology may not be user-friendly at first, and output may fall for a while as the economy adjusts.
2. The skill premium rises with time – If the GPT is not user-friendly at first, skilled people will be in greater demand when the new technology arrives, and their earnings should rise compared to those of the unskilled. This is true in both cases.
3. Entry, exit, and mergers should rise – This feature is also observed in the case of both technologies as the alternative modes for the reallocation of assets.
4. Stock prices should initially fall – This also applicable in case of both technologies. The speed of such fall depends on the way that the market learns of the GPT's arrival.
5. Young and small firms should do better – The ideas and products associated with both technologies are often brought to market by new firms. The market share and market value of young firms should, therefore, rise relative to old firms.
6. Interest rates and the trade deficit – The sudden increase in the output due to these technologies cause a rise in interest rates or to worsen the trade balance.
7. Improvements in the living standard of people in the society – The contribution of these two GPT's is expected to raise the living standard of people in the society due to their abilities to solve problems related to both fundamental and luxurious facilities for happy life leading.

6. CONCLUSION :

Technological invention is uneven and emerges in bursts; contributes substantially to the society and changes the lifestyle, culture, and tradition and even thinking of people in the society. Information Communication and Computation Technology and Nanotechnology are, to most observers, the two most important GPTs to date, according to the three criteria that Bresnahan and Trajtenberg proposed. These two technologies emerging as independent, integrated and complementary technologies with two additional characteristics proposed in this paper that is (1) Universal applicability, and (2) Ideal

solutions to problems. Thus, these two technologies are emerging as universal technologies of the 21st century. In this paper, we have analyzed how these two GPTs are spreading to many areas of society and changing the lifestyle of human beings. Having discussed in detail these two GPTs we believe that the technological changes and their effects are spilling over the world. The ICCT and NT innovations differ in some important ways but have made and going to make a further impact on many areas of the society. ICCT is more broadly adopted, whereas NT seems to be technologically more revolutionary and yet to be commercialized so that these two technologies together lead to complete revolution of civilization in this world by solving both fundamental and advanced challenges for human prosperity. The productivity slowdown is stronger in the NT era, but the ongoing spread of NT and its continuing proposed precipitous price decline are reasons for optimism about growth in the coming decades relative to what happened at the end of the 20th century following the spread of ICCT. Based on the analysis in this paper, it is also concluded that both the technologies ICCT and NT are potentially contributing towards creating a techno-society and based on further progress and spread of such technologies to every dimension of human life to reach the ultimate level of civilization in or around this earth.

REFERENCES:

- [1] Boyan J., Peter L., Rousseau (2005). Handbook of Economic Growth, Vol. 1B. pp. 1182-1224, Edited by Philippe Aghion and Steven N. Durlauf, Elsevier B.V. DOI: 10.1016/S1574-0684(05)01018-X.
- [2] Ruttan, Vernon (2006). *Is War Necessary for Economic Growth?: Military Procurement and Technology Development*. New York: Oxford University Press. [ISBN 0-19-518804-7](#).
- [3] Lipsey, Richard; Kenneth I. Carlaw; Clifford T. Bekhar (2005). *Economic Transformations: General Purpose Technologies and Long-Term Economic Growth*. Oxford University Press. pp. 131–218. [ISBN 0-19-928564-0](#).
- [4] Aithal, P. S., (2016). Review on Various Ideal System Models Used to Improve the Characteristics of Practical Systems. *International Journal of Applied and Advanced Scientific Research*, ISSN: 2456 – 3080, 1(1), 47-56. DOI : <http://doi.org/10.5281/zenodo.159749>.
- [5] Keerthan Raj, & Aithal, P. S. (May 2018). The Significance of Big Data for the Base of the Pyramid Segment. *International Journal of Applied Engineering and Management Letters (IJAEML)*, 2(1), 72-81. DOI: <http://dx.doi.org/10.5281/zenodo.1253705>.
- [6] Paul P. K., Aithal P. S. & Bhumali A, (April 2018). Business Informatics: With Special Reference to Big Data as an emerging Area: A Basic Review. *International Journal on Recent Researches in Science, Engineering & Technology (IJRRSET)*. 6(4), 21-29. DOI : <http://doi.org/10.5281/zenodo.1249786>.
- [7] Paul, P. K., Neelanarayanan, V., Vijayakumar, V. and Aithal, P. S. (2018). Cloud Computing & Big Data : A Handbook, Information Science & Technology Series, New Delhi Publishers, 2018, pp. 1-170, [ISBN No. : 978-93-86453-41-9](#). DOI : <http://doi.org/10.5281/zenodo.1243221>.
- [8] Aithal, P. S. & Priyesh Pai, T. (2017). Opportunity for Realizing Ideal Computing System using Cloud Computing Model. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*, 1(2), 60-71. DOI: <http://dx.doi.org/10.5281/zenodo.1094995>.

- [9] Paul, P. K., Aithal, P. S., Bhuimali, A. and Senthamarai, R. (2018 April). Mobile Cloud Computing - Contemporary issues and possible solutions: A Tool for Healthy Business World. Chapter 9, Cloud Computing & Big Data : A Handbook Edited by P.K. Paul, Neelanarayanan V, Vijayakumar V. and P. S. Aithal, New Delhi Publishers, pp. 101-108. DOI : <http://doi.org/10.5281/zenodo.1218711>. ISBN : 978-93-86453-41-9.
- [10] Paul P. K., Bhuimali A, Kalishankar Tiwary, P. S. Aithal, R. Rajesh (May 2018). Digital Business: The Transition into new age dealing emphasizing inputs from Cloud Computing and Big Data—A Indian Case. *IRA-International Journal of Management & Social Sciences*, 11(2), 91-98. DOI : <http://doi.org/10.21013/jmss.v11.n2.p4>.
- [11] Pai V. T. & Aithal, P. S., (2017). A Review on Security Issues and Challenges in Cloud Computing Model of Resource Management. *International Journal of Engineering Research and Modern Education (IJERME)*, 2(1), 65-70. DOI : <http://doi.org/10.5281/zenodo.546323>.
- [12] Vaikunth Pai T. & Aithal, P. S., (2017). Cloud Computing Security Issues - Challenges and Opportunities. *International Journal of Management, Technology, and Social Sciences (IJMTS)*, 1(1), 33-42. DOI: <http://dx.doi.org/10.5281/zenodo.569920>.
- [13] Paul, P. K., Aithal, P. S., Bhuimali, A. (2017). Mobile Cloud Computing Vis-à-Vis Eco friendliness for Sustainable Development. *International Journal of Engineering Research and Modern Education (IJERME)*, 2(2), 28-32. DOI : <http://doi.org/10.5281/zenodo.846406>.
- [14] Paul P. K., Aithal P. S., & Bhuimali A. (2017). Not Profit Technologies: Emphasizing Open Source Cloud Computing, *International Journal on Recent Researches in Science, Engineering, & Technology*, 5(8), 1-6. DOI : <http://dx.doi.org/10.5281/zenodo.997973>.
- [15] Aithal, P. S. & Priyesh Pai, T. (2017). Opportunity for Realizing Ideal Computing System using Cloud Computing Model. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*, 1(2), 60-71. DOI: <http://dx.doi.org/10.5281/zenodo.1094995>.
- [16] Simon, H. A. (1995). Artificial intelligence: an empirical science. *Artificial Intelligence*, 77(1), 95-127.
- [17] Kopetz, H. (2011). Internet of things. In *Real-time systems* (pp. 307-323). Springer, Boston, MA.
- [18] Paul P.K., Bhuimali A., Aithal P.S., (2018). Business Information Sciences emphasizing Digital Marketing as an emerging field of Business & IT: A Study of Indian Private Universities. *IRA International Journal of Management & Social Sciences*, 10(2), 63-73. DOI: <http://dx.doi.org/10.21013/jmss.v10.n2.p1>.
- [19] Schubert, C., Van Langeveld, M. C., & Donoso, L. A. (2014). Innovations in 3D printing: a 3D overview from optics to organs. *British Journal of Ophthalmology*, 98(2), 159-161.
- [20] Zyda, M. (2005). From visual simulation to virtual reality to games. *Computer*, 38(9), 25-32.
- [21] Zhang, X., Hou, J., & Dong, W. (2017). Photonic Integrated Chips for Optical Computing. In *Photonics in Switching* (pp. PTu1D-4). Optical Society of America.

-
- [22] Aithal, P. S., (March 2015). Concept of Ideal Business & Its Realization Using E-Business Model. *International Journal of Science and Research (IJSR)*, 4(3), 1267 – 1274. DOI : <http://doi.org/10.5281/zenodo.61648>.
- [23] Aithal, P. S., (March 2015). Concept of Ideal Business & Its Realization Using E-Business Model. *International Journal of Science and Research (IJSR)*, 4(3), 1267 – 1274. DOI : <http://doi.org/10.5281/zenodo.61648>.
- [24] Aithal, P. S. (2015). Mobile Business as an Optimum Model for Ideal Business. *International Journal of Management, IT and Engineering (IJMIE)*, 5(7), 146-159, DOI : <http://doi.org/10.5281/zenodo.163880>.
- [25] Aithal, P. S., Shubhrajyotsna Aithal, (2015). A review on Anticipated Breakthrough Technologies of 21st Century. *International Journal of Research & Development in Technology and Management Sciences*, 21(6), 112 – 133. DOI : <http://doi.org/10.5281/zenodo.61617>.
- [26] Aithal, P. S. (January 2016). Nanotechnology Innovations & Business Opportunities : A Review. *International Journal of Management, IT and Engineering (IJMIE)*, 6(1), 182-204. DOI : <http://doi.org/10.5281/zenodo.161153>.
- [27] Prasad, R., Kumar, V., & Prasad, K. S. (2014). Nanotechnology in sustainable agriculture: present concerns and future aspects. *African Journal of Biotechnology*, 13(6), 705-713.
- [28] Aithal, Shubhrajyotsna & Aithal, P. S. (2018). Concept of Ideal Water Purifier System to Produce Potable Water and its Realization Opportunities using Nanotechnology. *International Journal of Applied Engineering and Management Letters (IJAEML)*, 2(2), 8-26. DOI: <http://dx.doi.org/10.5281/zenodo.1323714>.
- [29] Aithal, P. S. & Shubhrajyotsna Aithal, (2016). Nanotechnological Innovations & Business Environment for Indian Automobile Sector : A Futuristic Approach. *International Journal of Scientific Research and Modern Education (IJSRME)*, 1(1), 296-307. ISSN: 2455 – 5630, DOI : <http://doi.org/10.5281/zenodo.161090>.
- [30] Aithal, P. S. & Shubhrajyotsna Aithal, (2016). Nanotechnology Innovations & Business Opportunities in Renewable Energy Sector. *International Journal of Engineering Research and Modern Education (IJERME)*, 1(1), 674- 692. DOI : <http://doi.org/10.5281/zenodo.160905>.
- [31] Aithal, P. S., & Shubhrajyotsna Aithal, (2015). Ideal Technology Concept & its Realization Opportunity using Nanotechnology, *International Journal of Application or Innovation in Engineering & Management (IJAIEEM)*, 4(2), 153 – 164. ISSN 2319-4847. DOI: <http://doi.org/10.5281/zenodo.61591>.
- [32] Aithal, P. S., and Shubhrajyotsna Aithal, (2016). Opportunities & Challenges for Green Technology in 21st Century. *International Journal of Current Research and Modern Education (IJCRME)*, 1(1), 818-828. ISSN (Online): 2455 – 5428. DOI : <http://doi.org/10.5281/zenodo.62020>.
- [33] Guo, Bin, Daqing Zhang, and Zhu Wang. (2011). Living with internet of things: The emergence of embedded intelligence. *Internet of Things (iThings/CPSCoM)*, 4th International Conference on Cyber, Physical and Social Computing. 297-304. IEEE.
-

-
- [34] Basten, Twan, Marc Geilen, and Harmke de Groot, eds. (2003). Ambient intelligence: impact on embedded system design. *Boston: Kluwer Academic Publishers*.
- [35] Remagnino, Paolo, and Gian Luca Foresti. (2005). Ambient intelligence: A new multidisciplinary paradigm. *Systems, Man and Cybernetics, Part A: Systems and Humans*, IEEE Transactions, 35(1), 1-6.
- [36] Kirk, Rod, Tim Christianson, and Danial Faizullahoy. (1992). Embedded intelligence. *BYTE* 17(3), 195.

Applicability of the Cockroach Theory - a Case study of the healthcare industry in India

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Abstract:

Healthcare is a major area of concern especially in developing nations in the base of the pyramid segments. In a country such as India, which is blessed as of this date with a demographic dividend needs to address healthcare as an area of priority. Healthy people are able to work harder and smarter hence they will be in a position to not only create better living standards for themselves thereby uplift their and the nation's economic status and contributing to societal growth and development. A major portion of the population of the India resides in rural and semi urban segments and there is a explicit dearth of quality healthcare in these areas. Incidentally, for our discussion of the base of the pyramid segments it has been evidenced that BOP consumers are seen to have limited or lack of access to healthcare due to various issues ranging from affordability, literacy, awareness, prejudices and so on.

The cockroach theory of organizational sustainability and scalability proposed the various postulates governing the theory and the pillars those very preconditions for success of organizations in creating sustained and scalable businesses in the BOP sectors. This paper is a case study approach to companies in the healthcare sector and the outlines the practices and businesses strategies of these companies that have made them successful or have failed at creating a profitable business opportunity and growth.

Keywords: businesses, cockroach, healthcare, sustainable, scalable

1. Introduction – The healthcare segment in India is one of the largest and fastest growing segments of business. It is expected to reach US \$ 133.44 billion by 2022. Rising income level, greater health awareness, increase of lifestyle diseases, an ageing population and access to insurance has all contributed to the spurt in growth. The private sector has been a powerful force which has accounts for almost 74 per cent of the country's total healthcare expenditure. While the brighter is encouraging there is also a darker side which entails a large mass of the population which is at the very bottom of the wealth pyramid which may not have access to healthcare services. The base of the pyramid is a term used to denote to the mass of the population who live on less than \$ 2 per day on PPP (purchasing power parity). A major portion of India's population lives in rural and semi urban areas where there is limited access to basic healthcare services. The healthcare system in India is lacking on three fronts related to access– provision, utilization and attainment of healthcare. Lack of sufficient infrastructure, inequalities in financing healthcare and accessibility are certain barriers. Various studies have been undertaken in people seeking healthcare and a linkage to socio economic status and it has been found that most of the times there is an increase in the people seeking healthcare as they up the socio economic status. It was also found that there were gender inequalities in healthcare seeking behaviour and men and male children were more likely to receive treatment for acute ailments compared to women and female children. To increase accessibility and affordability to healthcare in urban and rural sectors a lot of infrastructural and public private partnerships have been envisioned by the government of India. This has increased the access to and availability of affordable healthcare services.

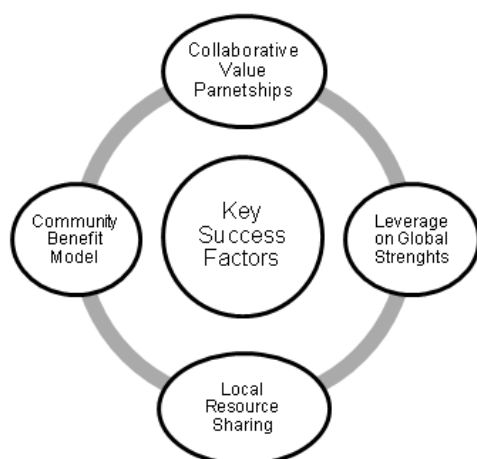
2. Background

Today, aiming at sustainable development has become a need in the light of depleting resources, environmental degradation and a uniform human ecosystem creation. The environment, society and economy have been considered to be the corner stone's of any discussion on sustainability. More conclusively, as per some thinkers sustainability implies responsible and proactive decision-making. As the term itself can be read as - sustainability, it calls for ideas, thoughts, strategies, focus around sustenance. For our discussion on doing businesses successfully in base of the pyramid markets sustainability is based on the premise of being able to continue to serve the low income markets and emerging markets. Especially for many companies which are flourishing financially through continued commercial success may overtime be unsustainable. Even though they might make laudable efforts to venture into virgin terrains like the low income markets, only reducing serving sizes or using renewable energy sources or green product engineering may not ensure their commercial success. It is essential then to understand what drives sustainability.

Organizations were not looking at an opportunity to fulfil these basic needs itself by scaling their operations and looking at diverse strategies. The traditional approach to 'serving base of pyramid markets' was from a charity and public aid perspective. The population in this

segment was deemed to be too poor to help themselves and external agencies thus had to provide relief measures as a public good service. As a result, the efforts were directed towards providing necessities such as basic healthcare, access to clean water and other basic necessities such as sanitation.

The Cockroach theory in the light of the postulates puts forward certain key success factors that are critical to creating sustained success and growth of businesses. The key success factors put forward are as below -



3. Applicability of the Cockroach theory in the healthcare industry

As propounded in the Cockroach theory four key success factors have been identified for sustainable and scalable business growth. In the healthcare sector in India, we are examining four healthcare providers and their strategies for growth and success.

1. Aravind Eye Hospital - A hospital chain founded at Madurai, Tamilnadu in 1976, with a vision to eradicate blindness in India has a business model which has already become the subject of numerous case studies across the world. The founder doctor, Dr. Govindappa Venkataswamy wanted to emulate the service efficiency of Mc Donald's, to a hospital network which is a tricky proposition. The hospital embarked to scale their operations by performing large number of eye surgeries but simultaneously making it an outreach program where they reached out to remote inaccessible villages with the help of charitable organizations like Sathya Sai Organization, Lions Club and Rotary International. By collaborating with co-partnering with stakeholders in social development and by involving the BOP sector, Aravind eye hospital has been able to scale to even international operations in Nigeria where they have built a capacity to perform 10,000 surgeries annually. They also have a Tele Ophthalmology Network (ATN) where real time consultation with rural eye

hospital is enabled it also has mobile vans with all equipment and video conferencing facilities. The success factors have been community benefit model and collaborative value partnerships.

2. GE Healthcare - GE Healthcare is a global conglomerate which is into the business of healthcare equipments and devices. While GEH is a large business operator in developed countries and has a very successful model, it has a very diverse unique strategy to scale into emerging markets. As we know, healthcare is a booming necessity in emerging markets especially at the lower end of the income pyramid, GEH taps key geographies by creating innovative products which are cost effective. To reach out to the low income markets it has developed incubators, portable x-ray imaging services which could be mobile and run on low power and low cost MRI. They have leveraged on their global strengths to percolate down and penetrate to the lower end of the markets.

3. Sankara Eye Hospital - This organization started by Dr. Ramani in Coimbatore is one of the largest community eye care providers with more than ten super speciality hospitals across the country performing over 150,000 free eye surgeries annually. Their model has been similar to that of Aravind Eye hospital in providing value to the community which enables the BOP consumers to come seeking out these service providers. This hospital follows the 80:20 business model, in which 80 per cent of the patients from rural and low income communities are treated for free. And the remaining 20 per cent have to pay therein enabling cross subsidizing of the surgeries and this is a self sustaining model for the hospital.

4. Yashaswini Health Insurance Scheme – In healthcare sector another success story is that of the Health Insurance scheme of the government of Karnataka, Yashaswini. The model that has been adopted by Yashaswini has been of local collaborative partnerships and providing local benefit. The scheme has partnerships and tie ups with panchayath level seva societies, co-operative banks etc which promote the insurance scheme are well accepted by the local community.

Alongside there are cases of companies that have also failed in sustaining their businesses because of approaches that was not inclusive of involving strategic collaborative partnerships or subsidized models for community inclusion.

4. Conclusion

Healthcare being the backbone of society is a very critical area that has ample opportunities for growth. Global giants such as Philips Research Asia have realised that there is a dire need to serve the low income categories and it calls for diverse innovative collaborative strategies to succeed. They have innovated products such as a household light bulb which has an insect repellent ability and so on. Healthcare not just consists of post illness care but providing solutions for epidemics and creating products and services which are enablers of

improved health to society. Here we see the key success strategies brought forth in the case studies.

5. References

- [1] Prahalad, C. K., & Hart, S. L. (1999). Strategies for the bottom of the pyramid: creating sustainable development. Ann Arbor, 1001, 48109.
- [2] Raj, Keerthan & Aithal, P. S. (2018). Generating Wealth at the Base of the Pyramid – a Study Using ABCD Analysis Technique (2018). International Journal of Computational Research and Development (IJCRD), 3(1), 68-76.
- [3] Raj, K., & Aithal, P. S. (2018). The Cockroach Theory for Sustainable and Scalable Organizational and Individual Growth.

Financial Technology and Allied Areas with reference to Bachelors Program: An International Look

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Abstract

Financial technology is also called as FinTech, it is a new [technology](#) which is responsible for the modernization of traditional financial methods into different way and with computing enabled [financial services](#). FinTech sector is currently using technology which helps in promotion of activities in finance and other affairs. The [smart phones](#) is used for different affairs and these led the concept of [mobile banking](#), [investing](#) services. Currently, crypto currency is emerging rapidly and there are many examples of technologies for better and sophisticated financial services. Financial technology companies are moving towards better and healthy initiatives in promotion of [startups](#) and establishments are trying to better financial services. Information Technology tools plays a lead role for Financial technology field development both in practice and academically. Today many universities have started program and degrees in this field with name of Financial Technology, Financial Business Technology Financial Computing etc. The goal of this kind of program is to provide and generate knowledge as well as skills which are emerging in financial technology sector. Fintech is responsible for the great changes in traditional banks and insurance companies. The product/skilled in this field will taught innovation management techniques and they will be able to design as well as implement software applications, importantly here the data analytic, big data. Cloud computing, machine learning etc skills are required by new data driven models of financial services promotion and development. This paper is conceptual and theoretical in nature and talks about the basics of financial technology including its features, characteristics, development and function as a whole. The paper also emphasized about the program in this field and program potentiality in brief.

Keywords: Information Technology, Business, Education, Financial Technology, Development, Market, BSc Financial Technology

Introduction

Financial Technology is an important aspect of modern age and called FinTech. This is the applications of IT and Computing in Financial areas and field. This is important to empower the financial services and over traditional financial services. Financial Technology is also a new sector which lies on different kind of technology and devices viz. computers, smart phones and mobile phones [1], [5]. Today financial company and other organizations are using this technology for advanced and modern financial services. Financial Technology may be used in different other areas viz.

- Automate Insurance
- Advanced Trading
- Insurance and Risk Management as well.

Financial Technology is the new applications, processes, products and also business models in the financial services and banking services. The market of Financial Technology is emerging rapidly and financial technology increased more than 2,200% from \$930 million in 2008 to more than \$22 billion in 2015. It is worthy to note that according to the latest study it is noted that about 40% manpower in London are engaged in Financial and allied sectors. It is important that, Financial Technology organizations and university's these days are putting efforts to bring skilled and solid manpower in this field and as a result.

Objective

The core aim and agenda of this paper is include but not limited to the following—

- To know basic about Financial Technology including its meaning and features in brief manner.
- To learn about the basic importance of Financial Technology and allied areas in concise manner.
- To learn about the Bachelors educational programs available in the field of Financial Technology in international universities.
- To know about the educational programs possible and easy to start in Indian Universities based on Indian education systems.
- To learn about the basic course gradients in Financial Technology at Bachelors level as per result.

Methodology

The current study is review type and deals with the study of review of literature. It is also associated with study of web review and higher educational directory search and importantly web review of curriculum and syllabus of the Financial Technology at bachelors level. Simple Google search engine search strategy has been used with the tag 'Bachelors Degree in Financial Technology' and from there appropriate programs have been selected.

Financial Technology

Financial Technology, in short FinTech is a technology and area responsible for designing and development of financial system which is supported by the computing and information technology for doing financial and allied affairs [2], [3]. It is also leading the concept of emerging and automated financial services to promote healthy and wealthy banking and financial activities. Day by day the technology applications are rising and, in this category, most emerging are include—

- Big Data
- Data Analytics
- Internet of Things (IoT)
- Cloud Computing
- Data Security
- Virtualization etc

It is also worthy to note that, various banking and financial service related affairs also been associated with the Financial Technology [7].

Career opportunities and Financial Technology as a Field of Study

Financial Technology or Fintech is an emerging field and growing sector and there are numerous opportunities across exciting and new start-up companies in the field and areas of banking and insurance etc [4], [8].

In European scenario, London is treated as the fintech hub and various jobs are created in recent past. It is also important to note that, Edinburgh is also a leading and largest city in terms of fintech opportunities and various initiatives have been undertaken for improving Scottish fintech sector. It is also important to expect that it will continue to grow radically over the coming years.

Financial Technology is actually the mix of computing, analytics and business skills and thus apart from Financial areas traditional data science jobs may also possible to grab by the candidates. Students of the field can pursue jobs in different areas viz. banks, the NHS, marketing companies, private companies, the oil industry, and in government etc apart from private companies [6], [10].

It is concerned with the use of technology and computing to make financial transactions more efficient and healthy interaction and knowledge in the field of finance, accounting, business information systems and analytic methods are highly required to become a solid and sophisticated human resource in this field and domain.

As, Financial Technology programs comes with the fundamentals of Accounting & Finance and Management Science thus the skilled manpower in this field can also go for the position like teaching and research. Most of the universities offers the program in the field from the candidates coming from variety of background but who want a career in this emerging area.

It is important to note that, comprehensive skill set including combines theory, intensive practice and industrial engagement are most important and valuable in Financial Technology; moreover new technologies have been also associated to innovate and streamline financial systems.

Various areas such as Blockchain, Cryptocurrency, Machine Learning, Artificial Intelligence and Bots, Internet of Things and Big Data etc become course gradients in Financial Technology program and importantly highly applicable in different sectors and place and competitive technology-driven world. Internationally many universities have started program at Bachelors level in Financial Technology and few of these are depicted in Table: 1 according to the adopted study [4], [9].

Table: 1 Depicted the Financial Technology programs at Bachelors level at International University

Sl. No.	Name of the Program	Institute/ University	Country
1	BSc-Financial Technology Management	Glyndwr University	United Kingdom
2	BSc (H)-Financial Technology	The Hong Kong Polytechnic University	China
3	BSc (H)-Financial Computing	University of Liverpool	United Kingdom
4	BSc (H)- Business Financial Technology	Falmouth University	United Kingdom
5	BE-Financial Technology	The Chinese University of Hong Kong	China
6	BS- Financial Technology	Virginia Commonwealth University	United States

Moreover, in details course curriculum has been provided in Table: 2 comprises with the areas of Banking and finance, Technology, Commerce and Management [11-14].

Table: 2- Masters program in Digital Business in International Universities: Curricula Highlights

Universities	Papers/ Courses
BSc (H)-Financial Technology, The Hong Kong Polytechnic University	Programming for FinTech Applications Computer Systems Security Business Finance E Payment and Crypto currency Crowdfunding and E Finance Big Data Analytics Emerging Topics in FinTech
BSc (H)- Business Financial Technology, Falmouth University	Driving Operations Marketing Intelligence Innovation and Improvisation Financial Insight Effective Marketing and Sales Understanding and Influencing People Data Storytelling International Market Team Leadership and performance Mining Big Data Risk, ethics and Environment Transformational Leadership Creative Strategies Business Challenges Data Innovation Professional Practice
BSc-Financial Technology Management, Glyndwr University	Business Idea Generation Business Communication for Skill Marketing Economics Business and Finance in Practice Marketing Essentials Data Analytics and Understanding Big Data Innovation Commercialization Engaging and Leading People Advertising and Branding Enabling Technologies and Business Opportunities in Finance Strategic Thinking Disruptive Innovation and Financial Technologies

	Business Sustainability and Growth Dissertation/ Project/ Placement-Internship (all)
BSc (H)-Financial Computing, University of Liverpool	Introduction to the Programming Programming Language Paradigms Digital Society Analytics Techniques for the Computer Science Object Oriented Programming Introduction to Financial Account Introduction to the Management Account Principle of Microeconomics Software Engineering Database Development E Commerce Group Project Computer based training in Financial Markets Securities Market Quantitative Business Finance Finance and Markets Technologies for E Commerce Introduction to the Computational Game Theory (Optional Electives are offered in Second & Third Year)

India and Financial Technology: The Academic Perspective

India is a developing nation and growing rapidly. India hold a large number of educational institutes in the world. At present India hold about 40000+ institutes and among these 800+ are tagged as universities (the category wise listed in Table: 3). But important to note that degrees and diplomas in this field is very minimum and better to say absent. But the program may be offered either as full-fledged degree like BSc/MSc in Financial Technology or in Engineering platform as BTech/MTech in Financial Technology.

Table: 3- Universities in India: A Snapshot

Universities	In Numbers	Location
Central Universities	47	Pan India with 28 States and UT
State Universities	370	Pan India with 28 States and UT
State Private Universities	290	Except some states and UT
Deemed Universities	123	Except some states and UT

It is worthy to note that the degrees may be offered as specializations in other related and allied degrees viz. here few proposed areas are Commerce, Management and Computer Applications.

Table: 4 Proposed Financial Technology program

Sl. No.	Possible Bachelors Program (Commerce Track)	Possible Masters Program (Commerce Track)	Possible Masters Program (Computer Applications)
1	BBA/ BBM (Financial Technology)	MBA/ MMA (Financial Technology)	BCA/ MCA (Financial Technology)
2	BBA/ BBM (Digital Finance and Big Data)	MBA/ MMA (Digital Finance and Big Data)	BCA/ MCA (Digital Finance and Big Data)
3	BBA/ BBM (Financial Engineering)	MBA/ MMA (Financial Engineering)	BCA/ MCA (Financial Engineering)

Conclusion

Financial technology is useful in both startups and also already existing and established financial as well technology companies engaged in financial services A study conducted by the KPMG, only Sydney's financial services sector in the year 2017 creates 9 % of national GDP. It is worthy to note that such financial benefits and growth even bigger than the financial services offered in Hong Kong or even Singapore. Proper and healthy manpower creation is highly solicited in Financial Technology sector to gear-up and build healthy Financial systems of an organization, and even whole territory. Universities and institutes are today offering different kind of programs in Digital Finance and Financial Technologies the developing countries may opt the option of specialization instead of full-fledged degrees.

Reference

- [14] Aithal, P. S., (2015). Concept of Ideal Business & Its Realization Using E-Business Model. *International Journal of Science and Research (IJSR)*, 4(3), 1267 - 1274, DOI : <http://doi.org/10.5281/zenodo.61648>.
- [15] Aithal, P. S. (2015). Mobile Business as an Optimum Model for Ideal Business. *International Journal of Management, IT and Engineering (IJMIE)*, 5(7), 146-159. DOI : <http://doi.org/10.5281/zenodo.163880>.
- [16] Altbach, P. G. (1993). The dilemma of change in Indian higher education. *Higher Education*, 26(1), 3-20.

- [17] Barbesino, P., Camerani, R., & Gaudino, A. (2005). Digital finance in Europe: Competitive dynamics and online behaviour. *Journal of Financial Services Marketing*, 9(4), 329-343.
- [18] Chen, H., Chiang, R. H., & Storey, V. C. (2012). Business intelligence and analytics: from big data to big impact. *MIS quarterly*, 1165-1188.
- [19] Gomber, P., Koch, J. A., & Siering, M. (2017). Digital Finance and FinTech: current research and future research directions. *Journal of Business Economics*, 87(5), 537-580.
- [20] Langley, P., & Leyshon, A. (2017). Platform capitalism: the intermediation and capitalisation of digital economic circulation. *Finance and society*, 3(1), 11-31.
- Maurer, B. (1998). Cyberspatial sovereignties: Offshore finance, digital cash, and the limits of liberalism. *Indiana Journal of Global Legal Studies*, 493-519.
- [21] Paul, P. K., & Dey, J. L. (2011). Data Science Vis-à-Vis efficient healthcare and medical systems: A techno-managerial perspective. In *Power and Advanced Computing Technologies (i-PACT), 2017 Innovations in* (pp. 1-8). IEEE.
- [22] Paul, P. K., & Ghose, M. K. (2018). A Novel Educational Proposal and Strategies Toward Promoting Cloud Computing, Big Data, and Human–Computer Interaction in Engineering Colleges and Universities. In *Advances in Smart Grid and Renewable Energy* (pp. 93-102)
- [23] Varvel Jr, V. E., Bammerlin, E. J., & Palmer, C. L. (2012, February). Education for data professionals: A study of current courses and programs. In *Proceedings of the 2012 iConference* (pp. 527-529). ACM.
- [24] <https://www.glyndwr.ac.uk/en/Undergradatecourses/FinancialTechnologyManagement/>
- [25] <https://www.liverpool.ac.uk/study/undergraduate/courses/e-finance-bsc-hons/overview/>
- [26] <https://www.falmouth.ac.uk/business-data-analytics>
- [27] [https://www.comp.polyu.edu.hk/en-us/prospective-students/undergraduate-programmes/full-time-undergraduate-\(top-up\)-programme](https://www.comp.polyu.edu.hk/en-us/prospective-students/undergraduate-programmes/full-time-undergraduate-(top-up)-programme)

A Conceptual Model on Affiliated Marketing – A Case Study

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Abstract:

In today's world there is a huge challenge which doubles as an opportunity if we consider various needs of people and business houses all across the world. If proper channels and networks are created, it could be a great platform to create a Win-Win situation. There are loads of business opportunities in and around. On one side we have many service providers who are seeking to get their brands promoted and on the other side we see a lot of unemployed youth who have the potential but lack opportunities. We also see that the cost of living has been increasing over the period of time which may have created an imbalance between the earnings and expenses for the working class too. These challenges can be transformed into opportunities of great potential by having a connecting medium like affiliated marketing. In today's era Affiliated Marketing is a multi-billion dollar industry. A large part of the traffic experienced by websites and online businesses is because of affiliated marketing. It is a game changer for online business and brands as well as many individuals who are working independently from home using their computers. Some of them are earning a huge deal. Now this affiliated marketing has risen from online marketing platforms to offline world.

Therefore the present paper focuses on creating a powerful model of Affiliated Marketing which could face these challenges efficiently. It also acts as a medium for meeting the demands of the job market.

Keywords: Affiliated Marketing, Outsourcing, Unemployment, Part Time Work, Job Creation, Self-Employment.

INTRODUCTION

Affiliate marketing is one of the genuine and oldest forms of **marketing strategies**. This type of marketing is done on the online portal only. It is a very trending form of marketing lately. **Affiliate marketing** is a form of marketing that is a process of earning a commission by selling or promoting other company's products (Rahul 2016). Affiliate marketing has been introduced in India by many online companies. India being a big and diverse market place with growing online business has a potential for innovative and effective business models. Another favorable situation for affiliate marketing is its lower customer acquisition cost and marketing expenses. In business world the success depends upon the partnering organizations and their ability to generate and support business process. Affiliate marketing is one of the online marketing tactic in which online firms partner with online content providers who bring traffic to the firm's website. The firm in turn pays commission to the content providers over the converted sales from given customers (Sandeep Prabhu and Tanmay Satpathy, 2015)

LITERATURE REVIEW

Grzegorz Mazurek (2011) conducted a study on Potential of Affiliate Marketing and he critically examined, analyzed and described the concept of affiliate marketing activities. In his study he found that the success and perspectives of development of affiliate marketing strategies is determined by variety of factors. The empirical research from the Polish market shows that there is a significant gap between the sponsors' expectations towards the expected results of e-promotion campaigns and the possibilities the e-market offers. K. Venugopal, Saumendra Das, Dr M. Nagaraj (2013) in their study on affiliated marketing, have emphasized on the trends and opportunities of affiliation marketing and its use in modern business through referrals in web based marketing. According to them there are innumerable options with the least possible risks that carry the interested persons to the success and they also discussed about the risks that is related to affiliated marketing. Farooq Hossan and Issa Ahammad (2013) conducted a study on Affiliate Marketing: The Case of Online Content Providers in Bangladesh. The purpose of this study was to explore the knowledge of affiliate marketing and investigate the views of content providers toward it in Bangladesh. In the study it was found that affiliate marketing is the most effective way to sell the advertising space to advertisers and in comparable to traditional media, easy and precise to measure the advertising responses and much more flexible. They also found that affiliate marketing is used to generate revenue and much easier to reach a variety of customers too. Sandeep

Prabhu and Tanmay Satpathy(2015) in their study on Affiliate Marketing's Future in India, found that innovative customer acquisition programmes like affiliate marketing shall be growing extensively in coming years. Organisations should look beyond their present business models and adopt to cost effective models based on affiliate network. These innovative business models will create an opportunity for small businesses and individuals in generating earnings.

THE OBJECTIVES AND METHODOLOGY OF THE STUDY

The objectives of the present study has been to understand how affiliate marketing leads to job creation as well as how affiliate marketing acts as platform for branding and promotion of the product. Besides the study has focused on developing a affiliate model which would connect the business and job seekers. In the present study in order to get in depth understanding of affiliate marketing the data has been collected from secondary sources.

HISTORY DEVELOPMENT OF AFFILIATE MARKETING

Thanks to the birth of World Wide Web in 1991 by the founder Tim BernersLee and its free basis in April 1993, a global wave of collaboration, creativity and innovation was inspired. It brings us to a new century of technology – Internet century. According to the “worldwidewebsite” website (2015), a web application that records the number of index web, there are at least 4.79 billion pages. People can now share information to the rest of the world just by one click. It is visible and advisable that businessmen see the profit E-business could bring to them. Thus, online marketing has been a hot trend.

The first affiliate marketing program is known as PC Flowers & Gifts on Prodigy network in 1989, which was founded by William J. Tobin. Tobin conceived idea of internet affiliate marketing and implemented it on his own company website. This program remained until 1996.

The second first well-known affiliate marketing program is WebBuy of CDnow in 1994. With the foundation idea of a website which provides music buyers with reviews of the artists and albums. Jason Olim and his twin brother Matthew, created CDnow. In the first month, it made a profit of \$14. In autumn 1994, Geffen Records contacted CDnow to make a contract that CDnow allowed Geffen to put links on WebBuy to attract fans to Geffen's artists and albums. Visitors or members interested in the album could click on the link which accessed directly to Geffen's website, CDnow could receive a revenue of 3% from the sales. This win-win arrangement made WebBuy the fourth most-visited shopping site with 700,000 visitors and 5 million page views per day (Donna and Thomas, 2000). It remained as a big success in terms of affiliate marketing.

Amazon launched its affiliate program in July 1996, and has now become the most famous associate program on a global scale (Hourigan, 2013). The Amazon's affiliates place banner or link on their personal sites or individual books that connect directly to the Amazon website. When visitors are directed to Amazon webpage from associates' links, the associates receive commissions. In February 2000, Amazon announced it had been granted a patent (6,029,141) on components of an affiliate program (Collins, 2000).

In 1998, people saw the establishment of two affiliate networks: Commission Junction by five students at University of California Santa Barbara and Clickbank Network by Tim and Eileen Barber. These websites provide much access to small vendors and offer various exchange between sellers and associates. Nowadays, Commission Junction has established itself as the largest affiliate marketing network in the world. Two years later, in May 2000, the United States' Federal Trade Commission announced a guidance "Dot Com Disclosures: Information about Online Advertising" to direct the regulations of admission in the internet-based advertising world.

In addition to the development of affiliate marketing, it is impossible to not mention the renovation from Web 1.0 to Web 2.0, which created a huge change in the online world in the early 2000s. The Web 2.0 platform allows personal websites and bloggers to utilize the application of affiliate marketing on their own sites. As a result, there were many affiliate channels on the Internet with creative and interesting appearance that turn the online market into an even more compelling one. Moreover, most well-known affiliate programs such as eBay, Amazon and Google allow internet users of all levels to place commercials on their own blog posts.

AFFILIATE MARKETING CONCEPT

The essence of affiliate marketing lies in encouraging participants (so-called affiliates) that are independent from the advertiser (sponsor) to perform commission-based sales activities by means of affiliate networks (Duffy, 2005). Basic benefit of the application of affiliate mechanisms for sponsor is a method of compensation dependent on the effect of the conducted campaign and the model of payment for the campaign (Kalyanam, McIntyre, 2002). Affiliate gains financial benefit only if his/her activities encourage customers to perform a predefined action that was formerly determined in the contract with the sponsor. Affiliate marketing is an important source of many things which provides the necessary tools for the creative and hardworking individual to venture out on their own. It can provide ample opportunity to earn money doing what you are good at and also allows someone to use their skills and expertise for their own financial. It can get people started in their own business enterprises with nearly no cost or risk to themselves and does many more with respect to recent trends in web marketing.

Affiliate marketing on the web is concerned as a system of advertising in which site A agrees to feature buttons from site B, and site A gets a percentage of any sales generated for site B. It can also be applied to situations in which an advertiser may be looking for marketing information, rather than a cash sale. This is a system of revenue sharing between one site (the affiliate merchant) which features an ad or content designed to drive traffic to another site (the advertiser). The affiliate will receive a fee based on the amount of traffic generated. Affiliate marketing is the use by a Web site that sells products of other Web sites, called affiliates, to help market the products. Amazon.com, the book seller, created the first large-scale affiliate programme and hundreds of other companies have since followed (Candy, 2010).

KEY ELEMENTS OF AFFILIATE MARKETING

Affiliate marketing or associate marketing is an arrangement by which advertiser pay commission to affiliate for generating sales or traffic on its website. Affiliate website may posts ads, banners, and links of products or services from merchant's website. Affiliate marketing is relationship between three parties: Advertiser or Merchant, Affiliate, Customer.

The key of successful affiliate marketing lies in the construction of a win-win relationship between the three parties - the sponsor, the affiliate and the customer. Sponsor realizes the benefit of a purely commissioned sales force and has a marketing cost that is predictable and spent ex post. Affiliates have the opportunity to create a revenue stream without investments in infrastructure and know-how (Grzegorz Mazurek, 2011)

Merchant: It is a trader who enters into affiliate networks in order to increase profits and expand its product among internet users at relatively low cost. The merchant therefore offers its products through an affiliate program. He creates the conditions under which the affiliate receives a commission claim. Affiliate must then perform some type of action. This is usually about the sale, but there are programs that have a commission for registration, for filling in the form and so on.

Affiliate (mediator): It is a person who can register to a particular affiliate program and promote the product in the online environment. The forms of promotion are diverse, but it consists mostly of banners and simple text ads. Every registered affiliate acquires its special link - referral link, which becomes the identification in the system, with which the system can detect and record activity of affiliate. To record visits except referral line also serves cookies. A cookie is a file stored on your hard disk created by the browser, that contains a list of all cookies from all Web sites. This information is important when setting cookies in the affiliate program. In the context of affiliate marketing the cookies allows the system to remember, from which refferal line customer came to the page with the product and when.

Affiliate network: If the company wants to sell its product through affiliate marketing, it is necessary to choose the correct network. There are many affiliate networks, but not all are suitable for it. Some networks focus on all countries, while others deal only with some. Some networks operate on the principle of an entry fee and then provide their services. In others, on the contrary there is no entry fee. Such networks can have determined in their terms the amount of commission from each event that has been done. The current trend is that the network does not accept any candidate. First, they invite the applicant to contact them and describe their product. After considering, the affiliate network will eventually decide to accept or not to accept the company. This step is a very good choice, because in recent years the affiliate program involved companies that offered fraudulent services or even harmful products.

Customer: Customer is the third entity in the service chain. Customer visits the affiliate's website; if he/she likes the ads or links and hence clicks it, he is redirected to merchant website. On visiting merchant website, if customer purchases the product or services from advertiser's website, then sales is considered as generated with the help of the affiliate. Then advertiser is supposed to pay commission to affiliate as decided in the agreement.

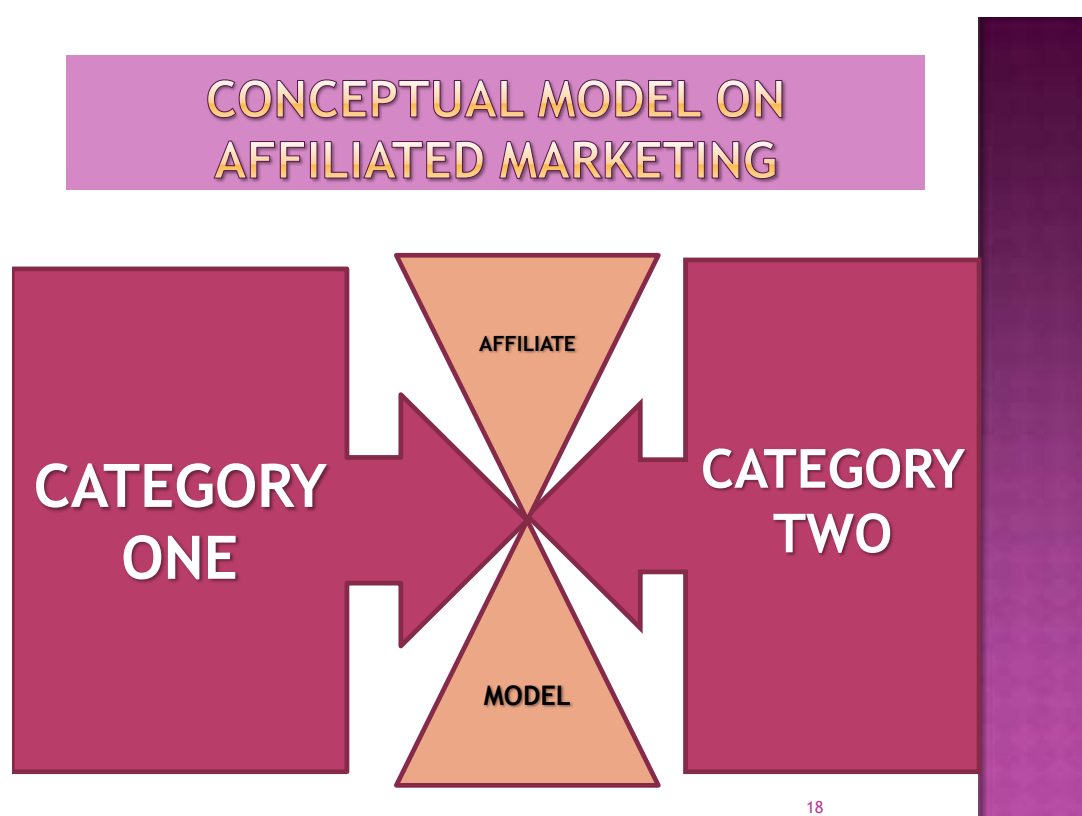
ADVANTAGES AND DISADVANTAGES OF AFFILIATE MARKETING

Affiliate is a popular method to earn profits from the websites and also helps the merchants to increase their sales. Affiliate marketing is very beneficial both for merchants and affiliate marketers (Thomas Ludwig 2012). By employing affiliate marketing, merchants can enjoy some advantages. They can hire various independent websites to advertise their products and services, advertiser of merchant can only pay the content providers if the ad actually leads to a sale and advertising costs move from fixed to variable costs on ad in affiliate marketing. It can facilitate allocating money to advertising. Not only merchants but also content providers can enjoy various advantages from affiliate marketing such as affiliate marketing offers content providers new chances to generate revenues from their websites and it provides content providers with the opportunity to cooperate with large number of merchants to which they would not have access otherwise.

Some disadvantages are observed in affiliate marketing. Accounts of false and misleading types of advertising that lead to unjust claim and also complaints from people. The shady and illegal practices involved in this kind of business include false advertising, unlawful use of trade names, logos, or other branding and spamming. Merchants sometimes intentionally close down programs without informing the affiliates and paying commissions. Sometimes affiliates engage in false advertising and misleading the customer in order to get commission. This means that some affiliates sometimes make claims and promises regarding the product and services which are completely wrong or they extremely exaggerate it. When this happens, the merchant usually suffers complaints and they definitely lose potential customer.

As affiliate ads pay out on results, content providers do not have any guarantees that they will make money. They may have to try a number of different affiliates to find those that their visitors respond to. Content providers should have a good idea of the profile of people that visit their site to ensure their target customers appropriately. The time from placing the ad up to getting payment can be several months depending on the affiliate schemes or network content provider register with.

CONCEPTUAL MODEL ON AFFILIATE MARKETING



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HOW THE MODEL WILL OPERATE

- We register Category ONE (Business firms) and TWO (job seekers/takers) based on interest, Calibre, Genuineness, margins etc.
- Each of the category will be screened before registering with us and will be monitored.
- Category TWO will register Free of Cost but they will be scrutinized by our team before selecting them.

-
- They will be given opportunities based on their area of interest, capabilities and also our discretion based on various internal criteria's set by our team.
 - As we deal directly with the vendors, Category ONE and TWO will have to go through us as an intermediary.
 - We keep a small margin for ourselves and the rest is given to Category TWO.
 - We also will keep orientation programs and periodic training programs to create awareness, skill enhancement etc.
 - Dynamic Website with usernames and Information
 - We generate revenue via tie-ups, Royalties, advertisements etc
 - New Feature – Project/Task Outsourcing coming soon!

BENEFITS IDENTIFIED AS PER THE STUDY

- **A win-win situation:** Affiliate Marketing always result is one, that is good for everyone who is involved.
- **Personal networks can be better utilised:** Word of mouth marketing is a form of promotion that depends on cheerful clients and fans to promote a brand. So affiliates can reach out to their own personal networks more effectively through their word of mouth publicity.
- **Free marketing:** Despite everything we will have to place exertion into getting clients and construct a sufficiently solid relationship. Here there is an advantage of free marketing.
- **Discovering new markets:** Affiliate marketing will enable to broaden the customer base and reach out to all the individuals. There is also an opportunity to re-target the brand to an entire new market.
- **A Cost-Effective practice:** The major reason behind considering an Affiliate Marketing Program is that it is extremely cost- effective. Therefore, by using Affiliate Marketing, we can easily acquire more customers at a low cost. Hence, we will not end up wasting huge amount by using an affiliate marketing program.
- **Creates a greater earning potential :** This Model on affiliate marketing would be beneficial for both the parties involved.
- **Unemployment problem can be controlled to a certain extent:** The affiliate model would give opportunities for the job seekers to get a job and thus help in job creation.
- **Burden on the business vendors will reduce to a certain extent:** The business firms will get more customers without spending valuable time searching for them, all activities on promotion and so on would be done through affiliate marketing.

- **Merchants gain:** Affiliate marketing would provide a platform wherein the merchants get a wider place to sell their products and services, resulting in more customers and more sales.
- **Greater branding and promotion:** Affiliate marketing model would result in more of branding and promotion opportunities for vendors.

CONCLUSION

Innovative customer acquisition programmes like affiliate marketing shall be growing extensively in coming years. Organisations should look beyond their present business models and adopt to cost effective models based on affiliate network. These innovative business models will create an opportunity for small businesses and individuals in generating earnings. Thus affiliate marketing can benefit almost any business, regardless of size, sector or resources and affiliates can play a very significant role in e-tailoring marketing strategies. Affiliate marketing is a way to work for an individual without the financial risk. There are many great affiliate marketing programs in existence today. This will also be of great help to the unemployed segment of the society too. All in all, this will be a beneficial win-win situation to all the stakeholders concerned.

REFERENCE

- Collins,S.(2000), “History of Affiliate Marketing” ClickZ. [Referenced: 9 September 2015].Available:<http://www.clickz.com/clickz/column/1699440/history-affiliate-marketing>
- Hoffman, Donna L. and Thomas P. Novak (2000), “How to Acquire Customers on the Web,” Harvard Business Review, 78 (3), 179-83
- Kalyanam, K., McIntyre, S(2002), The e-marketing mix: a contribution of the e-tailing wars, Journal of the Academy of Marketing Science, Vol. 30 No.4, pp. 487-489.
- Duffy, D. L. (2005)Affiliate Marketing and its impact on e-commerce. Emergence, Asheville, North Carolina,USA: Journal of Consumer marketing, Vol.22,pp161-163, www.researchgate.net
- Candy (2010), "Referral and Affiliate Marketing – What’s the Difference?" www.ijmsbr.com
- Grezgorz Mazurek(2011), “Potential of affiliate Marketing”, The 7th International Conference, Management of Technological Changes – MTC 2011, <http://www.researchgate.net>
- Farooq Hossan and Issa Ahammad (2013), “Affiliate Marketing: The Case of Online Content Providers in Bangladesh”, World Journal of Social Sciences,Vol. 3. No. 2. March, Issue. Pp. 103 – 113

-
- Hourigan, M.(2013), “History of Affiliate Marketing” [INFOGRAPHIC]. Shoeboxed [Referenced: 9 September 2015]. Available: <http://blog.shoeboxed.com/history-of-affiliate-marketing-infographic/>.
 - Ludwig, Thomas 2012, The Beneficial Benefits of Affiliate Marketing, <http://www.nbkarticles.com/business/businessideas/1725-the-beneficial-benefits-of-affiliate-marketing.pdf>.<https://moreniche.com>>Merchants
 - K. Venugopal, Saumendra Das, Dr M. Nagaraj (2013), “Business Made Easy By Affiliate Marketing”, Journal of Business Management & Social Sciences Research (JBM&SSR) ISSN No: 2319-5614 Volume 2, No.6, June.
 - PhanGiang(2015), A Technical Practice Of Affiliate Marketing,<https://www.theseus.fi>>Phan-Giang
 - Sandeep Prabhu and Tanmay Satpath(2015), “Affiliate Marketing’s Future in India”, Indian Journal of Science and Technology, Vol 8(S4), 278–282, February, ISSN (Print) : 0974-6846 ISSN (Online) : 0974-5645
 - <https://www.linkedin.com/pulse/understanding-concept-affiliate-marketing-rahul-kumar>

A New Method of Scholarly Research – Patent Analysis

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Abstract:

There are many research methods accepted and adopted under qualitative and quantitative research umbrella and many new research methods are added by many researchers at different point of time. Such new systematic research methods provide or open a new avenue to succeeding researchers and provide an expanded opportunity to see things differently. The process of research always focuses on either development of new knowledge or analysing and interpreting the existing things in a newer way. In this paper, we are proposing and forwarding a new qualitative research method called 'Patent Analysis'. This method focuses on analysis, description, and interpretation of a chosen patent in any area in a systematic way. Such analysis process of the patent might lead to the development of new concepts or theory. The procedure of patent analysis contains an evaluation of the patent in terms of its advantages, benefits, constraints, disadvantages, effectiveness, and future value.

Keywords: Research methods, Qualitative research, Patent analysis, Future value of patent.

1. INTRODUCTION

Research is a process of investigating answers to a question in a scientific and systematic manner by means of the formulation of the hypothesis, data collection on relevant constructs, analysis and interpreting the results in a new way and reaching to the conclusions as a generalized solution. The main objectives of the research are to get familiarity with a phenomenon, find out the association or independence of an activity and identify the characteristics of an individual or a group of activities, their relationships and the frequency of occurrence. Depending on the objectives of the research, the research can be classified into exploratory research, conclusive research, descriptive research, and casual research [1]. Qualitative research methods might be employed for exploratory studies for formulating and designing the research problem and hypotheses, as inputs for designing the structured questionnaires, as the primary sources of research inquiry for a clinical analysis, where the task is to uncover the reasons for certain occurrences and with segments like children. The

use of qualitative research methods generates an in-depth knowledge of the individuals' beliefs, attitudes, and behaviour. The qualitative research methods also provide the ability to understand the changing nature of the industry and key issues and provide a more adjustable and unstructured approach [2].

Table 1 : Type of Qualitative Research Methods

S. No.	Qualitative Research Methods	Objective	Procedure
1	Observation Method	Observation of the system and its environment	Data collection via observation
2	Content Analysis	Investigating a report systematically	Structured and systematic
3	Focus Group Method	Collection of information from group	Analysing the information from focus groups
4	Personal Interview method	Opinion/experience Collection	May be unstructured, semi-structured and structured
5	Projective techniques	Idea of projecting one-self or feelings on ambiguous objects	Indirect questioning
6	Socio-metric analysis	Analysing information obtained from different groups	Involves measuring the choice, communication and interpersonal relations of people in different groups.
7	Research Case Analysis	Analysing certain issues of a company or an industry	Use suitable analysing framework
8	Patent Analysis (Proposed in this paper)	Analysing a patent granted on a new product or new process or new system	Use of suitable framework to analyse technology/process

Irrespective of the type of research /method of inquiry, it must adhere to certain established criteria to be called as business research / technology research. For a research to be of value and to authenticate or contribute to the body of knowledge, it must possess the following features: (1) Clearly defines purpose, (2) System of examining the research problem, (3) developing hypotheses, and (4) finding an optimum solution based on hypothesis. Sometimes new interpretation of the solution through systematic analysis also considered as qualitative research.

There are two universally practiced and easily comprehensible classification on the type of research. They are exploratory research and conclusive research. Explorative research is based upon the objectives of solving the problem of study and the conclusive research is based on the purposes of the study. Both Case Analysis research method [3-6] and Patent analysis research method proposed in this paper are different from explorative research and conclusive research in such a way that they have both objectives of study and purpose of the study. In this paper, we have proposed and outlined a new method of doing research

especially for beginners in applied sciences including engineering, business management, agricultural sciences, pharmaceutical sciences, medical sciences, paramedical sciences etc where a huge number of patents are filed world over every year (table 2). Patents are considered as big data because during last 10 years on an average 25 lakhs patents are filed per year from all over the world and out of them around 70 % patents are accepted by the review committees. These patents developed and filed according to a specific format with a major information resource which describes new technologies and new concepts. The patent literature is different from any other information source as the information disclosed in this literature is not published elsewhere. Patents provide valuable information on current technology and their usage on building products or processes and such information is useful for researchers, R & D managers, technologists, and forecasters to enable them to predict as well as formulate corporate policies and strategies. The major advantage of patent literature is to indicate gaps in the area of research where inventor, as well as the analyser, can put efforts to innovate new ideas and interpret them in the new and relevant way.

Table 2 : World patent application scenario during last 10 years [7]

S. No.	Year	Number of Patents
1	2017	-
2	2016	31,27,900
3	2015	28,87,300
4	2014	26,80,800
5	2013	25,64,900
6	2012	23,56,600
7	2011	21,58,100
8	2010	19,97,200
9	2009	18,55,500
10	2008	03,13,700
11	2007	02,73,000
12	2006	17,91,000
13	2005	17,02,800
14	2004	15,74,200
15	2003	14,84,000
16	2002	14,44,000
17	2001	14,57,000

Table 3 contains the country wise patent application data from the year 2011 to 2016. It is seen that China is maintained the first position which is followed by the United States of America and then Japan in patent application ranking. These patents carry a good amount of information on possible new products or processes in different subject areas. This untapped innovation mine can be used for analysis based on a systematically developed procedure to understand and to develop further new ideas or improving the features of existing ideas.

Table 3 : World patent application scenario during last 5 years – Top 7 Countries [7]

S. No.	Country	2011	2012	2013	2014	2015	2016
1	China	5,26,412	6,52,777	8,25,136	9,28,177	11,01,864	13,38,503
2	USA	5,03,582	5,42,815	5,71,612	5,78,802	05,89,410	06,05,571
3	Japan	3,42,610	3,42,796	3,28,436	3,25,989	03,18,721	03,18,381
4	Republic of Korea	1,78,924	1,88,915	2,04,589	2,10,292	2,13,694	2,08,830
5	Russian Federation	41,414	44,211	44,914	40,308	45,517	41,587
6	Germany	59,444	61,340	63,167	65,965	66,893	67,899
7	India	42,291	43,955	43,031	42,854	45,658	45,057

2. PATENT ANALYSIS AS A QUALITATIVE RESEARCH METHOD

A **patent** is a right granted to the inventor that prevents others from making, using, selling, importing the invention without his/her permission. A patentable invention can be a **product or process** that gives a new technical solution to a problem [x]. Patent is a

- (1) A new Invention of Product/Process.
- (2) Improvements in System/Item.
- (4) New/improved process
- (5) New model/idea

A patent is a legal document granted by the government giving an inventor the exclusive right to make, use, and sell an invention for a specified number of years (but not permission). Patents are also available for significant improvements on previously invented items.

To qualify for a patent, the invention must meet three basic tests :

- First, it must be novel, meaning that the invention did not previously exist.
- Second, the invention must be non-obvious, which means that the invention must be a significant improvement to existing technology/process. Simple changes to previously known devices do not comprise a patentable invention.
- Finally, the proposed invention must be useful. Legal experts commonly interpret this to mean that no patent will be granted for inventions that can only be used for an illegal or immoral purpose.

World Intellectual Property Organization (WIPO) defined patent as an exclusive right granted for an invention may be a product or a process which gives a new way of preparing and providing a solution to a problem. It protects novel inventions and manufacturing processes for the duration of 20 years [7-8]. It is a territorial protection and can be sold or licensed. Patent protection implies that inventions cannot be commercially made, used, distributed or sold without the patent owner's consent. A patent owner has rights to decide who may or may not use the protected invention for the period in which the invention is protected. Patent provides an incentive to the creator for his invention. Filing of the patent application to patent office is mandatory. A patent is granted by a national patent office or regional patent office on the basis of the application. Every country has its own patent office and its own patent law for the protection of innovative ideas. Rights given by the patents are monopoly rights which prevent others from making, using or selling the creator's invention for a specified period of

time. Patents are issued for inventions which are solutions to specific problems in the field of technology. Invention may be related to a product or a process. In order to get a patent for an invention, the invention has to be patentable (Novel, nonobvious, inventive step, utility etc) and application must be filed in the patent office. In summary, Patents reward disclosure rather than secrecy. Patent document is published as an application and later granted by the patent office after review as a patent. Patents are granted for the inventions related to process, products, apparatus, and industrial applications [7].

Contents of Patent Application

- Application for grant of patent in Form-1.
- Applicant has to obtain a proof of right to file the application from the inventor. The Proof of Right is either an endorsement at the end of the Application Form-1 or a separate assignment.
- Provisional / complete specification in Form-2.
- Statement and undertaking under Section 8 in Form-3, if applicable.
- An applicant must file Form 3 either along with the application or within 6 months from the date of application.

What is not patentable?

- Some inventions cannot be patented. Under the law of the European Patent Convention (EPC), the list of non-patentable subject-matter includes methods of medical treatment or diagnosis, and new plant or animal varieties.
- Further information on such fields can be obtained from a patent attorney. Nor may patents be granted for inventions whose exploitation would be contrary to public order or morality.
- The following are not regarded as inventions: discoveries; scientific theories and mathematical methods; aesthetic creations, such as works of art or literature; schemes, rules, and methods for performing mental acts, playing games or doing business; presentations of information; computer software.

3. ANALYSING A PATENT

Analysing an issue is nothing but the detailed examination of the structure, elements, and various affecting factors of that issue. The analysis includes the process of breaking an issue into smaller parts called elements or components in order to understand it in a better way. The analysis also helps to uncover and understand the cause-effect relationships and hence provides a basis for problem solving and decision making. The definition of analysis changes from subject to subject and in general it is nothing but the detailed study of the given issue. If the analysis of an issue in any subject leads to better or new interpretation of the concepts related to that issue, then it is also called research. Many analysis frameworks are used in business management to analyse a system, concept, idea, strategy or models which include SWOT/SWOC analysis [10,11,12,13,14], ABCD analysis [15,16,17], PESTEL analysis [18,19,20], Competitive forces analysis [21] etc. These analysis frameworks use some constructs to examine the elements or components and affecting factors for detailed analysis. Thus, any scholarly researcher can either create new knowledge or interpret any issue or concept in a new way through suitable analysis technique to qualify it as research. Patent is a new knowledge on an invention may be a product or process so that if analysed properly,

may give rise to a new interpretation. As mentioned before, there are plenty of patents filed during many years in different subjects so that there are abundant opportunities for the scholarly researchers to analyse and interpret them so that it may even lead to new knowledge.

3.1 Why Patent Analysis :

A systematic Patent analysis gives us an insight into the filed patent/ accepted patent in a given subject and field. Patent analysis can be divided into two types - Individual patent analysis and Group patent analysis. In individual patent analysis, a patent filed on a product, or process, or on a technology filed by an individual or group of people, or by a company is analysed as per analysis framework. In group patent analysis, a group of related patents in an industry or of a same technology are analysed or compared as per the procedure. There are various analysis frameworks can be used to analyse a patent like Patent opportunity analysis, Patent performance analysis, Patent Innovation analysis, Patent technology analysis, Patent value analysis etc along with analysis of patent (product / process) features and claims. Systematic patent analysis is a new field untapped but provides new knowledge and new interpretations and hence is assumed as a gold mine for scholarly researchers. Patent analysis can be carried out for following reasons :

(a) Forecasting emerging technologies :

Detailed patent analysis with the description and claims based on a given technology may the researcher to forecast emerging technologies in the society including the technology used in the patent [22].

(b) Mapping inventive activity and technological change :

Detailed patent analysis with the description and claims allows an analyser to map inventive activities and technological changes in a given industry [23].

(c) Evaluating the risk of patent infringement :

Detailed analysis of a patent on its innovativeness in attracting customers through its future business value may be used to evaluate the risk of infringement [24].

(d) Technology trends identification:

Detailed patent analysis may uncover the trends in changes in technology during near future. Such identification of technology trend gives an idea to business firms on decision of investments in a given technology [25].

(e) Estimation of technological impact:

The technological impact in new product/process development and its effectiveness in deciding the future business is one of the reasons of patent analysis [26].

(f) Identifying technological topics and institution-topic distribution probability :

Based on a company's patent analysis one can determine the probability of technological topics and institution-topic distribution [27].

(g) Monitoring technology trends :

Patent analysis in a given field and given industry monitors the technology trends in that industry and allows new researcher's to look into new inventions in the same or related concepts for further improvement [28].

(h) Technology valuation through Patent Analysis :

Quantitative Patent analysis also allows the valuation of the technology used to develop the product or process [29].

(i) To know state-of-the-art technology development in a given subject :

By analysing a given patent in terms of its technology, it is possible to know state-of-the-art technology development in a given subject [30].

(j) Mapping technological innovations :

By means of analysing several patents in a given industry, it is possible to map technological innovations [31].

(k) Business planning based on technological capabilities :

Patent analysis also allows a researcher to know its business value and hence it is possible to plan a business based on its technological capabilities [32].

(l) Analysing the functional dynamics of technological innovation systems :

It is proposed that the patent analysis also allows to Analyse the functional dynamics of technological innovation systems [33].

(m) Strategic planning for technology development with patent analysis :

Organizations can plan their strategy for new product for improving and expanding the market or new processes for improving the productivity or wastage through new technology development with patent analysis [34].

(n) Monitoring trends of technological changes :

Patent analysis also supports to monitor technological changes [35].

(o) Patents as indicators of corporate technological strength :

Patents analysis of patents submitted by corporates gives indications of their technological strength [36].

(p) To study the technology life cycle development :

Patents analysis also can be used to study the technological life cycle development and to know the used technologies current stage in its lifecycle [37].

(q) Organizational behaviour in the R&D process :

Patents analysis also indicates the organizational behaviour and their interest in motivating the employees in R & D process and developing and filing patents [38].

(r) Detecting signals of new technological opportunities :

By analysing the patents filed by many organizations in a given industry, one can detect the signals of new technological opportunities [39].

(s) For promoting technology transfer in multi-technology industries :

Patent analysis also provides an opportunity to promote technology transfer in multi-technology industries [40].

(t) Prediction of emerging technologies :

Many patent analysis in a given industry supports the prediction of emerging technologies [41].

(u) Patent-based inventor profiles as a basis for human resource decisions :

Patent analysis also helps to identify inventor profile as a basis for human resource decisions in an organization which has focus on investing on R & D [42].

(v) Assessing the industrial opportunity :

Group patent analysis in a given industry helps in assessing the industrial opportunity for expansion, collaboration, and expansion [43].

Apart from the above reasons, there may be many additional interests shown below for a researcher in patent analysis.

- Academic Interest – To study the contents and new claims of the patents by higher education students and researcher of relevant field
- Technological Perception – To study the technological ability to solve real world problems and to find optimum solutions for them.
- Predicting the future – Decision makers in organizations can foresee the future based on analysing group of patents in a given industry sector.
- Researching for new Ideas – Patent analysis will give rise to new ideas of solving problems in same area and related area. It may also lead to think out of the box to find new solutions to existing problems.
- New/Improved Invention & Patent – Based on analysing many patents by students and researchers, new invention may get birth leading to filing of new patents.

3.2 Historical Development on Patent Analysis :

Patents originated in the 15th century when Florence of Italy issued patent protection to a gear used in barge hoists developed as new technology by its citizen Filippo Brunelleschi. Since then, many governments worldwide have started to issue patents to encourage technological inventions by promoting innovation.

3.3 Types of Patents

There are three types of patents as described by the USPTO:

- (1) **Utility:** This type of patents is granted for the invention or discovery of a new product, process, machine, article of manufacture, or composition of matter; or for the improvement of existing systems.
- (2) **Design:** This type of patents is granted for a new, original, or ornamental design for a manufactured article.
- (3) **Plant:** This type of patents is granted for the invention or discovery and reproduction of a new type of plant.

3.4 Identifying a Patent for Analysis :

Depending upon the interest of the researcher, he/she can choose a patent from the topic relevant to his/her specialization area. The choice of the patent may be of industry-based, pure science-based, applied science or engineering-based, patent filed by a specific company, patent filed by a specific business group, patent filed by individuals, or patent filed on a specific solution of a problem.

3.5 Patent Analysis Procedure :

(1) Identifying a Patent :

- Search a Patent in a given Industry/ Application/ Technology/ Subject using Google Patent www.patents.google.com/ as per the procedure stated in section 3.4.

(2) Study the summary of the Patent :

- Using Abstract of the patent given in patent form.

(3) Classification of the patent :

- To know the category of the patent.

(4) Description on Patent :

- Available in the Patent under analysis.

(5) Description /Comments on Drawings of a Patent :

- Available in the patent from Google patent form.

(6) Detailed Description on the Invention :

- Available in the patent from Google patent form.

(7) Claims of the Invention :

- Available in the patent from Google patent form.

(8) Number of Citations in the Patent:

- Available in the patent from Google patent form.

(9) Number of Citations for the Patent:

- Available in the patent from Google patent form.

(10) List of Similar Inventions:

- Available in the patent from Google patent form.

(11) Legal Issues Related to Inventions (Optional) :

- Available in the patent from Google patent form.

4. PATENT ANALYSIS FRAMEWORKS

It is possible to develop different types of patent analysis frameworks based on the analysis objectives and theme. Some of the possible frameworks are described below :

4.1 Patent opportunity analysis : This can be systematic analysis deals with identifying the opportunities of the patent based on the technology used, solutions possible, claims described and application of the patented product/process in designing new things to solve current and future problems.

4.2 Patent performance analysis : This is a systematic analysis of the possible performance of the invented /proposed product/ process in order to fulfil the promises based on the claims.

4.3 Patent Innovation analysis : This can be an analysis of possible innovations in related fields based on the granted patent and its technology.

4.4 Patent technology analysis : The technology used in the patent to develop stated product/ process or new discovery of a material etc. The organizational, industrial and environmental effects due to such invention and technology in supporting or affecting the future business etc.

4.5 Patent value analysis : This model of analysis consists of estimating the business value of the patent from the frame of reference of different stakeholders. In this analysis, the various attributes of the patent and their effect on creating both tangible value and intangible value are the features of study.

4.6 Patent (product / process) features and claims : The various features of patented product or process are analysed in order to improve the performance from all stakeholders point of view and by studying the claims from the patented application.

4.7 Qualitative Analysis of the patent using ABCDEF Listing : In this method, the advantages, benefits, constraints, disadvantages, effectiveness, and future financial value of the patent in the frame of reference of various stakeholders has to be listed separately [44-50].

4.8. Factors and Elemental analysis as Quantitative analysis of the patent using ABCDEF framework :

This analysis framework is the extension of recently invented ABCD framework developed by Aithal P. S. et al, used for analysing systems, concepts, ideas, models, strategies etc. [15-16, 51-60]. This framework allows the researchers to determine various affecting factors of a patent under four constructs of advantages (A), benefits (B), constraints (C), and

Disadvantages (D), effectiveness (E), and future financial value (F) for various determinant issues using some common attributes. The framework also allows us to do elementary analysis to identify various constituent elements under the same constructs advantages, benefits, constraints, disadvantages, effectiveness, and future financial value of the patent. This analysis framework is very effective and can be further improved by offering scores to each constituent element under those six constructs using focus group method.

5. ABCDEF ANALYSIS OF THE PATENT

A systematic procedure of analysing a patent using ABCDEF framework consists of following steps :

(1) Importance of the Invention :

Patent analysis should contain a summary of the importance of the invention of the patented product, process, material or system. The importance may be of technology used, the complexity of the product, its usage in society or systems, cost of development, maintenance etc.

(2) Description of the Invention :

This stage consists of the highlight on various features of the invention along with a summary of the description given in the patent application.

(3) Design :

The design part of the invention may contain description about drawings, the technology used, analysis on easiness of production, Cost, Reliability, Resource availability, and Durability of the patented item,

(4) New Innovations & Value addition in the Patent :

In this section, the analyser discusses on possible further improvement and how this patent is going to add value to the industry or users.

(5) ABCDEF Analysis of the Patent : This step is the core part of the analysis and in this section, the advantages, benefits, constraints, disadvantages, effectiveness, and future financial value when realizing the patented item in practice has to be listed from the various stakeholder point of view in the qualitative listing. On other hand, by identifying the affecting factors and critical constituent elements using statistical weightage, as the constructs - advantages, benefits, constraints, disadvantages, effectiveness, and future financial value, the quantitative analysis can be developed [15-16]. The development of detailed procedure on ABCDEF framework for patent analysis is under progress and will be published soon in another article.

(6) Business Opportunities & Challenges :

The patent under consideration can be also analysed by studying the business opportunities and challenges in detail. SWOC analysis can be used at this stage to know strength of the invention, weakness of the invention, opportunities for the invention and challenges for the invention to realize it in practice.

6. CONCLUSION

Many methods and methodologies are used in scholarly research under two general headings of qualitative research and quantitative research. Qualitative research uses all the relevant methods and methodologies without using statistical analysis techniques to create new knowledge and to interpret existing knowledge in a new way using various analysis

frameworks. Quantitative research, on other hand, uses statistical techniques to find relationships between various variables in a problem to create new knowledge. Research case studies and newly proposed patent analysis are qualitative techniques but can be promoted as quantitative techniques based on what kind of analysing frameworks used. This new research method of patent analysis is expected to make use of huge untapped information sources of reviewed patents on different technologies used to produce a new product, process, material, or application to analyse them in a systematic way to create new knowledge or new interpretations. The present proposal hinted at available new research opportunities for researchers both at entry level and advanced level to identify and analyse patents available in all subject areas and discussed the possibilities of using various analysing frameworks. The possible use and applications of patent analysis are also highlighted. This new avenue of using patent analysis as a research method can be effectively used by students of engineering, medical, paramedical, business management and other applied studies students both at bachelor and master's degree level to rename their course as research focussed courses.

REFERENCES

- [1] Lewis, S. (2015). Qualitative inquiry and research design: Choosing among five approaches. *Health promotion practice*, 16(4), 473-475.
- [2] Hoepfl, M. C. (1997). Choosing qualitative research: A primer for technology education researchers. *Journal of technology education*, 9(1), 47-63.
- [3] Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The qualitative report*, 13(4), 544-559.
- [4] Aithal, P. S. (2017). Industry Analysis – The First Step in Business Management Scholarly Research. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*, 2(1), 1-13. DOI: <http://dx.doi.org/10.5281/zenodo.810347>.
- [5] Aithal, P. S., (2017). Company Analysis – The Beginning Step for Scholarly Research. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*, 1(1), 1-18. DOI: <http://dx.doi.org/10.5281/zenodo.573769>.
- [6] Aithal, P. S. (2017). An Effective Method of Developing Business Case Studies Based on Company Analysis. *International Journal of Engineering Research and Modern Education (IJERME)*, 2(1), 16-27. DOI: <http://dx.doi.org/10.5281/ZENODO.400579>.
- [7] WIPO statistics database, <https://www3.wipo.int/ipstats/index.htm?tab=patent> retrieved on 20/08/2018.
- [8] <http://www.ipindia.nic.in/> referred on 20/08/2018.
- [9] http://www.ipindia.nic.in/writereaddata/Portal/IPOFormUpload/1_11_1/Fees.pdf referred on 20/08/2018.
- [10] Revathi, R., Madhushree, L. M. & Aithal, P. S. (2018). Business Strategy of Top Indian Company: L&T InfoTech. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*, 2(1), 64-89. DOI: <http://dx.doi.org/10.5281/zenodo.1302770>.

- [11] Aithal, P. S. and Suresh Kumar, P. M. (2015). Applying SWOC Analysis to an Institution of Higher Education. *International Journal of Management, IT and Engineering (IJMIE)*, 5(7), 231-247. DOI: <http://doi.org/10.5281/zenodo.163425>.
- [12] Madhushree, L. M., Revathi, R., Anil Kumar, Aithal, P.S., (2018). Business Strategies of Top Indian IT Company: Mindtree. *International Journal of Case Studies in Business IT and Education (IJCSBE)*, 2(1), 22-36. DOI: <http://dx.doi.org/10.5281/zenodo.1249871>.
- [13] Jithin Raj, K. & Krishna Prasad, K. (2018). A Critical Study on Business Strategies of 3i Infotech Ltd. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*, 2(1), 13-21. DOI: <http://dx.doi.org/10.5281/zenodo.1247319>.
- [14] Sneha, M. S. & Krishna Prasad, K. (2018). Analysis of Business Strategies of Salesforce.com Inc. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*, 2(1), 37-44. DOI: <http://dx.doi.org/10.5281/zenodo.1252028>.
- [15] Aithal, P. S., V.T. Shailashree, P. M. Suresh Kumar, (2015). A New ABCD Technique to Analyze Business Models & Concepts. *International Journal of Management, IT and Engineering (IJMIE)*, 5(4), 409 – 423. DOI : <http://doi.org/10.5281/zenodo.61652>.
- [16] Aithal, P. S., (2016). Study on ABCD Analysis Technique for Business Models, Business Strategies, Operating Concepts & Business Systems. *International Journal in Management and Social Science*, 4(1), 98-115. DOI: <http://doi.org/10.5281/zenodo.161137>.
- [17] Aithal, P. S., (2017). ABCD Analysis as Research Methodology in Company Case Studies. *International Journal of Management, Technology, and Social Sciences (IJMTS)*, 2(2), 40-54. DOI: <http://dx.doi.org/10.5281/zenodo.891621>.
- [18] Gupta, A. (2013). Environment & PEST analysis: an approach to external business environment. *International Journal of Modern Social Sciences*, 2(1), 34-43.
- [19] Aithal P. S., (2017). Impact of Domestic, Foreign, and Global Environments on International Business Decisions of Multinational Firms: A Systematic Study. *International Journal of Management, Technology, and Social Sciences (IJMTS)*, 2(2), 57-73. DOI: <http://dx.doi.org/10.5281/zenodo.1067103>.
- [20] Aithal P. S. (2017). A critical study on Various Frameworks used to analyze International Business and its Environment. *International Journal of Applied Engineering and Management Letters (IJAEML)*, 1(2), 74-98. DOI: <http://dx.doi.org/10.5281/zenodo.1053578>.
- [21] Porter, M. E. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: The Free Press.
- [22] Daim, T. U., Rueda, G., Martin, H., & Gerdtsri, P. (2006). Forecasting emerging technologies: Use of bibliometrics and patent analysis. *Technological Forecasting and Social Change*, 73(8), 981-1012.
- [23] Bhattacharya, S. (2004). Mapping inventive activity and technological change through patent analysis: A case study of India and China. *Scientometrics*, 61(3), 361-381.

- [24] Bergmann, I., Butzke, D., Walter, L., Fuerste, J. P., Moehrle, M. G., & Erdmann, V. A. (2008). Evaluating the risk of patent infringement by means of semantic patent analysis: the case of DNA chips. *R & d Management*, 38(5), 550-562.
- [25] Choi, S., Yoon, J., Kim, K., Lee, J. Y., & Kim, C. H. (2011). SAO network analysis of patents for technology trends identification: a case study of polymer electrolyte membrane technology in proton exchange membrane fuel cells. *Scientometrics*, 88(3), 863.
- [26] Choi, C., Kim, S., & Park, Y. (2007). A patent-based cross impact analysis for quantitative estimation of technological impact: The case of information and communication technology. *Technological Forecasting and Social Change*, 74(8), 1296-1314.
- [27] Wang, B., Liu, S., Ding, K., Liu, Z., & Xu, J. (2014). Identifying technological topics and institution-topic distribution probability for patent competitive intelligence analysis: a case study in LTE technology. *Scientometrics*, 101(1), 685-704.
- [28] Bhattacharya, S., & Khan, M. D. T. R. (2001). Monitoring technology trends through patent analysis: A case study of thin film. *Research evaluation*, 10(1), 33-45.
- [29] Jun, S., Park, S., & Jang, D. (2015). A technology valuation model using quantitative patent analysis: a case study of technology transfer in big data marketing. *Emerging Markets finance and trade*, 51(5), 963-974.
- [30] Abbas, A., Zhang, L., & Khan, S. U. (2014). A literature review on the state-of-the-art in patent analysis. *World Patent Information*, 37, 3-13.
- [31] Wong, C. Y., & Yap, X. S. (2011). Mapping technological innovations through patent analysis: a case study of foreign multinationals and indigenous firms in China. *Scientometrics*, 91(3), 773-787.
- [32] Lee, S., Yoon, B., Lee, C., & Park, J. (2009). Business planning based on technological capabilities: Patent analysis for technology-driven road mapping. *Technological Forecasting and Social Change*, 76(6), 769-786.
- [33] Bergek, A., Jacobsson, S., Carlsson, B., Lindmark, S., & Rickne, A. (2008). Analyzing the functional dynamics of technological innovation systems: A scheme of analysis. *Research policy*, 37(3), 407-429.
- [34] Liu, S. J., & Shyu, J. (1997). Strategic planning for technology development with patent analysis. *International Journal of Technology Management*, 13(5-6), 661-680.
- [35] Lee, C., Jeon, J., & Park, Y. (2011). Monitoring trends of technological changes based on the dynamic patent lattice: A modified formal concept analysis approach. *Technological Forecasting and Social Change*, 78(4), 690-702.
- [36] Narin, F., Noma, E., & Perry, R. (1987). Patents as indicators of corporate technological strength. *Research policy*, 16(2-4), 143-155.
- [37] Haupt, R., Kloyer, M., & Lange, M. (2007). Patent indicators for the technology life cycle development. *Research Policy*, 36(3), 387-398.

- [38] Tsuji, Y. S. (2002). Organizational behavior in the R&D process based on patent analysis: Strategic R&D management in a Japanese electronics firm. *Technovation*, 22(7), 417-425.
- [39] Yoon, J., & Kim, K. (2012). Detecting signals of new technological opportunities using semantic patent analysis and outlier detection. *Scientometrics*, 90(2), 445-461.
- [40] Park, Y., Lee, S., & Lee, S. (2012). Patent analysis for promoting technology transfer in multi-technology industries: the Korean aerospace industry case. *The journal of technology transfer*, 37(3), 355-374.
- [41] Érdi, P., Makovi, K., Somogyvári, Z., Strandburg, K., Tobochnik, J., Volf, P., & Zalányi, L. (2013). Prediction of emerging technologies based on analysis of the US patent citation network. *Scientometrics*, 95(1), 225-242.
- [42] Moehrle, M. G., Walter, L., Geritz, A., & Müller, S. (2005). Patent-based inventor profiles as a basis for human resource decisions in research and development. *R&D Management*, 35(5), 513-524.
- [43] Ogawa, T., & Kajikawa, Y. (2015). Assessing the industrial opportunity of academic research with patent relatedness: A case study on polymer electrolyte fuel cells. *Technological Forecasting and Social Change*, 90, 469-475.
- [44] Keerthan Raj, & Aithal, P. S. (2018). Generating Wealth at the Base of the Pyramid – A Study using ABCD Analysis Technique. *International Journal of Computational Research and Development (IJCRD)*, 3(1), 68-76. DOI : <http://doi.org/10.5281/zenodo.1205586>.
- [45] Architha Aithal & A. R. Shabaraya (2018). Users Perspectives on Online Pharmacy Model. *International Journal of Health Sciences and Pharmacy (IJHSP)*, 2(1), 29-36. DOI: <http://dx.doi.org/10.5281/zenodo.1292790>.
- [46] Narula, A.V., & Aithal, P. S. (2018). Employability Skill traits Management Quotient [ESMQ] – A Conceptual Model Proposal. *International Journal of Applied Engineering and Management Letters (IJAEML)*, 2(1), 1-30. DOI: <http://dx.doi.org/10.5281/zenodo.1156138>.
- [47] Aithal, P. S. (2017). ABCD Analysis of Recently Announced New Research Indices. *International Journal of Management, Technology, and Social Sciences (IJMTS)*, 2(1), 65-76. DOI: <http://doi.org/10.5281/zenodo.583644>.
- [48] Aithal, P. S. (2017). Factor Analysis based on ABCD Framework on Recently Announced New Research Indices, *International Journal of Management, Technology, and Social Sciences (IJMTS)*, 1(1), 82-94. DOI: <http://dx.doi.org/10.5281/zenodo.584105>.
- [49] Aithal, Architha., Aithal, P. S. (2017). ABCD Analysis of Task Shifting-An optimum Alternative Solution to Professional Healthcare Personnel Shortage. *International Journal of Health Sciences and Pharmacy (IJHSP)*, 1(2), 36-51. DOI: <http://dx.doi.org/10.5281/zenodo.1038975>.

- [50] Varun Shenoy & Aithal, P. S., (2017). Quantitative ABCD Analysis of IEDRA Model of Placement Determination. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*, 1(2), 103-113. DOI: <http://dx.doi.org/10.5281/zenodo.1133691>.
- [51] Aithal, P. S., Shailashree, V. T., & Suresh Kumar, P. M. (2015). Application of ABCD Analysis Model for Black Ocean Strategy. *International Journal of Applied Research (IJAR)*, 1(10), 331-337. DOI: <http://doi.org/10.5281/zenodo.163424>.
- [52] Aithal, P. S., Shailashree, V. T., & Suresh Kumar P. M., (2016). ABCD analysis of Stage Model in Higher Education. *International Journal of Management, IT and Engineering (IJMIE)*, 6(1), 11-24. DOI: <http://doi.org/10.5281/zenodo.154233>.
- [53] Aithal, P. S., Shailashree, V. T., & Suresh Kumar, P. M. (2016). Analysis of NAAC Accreditation System using ABCD framework. *International Journal of Management, IT and Engineering (IJMIE)*, 6(1), 30-44. DOI: <http://doi.org/10.5281/zenodo.154272>.
- [54] Aithal, P. S., Shailashree, V. T., & Suresh Kumar, P. M. (2016). Application of ABCD Analysis Framework on Private University System in India. *International Journal of Management Sciences and Business Research (IJMSBR)*, 5(4), 159-170. DOI : <http://doi.org/10.5281/zenodo.161111>.
- [55] Aithal, P. S., Shailashree, V. T., & Suresh Kumar, P. M. (2016). The Study of New National Institutional Ranking System using ABCD Framework, *International Journal of Current Research and Modern Education (IJCRME)*, 1(1), 389-402. DOI : <http://doi.org/10.5281/zenodo.161077>.
- [56] Aithal, S., & Aithal, P. S. (2016). ABCD analysis of Dye doped Polymers for Photonic Applications, *IRA-International Journal of Applied Sciences*, 4 (3), 358-378. DOI: <http://dx.doi.org/10.21013/jas.v4.n3.p1>.
- [57] Aithal, P. S., Shailashree, V. T. & Suresh Kumar, P. M., (2016). Analysis of ABC Model of Annual Research Productivity using ABCD Framework. *International Journal of Current Research and Modern Education (IJCRME)*, 1(1), 846-858. DOI : <http://doi.org/10.5281/zenodo.62022>.
- [58] Varun Shenoy, & Aithal P. S., (2016). ABCD Analysis of On-line Campus Placement Model, *IRA-International Journal of Management & Social Sciences*, 5(2), 227-244. DOI: <http://dx.doi.org/10.21013/jmss.v5.n2.p3>.
- [59] Aithal, P. S., Shailashree V. T. & Suresh Kumar P.M. (2016). Factors & Elemental Analysis of Six Thinking Hats Technique using ABCD Framework. *International Journal of Advanced Trends in Engineering and Technology (IJATET)*, 1(1), 85-95. DOI : <http://doi.org/10.5281/zenodo.240259>.
- [60] Aithal, P. S. & Suresh Kumar, P. M. (2016). CCE Approach through ABCD Analysis of 'Theory A' on Organizational Performance. *International Journal of Current Research and Modern Education (IJCRME)* 1(1), 169-185. DOI: <http://dx.doi.org/10.5281/zenodo.164704>.

Perceived Psychological Problems And Coping Strategies among The Institutionalised Elderly

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Abstract :

In the modern world everyone of us is ageing every day in life. Ageing process starts before we are born and is continued throughout life course. Ageing occurs at different levels: social, chronological, behavioral, physiological, morphological, cellular and molecular level. Thus ageing is natural process and should be welcomed, as the alternative would be nothing but premature death. Taking care of the needs of the old people and promoting a sense of well-being is a major concern for health professionals. Disability in old age is frequent and not only lowers the quality of life of its victims, but strains society's limited resources for assistance, care and rehabilitation. Prevention of disability in old age is therefore a matter of great humanitarian and economic concern. Adopting a flexible lifestyle from early adulthood is perhaps the best way to meet the demands of new adjustments and changes in old age. Social supports give the elderly a sense of security and belonging, helping to meaningfully relate to others and feeling that they are cared for in times of crisis, thus indicating the importance of welfare measures.

Keywords: Perceived problems, coping strategies, Institutionalized elderly people, Disability, Ageing.

Introduction:

Ageing is considered to be a biological process and experienced by the mankind in all times. It refers to a sequence of changes across a life span of an individual. It is generally associated with the decline in the functional capacity of the organs of the body due to physiological transformation. Ageing is more difficult in the rapidly changing materialistic

society. The modernization plays a vital role in the ageing process of an individual. The aged feel a sense of social isolation because of the disjunction from various bond viz. work relationships, and diminish of relatives and friends, mobility of children to far off places for jobs. The situation of the elderly still worsens when there is physical incapacity and financial stringency. The elderly people face number of problems and adjust to them in varying degrees in their old age.

Today ageing is a concern world over. Inadequate support from the care givers leads to lack of moral, emotional and physical support for elderly. It should be noted that problems of the old age are highly individualistic in nature. The same stressful life event will produce very different effects on the psychological and physical health of different people, possibly as a result of differences in coping styles.

For the past 50 years there has been a distinct change in the Indian family system. Joint families are turning into nuclear families. The status of the elderly has also changed in the family system. Earlier aged members were regarded as having supreme power and their experience and wisdom were utilized to solve important family issues. However, young members of the family are the product of a changed social system. This conflict in the value pattern makes elderly people, particularly those who are retired from service and other occupation, mentally isolated from the family. The feeling of loneliness along with the natural age related decline in physical and physiological functioning makes them prone to psychological disturbances.

Most elderly people prefer to remain in their homes because they are able to maintain the integrity of their social network, preserve environmental landmarks and enjoy a higher quality of life. Many are compelled to leave their children and stay in old age homes. For the elderly, living at an elderly home should mean spending time with peers, being close to health services and being away from loneliness and depression. In fact, these are only a few expectations from the elderly homes. However, whether and how well elderly homes met these needs and reduced loneliness and depression is the question of a research. Elderly homes are not yet a place to support the elderly. On the other hand, they lack speciality services to alleviate the elderly needs and on the other hand, there is a negative attitude toward nursery homes. If they provide appropriate services for and realize the problems of the elderly, it can help them to cope in a better way and lead a productive life in the community.

With a fast increasing trend India's elderly population aged 60 and above is expected to increase from 77 million in 2001 to 179 million in 2031 and further to 301 million in 2051.

Many elders face mental as well as physical problems especially when they reach the stage of retirement from active professional life. They require psychological support along with medical attention. Worrying about old age can affect many people who are not old yet.

Research has shown that the prevalence of psychological disorders is increasing in a way that some call it a crisis. By increasing psychological disorders in the elderly, it is estimated that their prevalence will increase four folds by 2030 compared with the past 30 years. The prevalence of cognitive impairment among the elderly is medium and severe. The rate of cognitive impairment increases with age. It is also meaningfully related to factors such as race, education and hospitalization. Furthermore, research has revealed that psychological disorders occur in old men and women in different manners. Old women show more emotional disorders and general anxiety disorders while men suffer from disorders related to drug abuse withdrawal. Furthermore, it was revealed that the elderly with cognitive disorders had more emotional disorders.

Objectives of the study:

The main objectives of the study are to

1. Assess the perceived psychological problems among institutionalized elderly
2. Assess the coping strategies among institutionalized elderly
3. Identify the relationship between perceived psychological problems and level of coping of the elderly
4. Find out the association between perceived psychological problems and selected demographic variables
5. Find out the association between coping strategies and selected demographic variables
6. Improve or develop the measures to educate the elderly on how to overcome psychological problems and enhance the level of coping.

Methodology:

Methodology adopted in this paper is Descriptive in nature. In this study to assess the perceived problems and coping strategies among institutionalized elderly people of Dakshina Kannada District both the primary and secondary data is taken into consideration and the sample size of respondents to 80. Simple random sample technique is used for the purpose of data collection and to arrive at the said objectives.

Literature review:

A study was conducted in USA among 60 institutionalized elderly to examine the role that hopelessness plays in geriatric suicidal ideation. Multiple regression analysis revealed that while hopelessness was strongly related to suicidal ideation, the relationship between hopelessness and suicidal ideation was dependent on level of depression.

Participants who reported moderate or higher levels of depressive symptoms were more likely to have suicidal ideation with increasing hopelessness, whereas hopelessness had little effect on level of ideation at mild or lower depressive symptom levels. These findings highlight the importance of considering depression and hopelessness simultaneously when assessing and treating geriatric suicidal ideation.

A descriptive cross sectional study conducted in Iran on old age problems among 120 old people in 2009 found various health problems. Nearly 42.6per cent have non-psychotic disorders, among which 18.7 per cent have psychosomatic disorders, 12.6per cent have mild depression 5.4per cent have personality disorders and 5.6per cent have mild dementia. The prevalence of cognitive impairment among the elderly of 60 years and over is 15.7per cent out of which 10.2per cent is mild and 5.2per cent is medium and severe. The study concluded that signs of depression and somatization disorders were the most common ones among the elderly in elderly homes.

A cross sectional nation-wide survey was performed in Korea among 2521 institutionalized elderly to identify the prevalence of cognitive impairment, and the state of mental health. The findings showed that elders admitted to long term care facilities showed a higher level of cognitive impairment, more serious mental health problems, such as depression or suicidal ideation compared to elders admitted to acute care hospitals. The study concluded that the severity of cognitive behavioral or mental health problems do not match well with type of care setting. Therefore, health personnel working with elderly people should be provided guidance on detection and management of cognitive-behavioral and mental health problems.

A descriptive study designed to elicit information regarding the types of stressful situations experienced by the elderly and the coping strategies utilized to deal with the stress. The theory of stress and coping was utilized as the theoretical framework for the study. Methodology consisted of the administration of a questionnaire. Participants were first asked to describe a stressful event that they had experienced within the past month. Subsequently, they were asked to identify the coping strategies that they had used to deal with that stress. Data analysis revealed that loss and conflict were the two major types of stress experienced by the elderly, and that prayer is the most frequently used coping strategy. Additional studies are needed to determine the effectiveness of the coping strategies utilized by the elderly.

A descriptive comparative research study was done in Egypt to assess psychological problems using a sample of convenience of 180 elderly which was divided into two groups (90 institutionalized and 90 non-institutionalized elderly) .The findings revealed that; institutionalized elderly had higher levels of anxiety, loneliness, and depression than non-institutionalized elderly and it was major problems. (In agreement with the current study result, Singh, Lall, and Jain, (2013) in their study found that, more than one-third of residences at geriatric home have higher level of anxiety than more than quarter of non-

residences at geriatric home). This may be due to residences at geriatric home feel neglecting from others, feeling of boring and isolation from society.

This study clearly concludes that, psychological problems increase with growing of age among elderly. Moreover, the studied institutionalized elderly had higher levels of anxiety, loneliness, and depression than non-institutionalized elderly and it was major problems. The study results indicate that depression among the studied elderly in the institutions and in the community are due to loss of independence, inability to continue previous occupation, feeling of isolation and loneliness, lack of privacy and meaningful occupation.

Results and discussions:

Section I:

Table 1: Per cent age distribution of institutionalized elderly people based on their demographic data

SL.NO	DEMOGRAPHIC DATA	PER CENT AGE
1	AGE IN YEARS	
a	60-69	36.2
b	70-79	41.3
c	80 and above	22.5
2	GENDER	
a	Male	38.8
b	female	61.2
3	Education	
a	No schooling	62.5
b	Primary school	31.3
c	High school	2.6
d	secondary	1.2
e	Graduate	1.2

f	Post graduate	1.2
4	Religion	
a	Hindu	11.3
b	Christian	88.7
c	Muslim	0
d	others	0
5	Previous occupation	
a	Professional	7.5
b	business	15.0
c	agriculture	32.4
d	coolie	20.0
e	Driver	3.8
f	housewife	17.5
g	Others	3.8
6	Marital status	
a	single	48.8
b	married	22.5
c	Widow/widower	27.5
d	Divorced /separated	1.2
7	Number of children	
a	none	58.8
b	one	8.8
c	More than one	32.4
8	Type of family	

a	Nuclear family	92.5
b	Joint family	7.5
9	Reason for institutionalization	
a	Death of spouse	3.8
b	Lack of care givers	90.0
c	Illness	6.2
10	Duration of stay	
a	Less than 1 year	10.0
b	1 - 3 years	35.0
c	3 - 6 years	22.5
d	6years and above	32.5
11	Any major illness	
a	Psychiatric illness	0
b	hypertension	28.8
c	Cardiac disease	11.3
d	Diabetes mellitus	8.8
e	Asthma	5.1

Section II: Assessment of perceived problems among institutionalized elderly people

Table 2: Percentage distribution of institutionalized elderly people based on their perceived problems (N=80)

Assessment of perceived problems	Percentage
Mild	8.7

Moderate	25.0
Severe	66.3

Table 3: AREA WISE PERCENTAGE SCORES OF PERCEIVED PROBLEMS AMONG THE ELDERLY PEOPLE

AREA	PERCENTAGE
Physical	67.22
Emotional	75.96
Cognitive	67.86
Social	65.07

Section III: Assessment of coping strategies among institutionalized elderly people

Table 4: Percentage distribution of institutionalized elderly people based on their level of coping strategies

Level of coping strategies	Percentage
Poor coping	0
Average coping	37.5
Good coping	57.5
Very good coping	5.0

Findings of demographic data

Age: Most (41.3%) of the institutionalized elderly people were found to be in the age group of 70-79 years followed by 36.2% in the age group of 60-69 years and only 22.5% of subjects were 80 years and above.

Gender: Majority (61.2%) of the institutionalized elderly were women

Education: Majority (62.5%) of the elderly had no schooling

Religion: Majority of the sample (88.7%) were Christians

Previous occupation: The data on the previous occupation of the inmates of the old age home revealed that 32.5% were agriculturists, 20.0% were coolie workers, 17.9% were housewives, 15.0% were doing business, 7.5% were professionals, 3.8% were drivers and 3.8% were into other kinds of occupations.

Marital status: Most (48.8%) of the institutionalized elderly people were single, 27.5% were widows/widowers, 22.5% were married and 1.2% were divorced.

Number of children: Majority (58.8%) of the institutionalized elderly had no children

Type of family: Maximum (92.5%) number of the sample belonged to nuclear family

Reason for institutionalization: Majority (90%) of the elderly people were institutionalized due to lack of caregivers, followed by illness (6.2%), and death of spouse (3.8%).

Duration of stay: The data on duration of stay revealed that many (35.0%) of the elderly people stayed in the institution for 1-3 years, 32.5% stayed for more than 6 years, 22.5% stayed for 3-6 years and only 10.0% stayed for less than one year.

Any major illness: Majority (43.8%) of the institutionalized elderly had no major illness.

Locality: Majority (66.2%) of the elderly people belonged to urban locality.

Findings perceived problems:

Among 80 institutionalized elderly majority of them had severe psychological problems followed by moderate and mild. The scores obtained shows that, institutionalized elderly people had severe problems in emotional, (75.96%) cognitive and physical areas (67.86%) and moderate problems in social area.

- There was an **association between the level of perceived problems and duration of stay in the institution and presence of major illness**. It is interpreted that perceived problems were dependent on duration of stay in the institution and presence of major illness.

Coping strategies used by institutionalized elderly

- **Self distraction (60.63%)**
- **Active coping (68.59%)**
- **Denial (86.56%)**
- **Substance use (95.16%)**
- **Emotional support(50.16%)**

-
- **Instrumental support (54.06%)**
 - **Behavioural disengagement (90.47%)**
 - **Venting (43.44%)**
 - **Positive reframing (63.44%)**
 - **Planning (60.00%)**
 - **Humour (26.25%)**
 - **Acceptance (63.75%)**
 - **Religion (84.22%)**
 - **Self-blame (95.94%)**

Findings of coping strategies:

- Majority of the institutionalized elderly people (57.5%) had good coping.
- There was an **association between the coping strategies and gender and presence of major illness**. So it is interpreted that coping strategies were dependent on gender and presence of major illness.
- The most widely used coping strategies among institutionalized elderly were substance use (95.16%) self-blame (95.94%) and the least used coping strategies were venting (43.44%) and humor (26.25%).
- Analysis and interpretation of data done by using descriptive and inferential statistics. The findings of the study revealed that there was significant negative correlation between the perceived problems and coping strategies among institutionalized elderly people.

Conclusion:

The following conclusions were drawn on the basis of the findings of the study:

- In the present study, majority of the subjects (66.3%) had severe problems and had (57.5%) good coping.
- There was a significant inverse relationship between the perceived problems and coping strategies among institutionalized elderly people.
- There was a significant association between the perceived problems among elderly people and their duration of stay in the institution and major illness, whereas there was no significant association between the perceived problems and other selected demographic variables.
- There was a significant association between the coping strategies of institutionalized elderly people and demographic variables like gender and

presence of major illness, whereas there was no significant association between the coping strategies and other selected demographic variables

BIBLIOGRAPHY:

1. Sheela J, Jayamala M. Health condition of the elderly women; A need to enhance their wellbeing. IJSAS.1(1):2008
2. Patterson, Thomas L, Smith, Lawrence w. Avoidant coping predicts psychological disturbance in the elderly. Journal of Nervous and Mental Disease, WK Health:1990
3. Vijaykumar S. Challenges before the elderly, an Indian Scenario: 1995.
4. Etemadi A, Ahmadi K. Psychological disorders of elderly home residents. Journal of Applies Sciences 2009:9(3):549-54.
5. Rajan SI, Sharma PS, Mishra US. India's Elderly: Burden or Challenge? Sage publications: 2006.
6. Uncapher H, Thompson D, Osgood NJ, Bongar B. Hopelessness and suicidal ideation in older adults: 1998 Feb;38(1):62-70.
7. Kim HS, Jung YM, Lee HS. Cognitive impairment, behavioral problems, and mental health in institutionalized Korean elders- an eligibility issue for care settings.2009 Oct; 39(5):741-50.
8. Manfredi c, Pickett M, perceived stressful situations and coping strategies utilized by the elderly. journal of community health nursing;1987:4(2):99-110.
9. Hassan W, EL-Halim, Mostafa AN. Psychological Problems as Perceived by Institutionalized Elderly, Journal of education and practice; www.iiste.org ISSN 2222-1735 (Paper) ISSN 2222-288X (Online) Vol.8, No.33, 2017 61

ABCD Analysis of Nanotechnology as Green Technology

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Abstract:

There are many analysis frameworks used to interpret concepts, ideas, technologies, models, systems, solutions to any problems, strategies, products or services of an organization, resources, etc. Out of them, recently developed analysis framework called ABCD analysis framework is flexible to use in both qualitative and quantitative manner. ABCD analysis method allows the researcher to interpret the given concepts, ideas, technologies, models, systems, solutions of any problems, strategies, products or services of an organization, resources including material, machine, men, money, and information, systematically by considering various determinant issues related to the problem under analysis. The various determinant issues like organizational issue, business issues, customer issues, technological issues, government issue, environmental issues, and societal issues are identified and the affecting factors under the constructs Advantages, Benefits, Constraints, and Disadvantages are determined for identified key attributes. The critical constitutional elements of the nanotechnology as green technology are also identified for the same four constructs.

Keywords : ABCD Analysis Framework, Green Technology, Factor analysis, Elemental analysis.

1. INTRODUCTION

Technology analysis is a scientific, interactive, and communicative process that aims to contribute to the formation of public opinion on societal aspects of that technology. There are many analysis frameworks used to interpret concepts, ideas, technologies, models, systems,

solutions to any problems, strategies, products or services of an organization, resources, etc. Analysing a technology includes the study of development of that technology, its cost-benefits from the stakeholders point of view, its strength, weakness, opportunities and challenges (SWOC) [1--5], its advantages, benefits, constraints, and disadvantages to the stakeholders (ABCD) [3, 6], its external analysis using political, economic, social, technological, environmental, and legal (PESTEL) framework [7-8], its performance analysis etc. Out of them, recently developed analysis framework called ABCD analysis framework is flexible to use in both qualitative and quantitative manner [3, 6, 9-12]]. ABCD analysis method allows the researcher to interpret the given concepts, ideas, technologies, models, systems, solutions of any problems, strategies, products or services of an organization, resources including material, machine, men, money, and information, systematically by considering various determinant issues related to the problem under analysis. The various determinant issues like organizational issue, product issue, customer issue, government issue, and environmental/ societal issues are identified and the affecting factors under the constructs Advantages, Benefits, Constraints, and Disadvantages are determined for identified key attributes [5-6]. The ABCD analysing framework is also suitable for analysing a technology to study various affecting factors for different stakeholders including organization which adopted that technology for producing products through suitable processes under given constructs. In this paper, we have used ABCD analysing framework for the first time to analyse nanotechnology which is a general-purpose technology and also a green technology considered as a boon to the mankind due to its usefulness in solving all basic and advanced problems in the society to an optimum level which is very close to the ideal level.

2. FACTORS & ELEMENTAL ANALYSIS USING ABCD ANALYSIS

The ABCD analysis framework is developed based on two features which include (1) factor analysis and (2) elemental analysis. In factor analysis part, various affecting factors under each determinant issue of the technology are identified for each construct as per a chosen attribute. These affecting factors are identified using the Focus group method. The constructs used in factor analysis are (i) Advantages, (ii) Benefits, (iii) Constraints, (iv) Disadvantages. In the elemental analysis, the critical constitutional elements of the technology are also identified for same determinant issues under same four constructs (i) Advantages, (ii) Benefits, (iii) Constraints, (iv) Disadvantages (ABCD). The scores are given to each critical constituent element under all four constructs and based on calculating overall scores the importance of technology and its constructs in solving both basic and advanced problems in the organization/society are determined and rated [13-25]. In qualitative analysis model, only the affecting factors are determined under same four constructs which is also called ABCD listing [26-37].

3. NANOTECHNOLOGY AS GREEN TECHNOLOGY :

Green Technology (GT) can be used for environmental healing that reduces environmental damages created by the conventional industries in the society. It is expected that green technologies reduce the environmental degradation and supports to conserve natural resources. Green technologies are sustainable technologies which will not create a footprint when used for creating various products or processes. Green technologies support the use of natural organic materials and hence do not contribute to produce green gasses which are responsible for environmental degradation. Since green technologies do not support environmental degradation and creating the footprint, they are sustainable and contributes to improve the lifestyle and comfortability of the people.

The nanotechnology emerging as universal technology is expected to solve both basic needs and comfort wants of human beings. The basic needs include food, drinking water, energy, cloth, shelter, health and environment, and the comfort wants are space travel, expanded lifespan etc. Planned and controlled development in nanotechnology leads to environmental sustainability and hence can be used as green technology. Some of the applications of nanotechnology initially thought as green technology are [38] :

- Clean, secure, affordable, renewable energy;
- Stronger, lighter, more durable recyclable materials;
- Low-cost filters to provide clean drinking water from seawater and drainage;
- Medical devices and drugs to detect and treat diseases more effectively with fewer or no side effects;
- Lighting that uses a fraction of the energy associated with conventional systems;
- Sensors to detect and identify harmful chemical and biological agents;
- Techniques to clean up harmful chemicals in the environment.
- Green building and sustainable infrastructure.
- Modified production processes to minimize green gas emission.

The green Nanotechnology is evolved as a general-purpose technology due to its applications in all areas of society and now further growing as universal technology. Hence in the advanced form of universal technology, it will have a significant impact on almost all industries and all areas of society by offering better built, longer lasting, cleaner, safer, and smarter products for the home, for communications, for medicine, for transportation, for agriculture, and for the industry in general. Thus, by controlled utilization of nanotechnology for environmental sustainability, it can be developed as a green technology for sustainable society. Due to its capability of cleaning of the environmental footprint of other technologies, nanotechnology can be used to enhance the environmental-sustainability of processes currently producing negative externalities. Further nanotechnology can be used to produce various products which can have enhanced environmental sustainability.

Green nanotechnology has two objectives :

(1) The first objective is of producing [nanomaterials](#) and fabricating nanoproducts which do not harm the environment and human health and producing nano-products which contribute to solve the environmental problems. It uses many existing principles of [green science](#) and [green technology](#) to remove the toxic ingredients of nanomaterials and nano-products used in various industries of the society [39].

(2) The second objective of green nanotechnology involves developing nanoproducts that are used to clean the environment either directly or indirectly. In the direct method, nanomaterials or nanoproducts can be used to clean [hazardous waste](#) sites, [desalinate water](#), treatment of pollutants, or even sense and monitor any kind of environmental pollutants. In the indirect method, lightweight [nanocomposites](#) are used for fabricate automobile and spacecraft parts to save fuel and reduce materials used. Nanotechnology-enabled [fuel cells](#), [solar cells](#), and [light-emitting diodes](#) can reduce environmental pollution. Thus, nanotechnology can be used to green the environment for a long-time sustainability [39].

4. ABCD ANALYSIS OF NANOTECHNOLOGY :

The widespread growth of nanotechnology as green technology for various business processes can be analysed using many frameworks like SWOC, ABCD, and PESTLE. Out of them, ABCD framework is considered as most appropriate because, it uses many stakeholders as determinant issues. ABCD analysis framework is initially used to analyse systems, ideas, concepts, materials, strategies, and can be also used to analyse technology. Here, we are using ABCD framework to analyse nanotechnology as green technology by considering various determining issues like Organizational issues, Business issues, Consumers issues, Technological issues, Environmental issues, and Societal issues. Here, green technology features are considered as key attribute to identify the affecting factors under four constructs advantages, benefits, constraints, and disadvantages.

5. FACTOR ANALYSIS OF NANOTECHNOLOGY

The affecting factors under each construct, for identified key attributes for a chosen issue are obtained using focus group method and listed in table 1. The analysis identified five determinant issues related to nanotechnology as green technology. These include organizational issues, business issues, customer issues, environmental issues, and societal issues. The key attributes identified under organizational issues includes employees of the organizations, infrastructure of the organizations, and the investment of the organizations which involved in nanotechnology based green business. Similarly, the business issues contain four key attributes including products, markets, expansion, and competitors. The

customers issues contain four key attributes including quality, features, cost, and support. The Environmental Issues contain two key attributes environmental degradation and Environmental Improvement. Finally, the societal issues contain three key attributes including basic problems, advanced problems, and immortality as given in table 3. Totally, in this analysis 64 affecting factors are identified and listed under the constructs advantages, benefits, constraints, and disadvantages.

Table 1: Affecting factors of Nanotechnology as green technology under four constructs

Determinant Issues	Key Attributes	Advantages	Benefits	Constraints	Disadvantages
Organizational Issues	Employees	Skilled employees	Standard Quality	Difficulty in getting skilled employees	Cost of employees
	Infrastructure	Less infrastructure	Better return	New technology	Risk of new technology-based infrastructure investment
	Investment	New technology	High return	Higher investment	Risk for higher investment
Business Issues	Products	Nanoproducts can be green products	Clean environment	High production cost	May have hidden long term
	Markets	Easy due to special characteristics	Better business	Creating awareness	Initial Cost of creating awareness
	Competitors	Difficult to copy by competitors	Monopoly	New technology	Huge investment for research & development
	Expansion	Opportunity for expansion	Increased market share	Educating the collaborators	Copying by others
Consumer Issues	Quality	Optimum	Durability & renewable	Cost	May have side effects
	Features	Many	Comfortable life	Confused due to general purpose	Fear on Side effects

				technology	
	Cost	Low pollutant	Helpful for poor people	Affordability	Difficulty in large scale operation
	Support	Low failure rate	Low maintenance cost	Frequent service	Minimum service support
Environmental Issues	Environmental degradation	Less environmental degradation	Less pollution	Complexity in the system	Prolonged technology breakthrough than expected
	Environmental Improvement	Cleaning	Better environment	Scaling	Negative effects if any
Social Issues	Basic problems	Can be solved optimally	All basic problems will be solved	Commercialization	Delay in realization
	Advanced problems	Can be solved optimally	All advanced problems for human comfortability will be solved.	Still in experimental level	Unpredictable adverse effects
	Immortality	Life span expansion	Slow aging / No aging	Slow research in nanotechnology	Negative aspects of immortality /deathlessness

7. ELEMENTAL ANALYSIS OF NANOTECHNOLOGY :

Apart from affecting factors identified in previous section through factor analysis framework, one can also carryout the elemental analysis to identify critical constituent elements for each affecting factor for chosen determinant issues. These critical constituent elements for the four constructs advantages, benefits, constraints, and disadvantages are listed in tables 2 to 5 respectively.

Table 2 : Advantages of Nanotechnology as Green technology

Particulars	Key Attributes	Factors Affecting	Critical Constituent Elements
			(i) Increased productivity

Organizational Issues	Employees	Skilled employees	(ii) Sophisticated facility (iii) More Jobs
	Infrastructure	Less infrastructure	(i) Small facilities (ii) Easy to manufacture (iii) Decreased cost
	Investment	New technology	(i) More initial investment (ii) New products (iii) New business
Business Issues	Products	Nanoproducts can be green products	(i) Low pollution (ii) Possibility to clean the environment (iii) Less side effects
	Marketing	Easy due to special characteristics	(i) Products have ideal characteristics (ii) Easy to market (iii) Many positive features
	Competitors	Difficult to copy by competitors	(i) Research for development (ii) Patented protection (iii) Uniqueness
	Expansion	Opportunity for expansion	(i) Global expansion opportunity (ii) Opportunity for cost leader (iii) Opportunity for collaboration
	Quality	Optimum	(i) Ideal products

Consumer Issues			(ii) Expected quality (iii) Durability
	Features	Many	(i) Green products (ii) Small & light in weight products (iii) Strong products
	Cost	Low pollutant	(i) Moderate cost-pollution ratio (ii) Controlling the pollution (iii) Low cost high durability
	Support	Low failure rate	(i) Durability (ii) No frequent replacement (iii) More operation period
Environmental Issues	Environmental degradation	Less environmental degradation	(i) No contribution to pollution (ii) Improving environment (iii) Quality environment for future generations
	Environmental Improvement	Cleaning of environment	(i) Possibility to clean environment (ii) Possibility to green the environment (iii) Improved products usage
Social Issues	Basic problems	Can be solves optimally	(i) Optimum to ideal solutions (ii) Opportunity to solve basic problems (iii)
	Advanced	Can be solved	(i) People can live comfortable

	problems	optimally	life (ii) Life is going to be easy (iii) Equality for everyone
	Immortality	Life span expansion	(i) Disease control (ii) Health equality (iii) Enhanced time for achievements

Table 3 : Benefits of Nanotechnology as Green technology

Particulars	Key Attributes	Factors Affecting	Critical Constituent Elements
Organizational Issues	Employees	Standard Quality	(i) Increased return (ii) Improved working conditions (iii) More salary
	Infrastructure	Better return	(i) Increased profit (ii) Sustainability (iii) Further investment opportunity
	Investment	High return	(i) More profit (ii) More return to stakeholders (iii) Expansion to other areas
Business Issues	Products	Clean environment	(i) Less pollution (ii) Good health (iii) Clean resources
	Marketing	Better business	(i) Business growth

			(ii) Attractive products (iii) More sales
	Competitors	Monopoly	(i) High tech products (ii) Patenting opportunity (iii) Enhanced earning
	Expansion	Increased market share	(i) More branches (ii) More subsidiaries (iii) More products for different problems
Consumer Issues	Quality	Durability & renewable	(i) No environmental pollution (ii) Clean products (iii) Trouble free operations
	Features	Comfortable life	(i) More essential features (ii) Need based support (iii) Availability of essential components
	Cost	Helpful for poor people	(i) Low cost (ii) Improved quality of life (iii) Abundantly available
	Support	Low maintenance cost	(i) Quality products (ii) Self-repairing technology (iii) Product replacement opportunity
Environmental	Environmental degradation	Less pollution	(i) Clean environment (ii) Green environment

Issues			(iii) Better living conditions
	Environmental Improvement	Better environment	(i) Comfortable life (ii) Health improvement (iii) Less diseases
Societal Issues	Basic problems	All basic problems will be solved	(i) Abundancy in food, water and energy (ii) Progressed civilization (iii) Improved living conditions
	Advanced problems	All advanced problems for human comfortability will be solved.	(i) Self sufficiency in Resources usage (ii) Decreased social differences (iii) Opportunities for everybody
	Immortality	Slow aging / No aging	(i) No diseases (ii) Automatic curing of diseases (iii) Expanded lifespan

Table 4 : Constraints of Nanotechnology as Green technology

Particulars	Key Attributes	Factors Affecting	Critical Constituent Elements
Organizational Issues	Employees	Difficulty in getting skilled employees	(i) Essential Technology education (ii) Continuous Research & training (iii) Advanced skills
	Infrastructure	New technology	(i) Investment for new technology infrastructure

			(ii) Continuous upgradation (iii) Frequent upgradation
	Investment	Higher investment	(i) Investment for survival (ii) Investment for sustainability (iii) Investment for monopoly
Business Issues	Products	High production cost	(i) Due to spreading of commercialization cost on production (ii) Due to complex technology (iii) Due to advanced features
	Marketing	Creating awareness	(i) Training to create awareness (ii) Acceptability of people (iii) Education level of people
	Competitors	New technology	(i) Enhanced competition due to new entrants (ii) Flood of resources initially due to high expectation (iii) Completion by existing business organizations
	Expansion	Educating the collaborators	(i) Importance and easiness of technology (ii) Product features (iii) Investment by collaborators
Consumer Issues	Quality	Cost	(i) Return on price (ii) Procrastination in usage (iii) Doubt on expected benefits

	Features	Confused due to general purpose technology	(i) Expected solutions in all areas of society (ii) Sustainability is a question (iii) Questions on side effects
	Cost	Affordability	(i) New technology is costly (ii) New technology is challenging (iii) New technology is difficult accept.
	Support	Frequent service	(i) New and hence less penetration (ii) Less service centres initially (iii) Services may be costly due to shortage of skilled people
Environmental Issues	Environmental degradation	Complexity of the system	(i) Controlling the emission of green gases is difficult process (ii) Monitoring and controlling the pollution is difficult (iii) Industrial environmental pollution is difficult to control
	Environmental Improvement	Scaling	(i) Large scale cleaning is difficult throughout the globe. (ii) Maintenance of cleaned environment is a challenge in terms of energy requirement (iii) All countries should involve in the process.
	Basic problems	Commercialization	(i) Commercialization of new technology is risky

Social Issues			(ii) Commercialization of new technology is difficult (iii) Commercialization of new technology is costly.
	Advanced problems	Still in experimental level	(i) Acceptance of new technology by people. (ii) Technology penetration is slow. (iii) Side effects are yet to know.
	Immortality	Slow research in nanotechnology	(i) Uncertainty in anticipated results (ii) Research laboratory results are difficult to commercialize in expected time frame (iii) Anticipated negative implications on immortality.

Table 5 : Disadvantages of Nanotechnology as Green technology

Particulars	Key Attributes	Factors Affecting	Critical Constituent Elements
Organizational Issues	Employees	Cost of employees	(i) Technically trained employees are costly. (ii) Increase in employee turnover. (iii) Employees have high bargain power.
	Infrastructure	Risk of new technology-based infrastructure	(i) Infrastructure investment risk

		investment	(ii) Infrastructure modification (iii) Uncertainty in infrastructure investment
	Investment	Risk for higher investment	(i) New technologies are slow penetrating (ii) People acceptance is difficult. (iii) Technologies which are initially promising may be prohibitively costly.
Business Issues	Products	May have hidden long term affects	(i) Side effects (ii) Fail to achieve goal (iii) Product features & promotions.
	Marketing	Initial Cost of creating awareness	(i) New brand building cost (ii) Challenge of creating awareness for new products. (iii) Challenge on product performance.
	Competitors	Huge investment for research & development	(i) Initial cost. (ii) Availing patent protection. (iii) Technology management
	Expansion	Copying by others	(i) Patent time (ii) Outsourcing (iii) Starting foreign subsidiaries
	Quality	May have side effects	(i) Minimizing side effects

Consumer Issues			(ii) Precautioning during use (iii) Quality control
	Features	Fear on side effects	(i) Check for branded products. (ii) Quality control through sufficient clinical trails (iii) Precaution during use.
	Cost	Difficulty in large scale operation	(i) Investment cost (ii) Maintenance cost (iii) Resource cost
	Support	Minimum service support	(i) After sales service (ii) Promised quality monitoring (iii) Feedback
Environmental Issues	Environmental degradation	Prolonged technology breakthrough time than expected	(i) Waiting for breakthrough (ii) Govt. involvement (iii) Stringent rules
	Environmental Improvement	Negative effects if any	(i) Environmental side effects (ii) Cost of environmental improvement (iii) Disputes in countries responsibilities
Social Issues	Basic problems	Delay in realization	(i) Long time problems are difficult to tackle. (ii) Delay in patent acceptance (iii) Delay in availing finance for investments

	Advanced problems	Unpredictable adverse effects	(i) Fear in adopting new technology (ii) Some times predictions may not work. (iii) Global regulations may hinder firms performance.
	Immortality	Negative aspects of immortality /deathlessness	(i) Aging (ii) Antiaging (iii) Stagnated growth & challenges.

8. CONCLUSION :

In this paper, we have analysed the Nanotechnology as green technology using ABCD analysis framework. 64 affecting factors of nanotechnology as green technology and 192 critical constituent elements are identified in the analysis under the four constructs advantages, benefits, constraints, and disadvantages. Thus, nanotechnology as a technology for sustaining and improving green environment has many opportunities and challenges to solve organizational problems, business problems, customers problems, environmental problems, and societal problems in order to change the life style and health of the human beings and hence considered as boon of human species to grow, expand, and enjoy the life without may varies in future days. Such interpretation of nanotechnology as a green technology through its affecting factors and critical constituent elements are going to interpret the consequences of this new technology favourable continuation of human life in this universe.

REFERENCES :

- [1] Aithal, P. S., (March 2015). Concept of Ideal Business & Its Realization Using E-Business Model. *International Journal of Science and Research (IJSR)*, 4(3), 1267 – 1274. ISSN 2319-7064, DOI : <http://doi.org/10.5281/zenodo.61648>.
- [2] Aithal, P. S. and Shubhrajyotsna Aithal (2018). Study of various General-Purpose Technologies and Their Comparison towards developing Sustainable Society. *International Journal of Management, Technology, and Social Sciences (IJMTS)*, 3(2), 16-33.
- [3] Aithal, P. S. (2016). Study on ABCD Analysis Technique for Business Models, Business strategies, Operating Concepts & Business Systems, *International Journal in*

-
- Management and Social Science*, 4(1), 98-115. DOI : <http://doi.org/10.5281/zenodo.161137>.
- [4] Aithal, P. S. and Suresh Kumar, P. M. (2015). Applying SWOC Analysis to an Institution of Higher Education. *International Journal of Management, IT and Engineering (IJMIE)*, 5(7), 231-247. DOI: <http://doi.org/10.5281/zenodo.163425>.
- [5] Madhushree, L. M., Revathi, R., Anil Kumar, Aithal, P.S., (2018). Business Strategies of Top Indian IT Company: Mindtree. *International Journal of Case Studies in Business IT and Education (IJCSBE)*, 2(1), 22-36. DOI: <http://dx.doi.org/10.5281/zenodo.1249871>.
- [6] Aithal, P. S., Shailashree, V. T., Suresh Kumar, P. M. (2015). A New ABCD Technique to Analyze Business Models & Concepts, *International Journal of Management, IT and Engineering (IJMIE)*, 5(4), 409-423. DOI : <http://doi.org/10.5281/zenodo.61652>.
- [7] Gupta, A. (2013). Environment & PEST analysis: an approach to external business environment. *International Journal of Modern Social Sciences*, 2(1), 34-43.
- [8] Aithal P. S., (2017). Impact of Domestic, Foreign, and Global Environments on International Business Decisions of Multinational Firms: A Systematic Study. *International Journal of Management, Technology, and Social Sciences (IJMTS)*, 2(2), 57-73. DOI: <http://dx.doi.org/10.5281/zenodo.1067103>.
- [9] Aithal, P. S., Shailashree, V. T., & Suresh Kumar, P. M. (2015). Application of ABCD Analysis Model for Black Ocean Strategy. *International Journal of Applied Research (IJAR)*, 1(10), 331-337. DOI: <http://doi.org/10.5281/zenodo.163424>.
- [10] Aithal, P. S., Shailashree, V. T., & Suresh Kumar P. M., (2016). ABCD analysis of Stage Model in Higher Education. *International Journal of Management, IT and Engineering (IJMIE)*, 6(1), 11-24. DOI: <http://doi.org/10.5281/zenodo.154233>.
- [11] Aithal, P. S., Shailashree, V. T., & Suresh Kumar, P. M. (2016). Analysis of NAAC Accreditation System using ABCD framework. *International Journal of Management, IT and Engineering (IJMIE)*, 6(1), 30-44. DOI: <http://doi.org/10.5281/zenodo.154272>.
- [12] Aithal, P. S., Shailashree, V. T., & Suresh Kumar, P. M. (2016). Application of ABCD Analysis Framework on Private University System in India. *International Journal of Management Sciences and Business Research (IJMSBR)*, 5(4), 159-170. DOI : <http://doi.org/10.5281/zenodo.161111>.
- [13] Aithal, P. S., Shailashree, V. T., & Suresh Kumar, P. M. (2016). The Study of New National Institutional Ranking System using ABCD Framework, *International Journal of Current Research and Modern Education (IJCRME)*, 1(1), 389-402. DOI : <http://doi.org/10.5281/zenodo.161077>.
- [14] Aithal, S., & Aithal, P. S. (2016). ABCD analysis of Dye doped Polymers for Photonic Applications, *IRA-International Journal of Applied Sciences*, 4 (3), 358-378. DOI: <http://dx.doi.org/10.21013/jas.v4.n3.p1>.
- [15] Aithal, P. S., Shailashree, V. T. & Suresh Kumar, P. M., (2016). Analysis of ABC Model of Annual Research Productivity using ABCD Framework. *International Journal of*
-

-
- Current Research and Modern Education (IJCRME)*, 1(1), 846-858. DOI : <http://doi.org/10.5281/zenodo.62022>.
- [16] Varun Shenoy, & Aithal P. S., (2016). ABCD Analysis of On-line Campus Placement Model, *IRA-International Journal of Management & Social Sciences*, 5(2), 227-244. DOI: <http://dx.doi.org/10.21013/jmss.v5.n2.p3>.
- [17] Aithal, P. S., Shailashree V. T. & Suresh Kumar P.M. (2016). Factors & Elemental Analysis of Six Thinking Hats Technique using ABCD Framework. *International Journal of Advanced Trends in Engineering and Technology (IJATET)*, 1(1), 85-95. DOI : <http://doi.org/10.5281/zenodo.240259>.
- [18] Aithal, P. S. & Suresh Kumar, P. M. (2016). CCE Approach through ABCD Analysis of 'Theory A' on Organizational Performance. *International Journal of Current Research and Modern Education (IJCRME)* 1(1), 169-185. DOI: <http://dx.doi.org/10.5281/zenodo.164704>.
- [19] Aithal, P. S. (2017). ABCD Analysis of Recently Announced New Research Indices. *International Journal of Management, Technology, and Social Sciences (IJMTS)*, 2(1), 65-76. DOI: <http://doi.org/10.5281/zenodo.583644>.
- [20] Aithal, P. S. (2017). Factor Analysis based on ABCD Framework on Recently Announced New Research Indices, *International Journal of Management, Technology, and Social Sciences (IJMTS)*, 1(1), 82-94. DOI: <http://dx.doi.org/10.5281/zenodo.584105>.
- [21] Aithal, P. S., (2017). ABCD Analysis as Research Methodology in Company Case Studies. *International Journal of Management, Technology, and Social Sciences (IJMTS)*, 2(2), 40-54. DOI: <http://dx.doi.org/10.5281/zenodo.891621>.
- [22] Aithal, Architha., Aithal, P. S. (2017). ABCD Analysis of Task Shifting-An optimum Alternative Solution to Professional Healthcare Personnel Shortage. *International Journal of Health Sciences and Pharmacy (IJHSP)*, 1(2), 36-51. DOI: <http://dx.doi.org/10.5281/zenodo.1038975>.
- [23] Varun Shenoy & Aithal, P. S., (2017). Quantitative ABCD Analysis of IEDRA Model of Placement Determination. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*, 1(2), 103-113. DOI: <http://dx.doi.org/10.5281/zenodo.1133691>.
- [24] Keerthan Raj, & Aithal, P. S. (2018 March). Generating Wealth at the Base of the Pyramid – A Study using ABCD Analysis Technique. *International Journal of Computational Research and Development (IJCRD)*, 3(1), 68-76. DOI : <http://doi.org/10.5281/zenodo.1205586>.
- [25] Shubhrajyotsna Aithal and Aithal P. S., (2016), ABCD analysis of Dye doped Polymers for Photonic Applications, *IRA-International Journal of Applied Sciences*, 4(3), 358-378. DOI : <http://doi.org/10.5281/zenodo.155103>. DOI : <http://dx.doi.org/10.21013/jas.v4.n3.p1>.
-

-
- [26] Krishna Prasad & Aithal P. S. (2018). ABCD Analysis of Fingerprint Hash Code, Password and OTP based Multifactor Authentication Model. *Saudi Journal of Business and Management Studies*, 3(1), 65-80. DOI: <http://doi.org/10.21276/sjbms.2018.3.1.10>.
- [27] Keerthan Raj, & Aithal, P. S. (2018). Generating Wealth at the Base of the Pyramid – A Study using ABCD Analysis Technique. *International Journal of Computational Research and Development (IJCRD)*, 3(1), 68-76. DOI : <http://doi.org/10.5281/zenodo.1205586>.
- [28] Architha Aithal & A. R. Shabaraya (2018). Users Perspectives on Online Pharmacy Model. *International Journal of Health Sciences and Pharmacy (IJHSP)*, 2(1), 29-36. DOI: <http://dx.doi.org/10.5281/zenodo.1292790>.
- [29] Narula, A.V., & Aithal, P. S. (2018). Employability Skill traits Management Quotient [ESMQ] – A Conceptual Model Proposal. *International Journal of Applied Engineering and Management Letters (IJAEML)*, 2(1), 1-30. DOI: <http://dx.doi.org/10.5281/zenodo.1156138>.
- [30] Aithal, P. S. & Suresh Kumar, P. M. (2016). Opportunities and Challenges for Private Universities in India. *International Journal of Management, IT and Engineering (IJMIE)*, 6(1), 88-113. DOI : <http://doi.org/10.5281/zenodo.161157>.
- [31] Padmanabha Shenoy, & Aithal, P. S., (2016). A Study on History of Paper and possible Paper Free World. *International Journal of Management, IT and Engineering (IJMIE)*, 6(1), 337-355. DOI : <http://doi.org/10.5281/zenodo.161141>.
- [32] Aithal, P.S., (2015). Comparative Study on MBA Programmes in Private & Public Universities - A case study of MBA programme plan of Srinivas University, *International Journal of Management Sciences and Business Research (IJMSBR)*, 4(12), 106-122. DOI : <http://doi.org/10.5281/zenodo.163884>.
- [33] Aithal P. S., & Shubhrajyotsna Aithal (2016). Impact of On-line Education on Higher Education System. *International Journal of Engineering Research and Modern Education (IJERME)*, 1(1), 225-235. DOI : <http://doi.org/10.5281/zenodo.161113>.
- [34] Aithal P. S., and Suresh Kumar P. M., (2016). Analysis of Choice Based Credit System in Higher Education. *International Journal of Engineering Research and Modern Education (IJERME)*, 1(1), 278-284. DOI : <http://doi.org/10.5281/zenodo.161046>.
- [35] Varun Shenoy and Aithal, P. S., (2016). Changing Approaches in Campus Placements - A new futuristic Model, *International Journal of Scientific Research and Modern Education (IJSRME)*, 1(1), 766 – 776. DOI : <http://doi.org/10.5281/zenodo.160966>.
- [36] Prithi Rao, and Aithal, P.S. (2016). Green Education Concepts & Strategies in Higher Education Model, *International Journal of Scientific Research and Modern Education (IJSRME)*, 1(1), 793-802. DOI : <http://doi.org/10.5281/zenodo.160877>.
-

-
- [37] Aithal, P. S. & Shubhrajyotsna Aithal (2016). Ekalavya Model of Higher Education – an Innovation of IBM's Big Data University. *International Journal of Current Research and Modern Education (IJCRME)*, 1(2), 190-205. DOI: <http://dx.doi.org/10.5281/ZENODO.198704>.
- [38] Aithal, P. S. and Aithal, Shubhrajyotsna, (2016). Opportunities & Challenges for Green Technology in 21st Century. *International Journal of Current Research and Modern Education (IJCRME)*, 1(1), 818-828. DOI : <http://doi.org/10.5281/zenodo.62020>.
- [39] Nanotechnology and Life Cycle Assessment, Washington DC, 2-3 October 2006. http://www.nanotechproject.org/file_download/files/NanoLCA_3.07.pdf referred on 03/09/2018.

A study on Corporate Social Performance of Coco Cola

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Abstract:

Coca-Cola India being one of the largest beverage companies in India, realized that CSR had to be an integral part of its corporate agenda. According to the company, it was aware of the environmental, social, and economic impact caused by a business of its scale and therefore it had decided to implement a wide range of initiatives to improve the quality of life of its customers, the workforce, and society at large.

However, the company came in for severe criticism from activists and environmental experts who charged it with depleting groundwater resources in the areas in which its bottling plants were located, thereby affecting the livelihood of poor farmers, dumping toxic and hazardous waste materials near its bottling facilities, and discharging waste water into the agricultural lands of farmers. Moreover, its allegedly unethical business practices in developing countries led to its becoming one of the most boycotted companies in the world.

Notwithstanding the criticisms, the company continued to champion various initiatives such as rainwater harvesting, restoring groundwater resources, going in for sustainable packaging and recycling, and serving the communities where it operated. Coca-Cola planned to become water neutral in India by 2009 as part of its global strategy of achieving water neutrality. However, criticism against the company refused to die down. Critics felt that Coca-Cola was spending millions of dollars to project a 'green' and 'environment-friendly' image of itself, while failing to make any change in its operations. They said this was an attempt at greenwashing as Coca-Cola's business practices in India had tarnished its brand image not only in India but also globally.

This paper identifies the model Coco Cola has adopted for its corporate social responsibility. It discusses the Carrolls model of CSR with specific reference to coco-cola.

Key words: Corporate social performance, Carrolls model, Coco- Cola

Introduction

CSR: ...is seriously considering the impact of the company's actions on society. It is the obligation of decision makers to take actions that protect and improve the welfare of society as a whole, along with their own interests. It supposes that the corporation has economic and legal obligations as well as responsibilities to society that extend beyond these obligations.

Corporate social responsibility encompasses the:

- **Economic**
- **Legal**
- **Ethical**, and
- **Discretionary**

Expectations that society has of organizations at a given point in time.



Objectives

- ❖ To identify the nature of CSR in business organizations.
- ❖ To study the Carrolls Model of CSR
- ❖ To Match Carrolls Model of CSR with the company Coco –Cola
- ❖ Importance of CSR activities to build the brand image of Coco-Cola

The study is based on the model of CSR. It is a case based study .Secondary data has been used to draw inferences and conclusions.

*Discussion**Coca-Cola's profile*

Coca-Cola started its business in 1886 as a local soda producer in Atlanta, Georgia (US) selling about nine beverages per day. By the 1920s, the company had begun expanding internationally, selling its products first in the Caribbean and Canadian markets and then moving in consecutive decades to Asia, Europe, South America and the Soviet Union. By the end of the 20th century, the company was selling its Products in almost every country in the world. In 2005 it became the largest manufacturer, distributor and marketer of non-alcoholic beverages and syrups in the world. Coca-Cola is a publicly-held company listed on the New York Stock Exchange (NYSE).

Coca-Cola's CSR policies and reporting

In 2007 Coca-Cola launched its sustainability framework *Live Positively* embedded in the system at all levels, from production and packaging to distribution. The company's CSR policy *Live Positively* establishes even core areas where the company sets itself measurable goals to improve the business' sustainability practices. The core areas are beverage benefits, active healthy living, the community, energy and climate, sustainable packaging, water stewardship and the workplace. Coca-Cola has a Code of Business Conduct which aims at providing guidelines to its employees on – amongst other things – competition issues and anti-corruption. The company has adopted international CSR guidelines such as Global Compact and Ruggie's Protect, Respect and Remedy Framework (Ruggie's Framework)[1], but these guidelines do not seem to be integrated into the Code of Business. However, these CSR initiatives are included in other activities or policies of the company. For instance, the UN Global Compact principles are cross-referenced in the company's annual Sustainability Reviews and Ruggie's Framework is partly adopted in the company's 'Human Right Statement'. After the conflict in India, in 2007 Coca-Cola formed a partnership with the World Wildlife Fund (WWF) and became a member of the CEO Water Mandate, as water is one of the company's main concerns. Every year Coca-Cola publishes a directors' report denominated[2] 'The Coca-Cola Company Annual Report'; the last one was published in March 2013 and comprises the company's activities during 2012. In this report there is a small section dedicated to CSR and it includes a brief description of the initiatives in community development and water preservation that the company has developed. Since 2001, Coca-Cola also annually publishes a separate report devoted to CSR called 'The Coca-Cola Company Sustainability Review'. These reviews, which are published every two years, are verified and assured by a third party the sustainability rating firm FIRA Sustainability Ltd. This verification provides 'moderate assurance' on the reliability of the information reported by Coca-Cola. Both reports – the annual company review and the sustainability reports – are elaborated based on the GRI G3 guidelines, which were adopted by the

company in 2001. Due to its relevance to Coca-Cola's business, the company also annually reports on the progress of the water stewardship programme's targets.

Coca-Cola's conflicts

Several campaigns and demonstrations followed the publication of a report issued by the Indian NGO Centre for Science and Environment (CSE) in 2003. The report provided evidence of the presence of pesticides, to a level exceeding European standards, in a sample of a dozen Coca-Cola and PepsiCo beverages sold in India. With that evidence at hand, the CSE called on the Indian government to implement legally enforceable water standards. The report gained ample public and media attention, resulting in almost immediate effects on Coca-Cola revenues. The main allegations made by the NGO against Coca-Cola were that it sold products containing unacceptable levels of pesticides, it extracted large amounts of groundwater and it had polluted water sources. These conflicts are discussed below[3]

The presence of pesticides

Regarding the allegation about Coca-Cola beverages containing high levels of pesticide residues, the Indian government undertook various investigations. The government set up a Joint Committee to carry out its own tests on the beverages. The tests also found the presence of pesticides that failed to meet European standards, but they were still considered safe under local standards. Therefore, it was concluded that Coca-Cola had not violated any national laws. However, the Indian government acknowledged the need to adopt appropriate and enforceable standards for carbonated beverages.

In 2006, after almost three years of ongoing allegations, the CSE published its second test on Coca-Cola drinks, also resulting in a high content of pesticide residues (24 times higher than European Union standards, which were proposed by the Bureau of Indian Standards to be implemented in India as well). CSE published this test to prove that nothing had changed, alleging that the stricter standards for carbonated drinks and other beverages had either been lost in committees or blocked by powerful interests in the government. Finally, in 2008 an independent study undertaken by The Energy and Resources Institute (TERI) ended the long-standing allegations by concluding that the water used in Coca-Cola in India is free of pesticides. However, because the institute did not test the final product, other ingredients could have contained pesticides.[4]

Water pollution and the over-extraction of groundwater.

Coca-Cola was also accused of causing water shortages in –among other areas – the community of Plachimada in Kerala, southern India. In addition, Coca-Cola was accused of

water pollution by Discharging wastewater into fields and rivers surrounding Coca-Cola's plants in the same community.

Groundwater and soil were polluted to an extent that Indian public health authorities saw the need to post signs around wells and hand pumps advising the community that the water was unfit for human consumption.

In 2000, the company established its production operations in Plachimada. Local people claimed that they started experiencing water scarcity soon after the operations began. The state government initiated proceedings against Coca-Cola in 2003, and soon after that the High Court of Kerala prohibited Coca-Cola from over-extracting groundwater. By 2004 the company had suspended its production operations, while it attempted to renew its licence to operate. Coca-Cola argued that patterns of decreasing rainfall were the main cause of the draught conditions experienced in the area. After a long judicial procedure and ongoing demonstrations, the company succeeded in obtaining the licence renewal to resume its operations. In 2006 Coca-Cola's successful re-establishment of operations was reversed when the government of Kerala banned the manufacture and sale of Coca-Cola products in Kerala on the ground that it was unsafe due to its high content of pesticides. However, the ban did not last for long and later that same year the High Court of India overturned Kerala's Court decision. More recently, in March 2010, a state government panel recommended fining Coca-Cola's Indian subsidiary a total of \$47 million because of the damage caused to the water and soil in Kerala. Also, a special committee in charge of looking into claims by community members affected by the water pollution was set up. The long legal procedures against the Indian government that Coca-Cola had to face were not the only consequence of the conflict. The brand suffered a great loss of consumer trust and reputational damage in India and abroad. In India there was an overall sales drop of 40% within two weeks after the release of the 2003 CSE report. The impact in annual sales was a decline of 15% in overall sales in 2003 – in comparison to prior annual growth rates of 25-30%. This highly publicised conflict in India also caught the attention of consumers in the US. After a series of demonstrations by students who joined two activist groups in the US, ten American universities temporarily stopped selling Coca-Cola products at their campus facilities.[5]

Coca-Cola's CSR policies post-conflicts

Two years before the water conflict in India in 2003, Coca-Cola adopted the GRI Guidelines and started reporting on sustainability. By 2003, the company had already experienced a few CSR-related conflicts in other parts of the world. However, none of them had the grave consequence of a loss of trust in the company and its products by consumers and the public in general.

According to Pirson and Malhotra, the main reason why this controversy ended so badly for Coca-Cola lies in its response to the problem. Coca-Cola denied having produced beverages containing Elevated levels of pesticides, as well as having over-exploited and polluted water

resources. By denying all claims and trying to prove its integrity, instead of demonstrating concern towards the situation, Coca-Cola failed to regain consumers' trust. The Indian population viewed Coca-Cola as a corporate villain who cared more about profits than public health. In comparison, previous conflicts experienced by the company in the US and Belgium were better handled because it included stakeholder engagement in its strategy.

It appears that the company became aware of its mistake after the controversy had been ongoing for a couple of years. In 2008 Jeff Sea bright, Coca-Cola's vice president of environment and water resources, recognized that the company had not adequately handled the controversy. He acknowledged that local communities' perception of their operation matters, and that for the company '(...) having goodwill in the community is an important thing'. Although Coca-Cola still denies most of the allegations, the reputational damage experienced after the controversy in India pushed Coca-Cola to take damage-control measures. Those measures at first consisted of statements to confirm Coca-Cola's integrity. For example, Coca-Cola dedicated a page in the Corporate Responsibility Review of 2006 to address the controvers . The statement consisted mainly of providing information supporting its good practices and water management of its operations in India. But this statement did little to combat the declining sales and increasing losses exceeding investments.

Coca-Cola gradually changed its strategy to include damage-control measures that addressed the Indian communities' grievances. In 2008 the company published its first environmental performance report on operations in India, which covered activities from 2004 to 2007. It also created the Coca-Cola India Foundation, Anandana, which works with local communities and NGOs to address local water problems.[6]

But perhaps the most outstanding change of strategy by Coca-Cola consisted of launching various community water projects in India. An example is the rainwater harvesting project, where Coca- Cola's operations partnered with the Central Ground Water Authority, the State Ground Water Boards, NGOs and communities to address water scarcity and depleting round water levels through rainwater harvesting techniques across 17 states in India. These techniques consist mainly of collecting and storing rainwater while preventing its evaporation and runoff for its efficient utilization and conservation. The idea behind this is to capture large quantities of good quality water that could otherwise go to waste. By returning to the ecosystem the water used in its operations in India through water harvesting, the company expected that this project could eventually turn the company into a 'net zero' user of groundwater by 2009. In the 2012 Water Stewardship and Replenish Report, Coca-Cola stated that its operations in India have 'achieved full balance between groundwater used in beverage production and that replenished to nature and communities – ahead of the global target'. It appears that the controversy in India was a learning experience for the company, and that it motivated the company to adopt a more proactive CSR policy on a global scale that focuses on water management. In June 2007, Coca-Cola implemented a water stewardship programme and committed itself to reduce its operational water footprint and to

offset the water used in the Company's products through locally relevant projects. To achieve those commitments Coca-Cola established three measurable objectives:

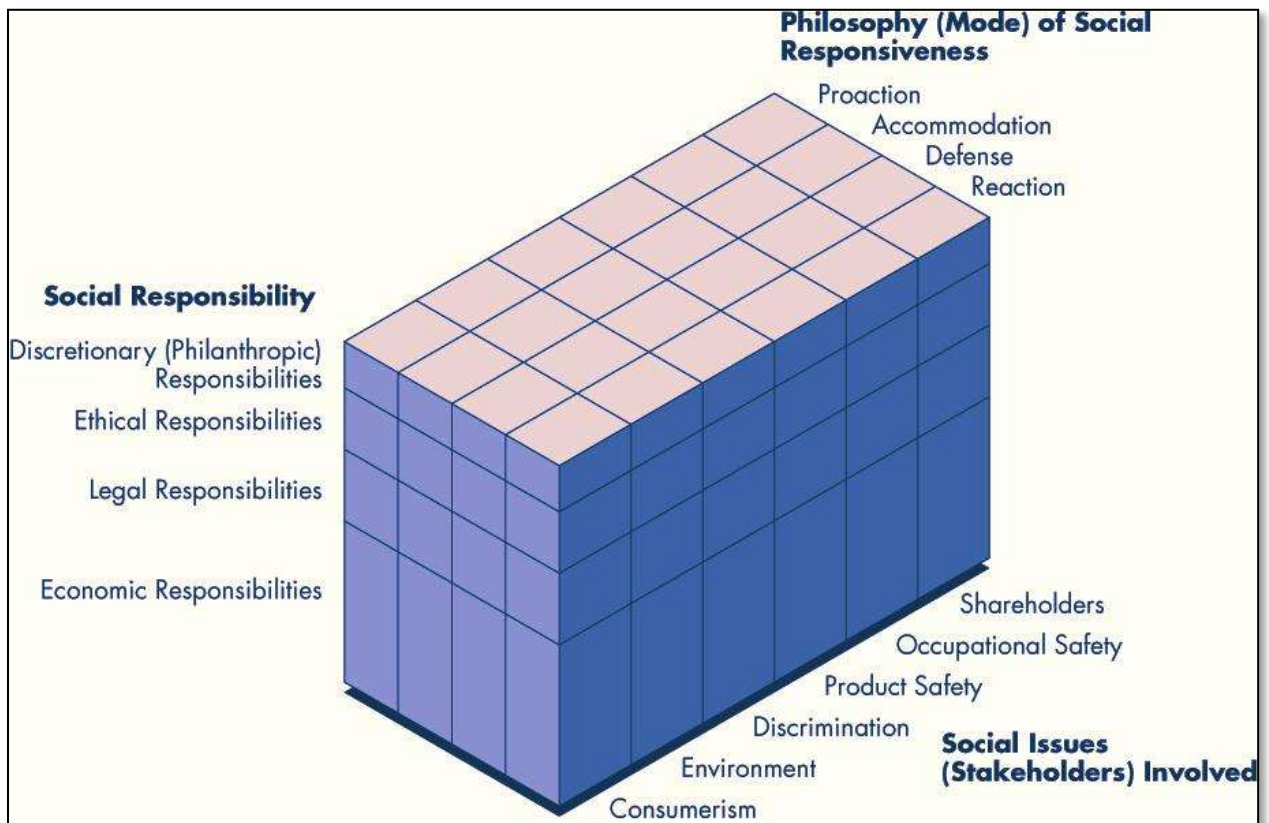
(1) Reducing water use by improving water efficiency by 20% over 2004 levels by 2012. The latest data available from 2012 shows a 16% improvement over the 2004 baseline

(2) Recycling water through wastewater treatment and returning all water used in manufacturing processes to the environment at a level that supports aquatic life and agriculture by the end of 2014. By September 2014, the progress observed concerning this target was 96%.

(3) Replenishing water used by offsetting the litres of water used in finished beverages by 2020 through local projects that support communities and nature (i.e. watershed protection and rainwater harvesting). Currently, Coca-Cola reports that it holds a global portfolio of 386 community water partnerships or community-based replenish projects. By 2011, about 35% of the water used in finished beverages was replenished. It is noteworthy that Coca-Cola publishes, in addition and separate to the sustainability reports, an annual water report. In these reports the company publishes assessments of and the progress in its water initiatives. Some of the assessments are made by the Global Environment & Technology Foundation, an American NGO experienced in facilitating the creation of public-private partnerships.[7]

Also in 2007, Coca-Cola entered into a partnership with WWF. Its core objectives are increasing understanding on watersheds and water cycles to improve Coca-Cola's water usage, working with local communities in various locations worldwide, and developing a common framework to preserve water sources. Finally, and also in the same year, the company became a member of the public-private initiative CEO Water Mandate, which is a public-private initiative that assists companies in the development, implementation and disclosure of water sustainability policies and practices.[8]

Corporate Social Performance: Carroll's Model



Coco cola followed the defense and reactive methods of CSR.

The case studies evidenced changes in the company's CSR policies after experiencing a conflict. Now a days, Coca-Cola implements various initiatives tailored to address the water problems in India, which includes research, partnerships with the Indian local government and international organizations and community projects. Moreover, the company did not stop there. Water management is one of the core elements of Coca-Cola's global CSR policy and the company is committed to meet targets concerning water management efficiency. Coca-Cola does not admit that the conflict in India was the main motivation behind the adoption of its ambitious water management policies. However, given the severe image damage – and the consequent revenue losses experienced – it is very likely that the conflict in India influenced the corporate decision to implement a CSR policy on water management efficiency in its global operations. Also, Coca-Cola has improved its reporting activities by being up to date with the advances in GRI guidelines. Perhaps Coca-Cola can be said to be the company that adopted one of the most ambitious CSR A policies after experiencing the conflict in India. Coca-Cola appears to be strongly determined to address its operational impacts on the environment, particularly on water. Given the nature of the impacts, the company has the

possibility of carrying out research and taking steps towards preventing and remedying damage, with results that can be measurable.



The Present CSR initiatives of Coco-Cola to build a brand

Conclusion

Coca-Cola initiated such efforts by adopting initiatives that are tailored to remedy the water problems it caused in India and to improve its image towards its customers. Such initiatives include research and partnerships with the Indian local government. Subsequently, Coca-Cola adopted water management as one of the core elements of its global CSR policy and the company has committed itself to meet quantifiable targets concerning water management efficiency. Coca-Cola does not admit that the conflict in India is the main motivation behind the adoption of the water policies.

However, given the severe damage to its reputation – and the consequent revenue losses experienced – it is very likely that the conflict in India influenced the corporate decision to implement a CSR policy on water management efficiency in its global operations.

Reference

- [1]Amber, T. & Wilson, A. (1995), "Problems of a Stakeholder Theory", Business Ethics, 4(1): 30-35.
- [2]Anshen, M. (1980), Corporate Strategies for Social Performance, New York, Macmillan.
- [3] Arkin, A. (1996), "Open Business is Good for Business", People Management, 2(1).
- [4]Arrow, Kenneth (Ed.) (1989), Ethics for Practicing Managers in Modern Corporations, Boston, Harvard Business School.

[5] Aswathappa, K. (2001), Essential of Business Environment, New Delhi, Himalaya Publishing House.

[6] BAE Systems (2002), Corporate Social Responsibility Report 2002: BAE Systems, London, BAE Systems.

[7] Chakraborty, S.K. (Ed.) (1995), Human Values in Managers, New Delhi, Wheeler Publishing.

[8] Chakraborty, S.K. & Groholt, Per (1993), Management by Values: Towards Cultural Congruence, USA, Oxford University Press. *Development*. Englewood Cliffs, NJ: Prentice-Hall.

Educational Resource Management through IOT

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Abstract:

“The Internet of Things is a technology which is widely expanding its application area to cater the diverse needs of organizations. It allows people and objects to be connected Anytime, Anywhere, preferably by means of Any path/network and Any service.” In this article there is a brief overview of IoT application areas, need for resource management in Education sector“. The article consists of three main parts: first, an overview of IoT applications, second, Resource Management in Educational Institution and third IoT Implementation ideas.

Keyword : - IoT Application, Resource Management, IOT Reference Model, Current Technology

Introduction

Whether you call it the “Internet of Things,” the “Internet of Everything,” the “Connected World,” “IoT” or just plain amazing, the rapidly expanding thread of connectivity among everyday objects via the internet is changing how the world works. The IoT connects everyday objects to the internet, saving consumers time and money, driving economic growth. [1]

Internet of Things (IoT) environment consists of a lot of small devices that sense and gather information from their turbulent environment. The gathered data are transmitted to the sink node that these data are analyzed such as cloud. IoT environment pose many challenges because of device energy limitation, low computational power, low memory, unattended operation, and dynamic environmental changes. [2]

In spite of its various challenges, the IoT is used in many areas. Out of all application areas education sector too has wide application. Every educational institution consists of various types of resources. If the resources in educational institutions are managed successfully, then it leads to the successful management of the institution. These institutions rely on various internet enabled mobile devices. If the effective communication is achieved between these, in turn it leads to the successful overall governance of the institution.

In this paper, we are focused on educational resource management. Listing of application areas, types of resources required, IoT enabled solution is discussed here.

Characteristics of IoT: [3]

- **Interconnectivity:** With regard to the IoT, anything can be interconnected with the global information and communication infrastructure.
- **Things-related services:** The IoT is capable of providing thing-related services within the constraints of things, such as privacy protection and semantic consistency between physical things and their associated virtual things. In order to provide thing-related services within the constraints of things, both the technologies in physical world and information world will change.
- **Heterogeneity:** The devices in the IoT are heterogeneous as based on different hardware platforms and networks. They can interact with other devices or service platforms through different networks.
- **Dynamic changes:** The state of devices change dynamically, e.g., sleeping and waking up, connected and/or disconnected as well as the context of devices including location and speed. Moreover, the number of devices can change dynamically.
- **Enormous scale:** The number of devices that need to be managed and that communicate with each other will be at least an order of magnitude larger than the devices connected to the current Internet. Even more critical will be the management of the data generated and their interpretation for application purposes. This relates to semantics of data, as well as efficient data handling.
- **Safety:** As we gain benefits from the IoT, we must not forget about safety. As both the creators and recipients of the IoT, we must design for safety. This includes the safety of our personal data and the safety of our physical well-being. Securing the endpoints, the networks, and the data moving across all of it means creating a security paradigm that will scale.
- **Connectivity:** Connectivity enables network accessibility and compatibility. Accessibility is getting on a network while compatibility provides the common ability to consume and produce data.

IoT Application Areas

In education sector, there are lots of sub areas which use the diversified resources. To manage and maintain these resources, the organization is depending on technology. The technology enabled resource management system is highly appreciated because of various unique reasons. The next level of resource management can be thought of, by the use of IoT enabled technology.

IoT Systems is used in following areas of educational organization for the effective resource management.

- **Attendance Management [4]**

Attendance is for keeping records of number of students, employees present in Institution.

Complexity of this process increases even more with increase in number of Human Resource.

This can be done using two hardware devices.

1. Handheld device (for taking attendance) designed on Adrino microcontroller, LCD, Zig-Bee module, Fingerprint module.
2. Local server (Raspberry Pi)

- **Campus Energy Management & Eco-system Management [5]**

Internet of things has been applied in energy management and Eco-system monitoring to provide energy efficiency for a much more sustainable future. This has resulted in the introduction of Smart Grid, a specific form of IoT energy management application, by several national governments .The utility companies can effectively balance power generation and energy usage to provide more efficient operations by adding intelligence to the existing infrastructure. Through the use of specialized sensors and actuator systems, energy consumption information will be gathered automatically to improve economy, efficiency and reliability of the systems.

- **Secured Classroom and Campus System [6]**

As educational organizations begin to leverage solutions like cloud computing and radio frequency identification (RFID) across an IoT platform, they're able to capture, manage and analyze Big Data. This insight provides stakeholders with a real-time view of students, staff and assets. It is this asset intelligence that enables institutions to make more informed decisions in an effort to improve student learning experiences, operational efficiency and campus security.

- **Smart Campus Management [7]**

Intelligent campus (i-campus) refers to a holistic intelligent campus environment, in which initiatives such as cloud and mobile-powered learning, RFID-based security management are established to support holistic e-learning, networking, and governance.

The traditional way of delivering Massive Open Online Courses could limit a learner's learning experience, especially when appreciating some tacit knowledge such as a unique culture and a roomy environment. The authors came up with smart phone enabled virtual reality educational content that can create immersive and better learning experience for online learners.

- **Water Resource monitoring and management [8]**

Water resource information on-line monitoring is basic and important to water resource management. The integrated system based on internet of things (IoT) for water resources monitoring and management consists of three key layers: equipment perception layer, information transmission layer and data application layer. In equipment perception layer, Sensor network for monitoring water information is constructed. In information transmission layer, real-time information transmission is achieved. In data application layer, water information are stored, managed, applied and shared on internet by users. Application shows that the system can provide real time and reliable water resource information for water resource management.

- **Green Campus [9]**

G-IoT takes advantage over IoT in order to add additional benefits to the educational sector -economically, socially and environmentally sustainability. Following G-IoT practices, the usage of facilities becomes more efficient through minimizing energy and other resources consumption. This lead to preserving natural resources, minimal or no impact of the technology on the environment and human health and significant cost reduction. From the G-IoT involvement in the education sector, all participants will benefit, student and teachers will improve their activities in safe and secure educational environment, while management, organizational structures, and a government will achieve significant financial savings what will significantly contribute to sustainable development of whole education sector.

- **Learning [10]**

Application of IoT in education opens up opportunities for learning. Hence it enables learners to access, extend, transform and share ideas and information in multi-modal communication styles and format. Some of the benefits of IoT includes improving learning skills, enhances mobile learning, helps in easy data collection and analysis.

- **Smart Transportation [11]**

The transportation facility of the school can be upgraded with the use of IoT. It leads to the effective management of vehicles, schedule and other relevant attributes.

- **Printing Management [12]**

Self-service technology (SST) is a technical platform which allow users to independently produce their required services without any service personal. Self-service print technology (SSTP) provides an efficient solution to intelligentized administration management. By incorporating the IoT Technology we can administer the Printing equipments.

Need for Resource Management [13]

The IoT is a relation between real world and virtual world. IoT are millions of smart object connected to internet. In resource management are managing these millions of object in single application.

There is various issues related to resource management in IoT.

1. The need for resource management is a real time network monitoring and control network.
2. Real time fault reporting is an important characteristic of resource management.
3. Detecting the possible anomaly is an important point for the IoT resource management to ensure the reliability of the data.
4. Increasing the smartness of nodes to increase the efficiency of the constrained networks.
5. To decrease the power consumption.
6. To track the all devices connected to internet.

The main goal of resource management is better utilize of the open resources and raising the Qos (quality of the services) accessible to the people, while reducing the expenses of the public administration.

Key Activities for Resource Management in IoT [14]

In order to describe the core activities of a generic framework for resource management in IoT, we consider a hypothetical model for an IoT ecosystem with either three or two tiers (Fig. 2.2), in which:

- (i) the bottom tier encompasses the things (IoT devices/nodes/smart objects)
- (ii) the top tier encompasses cloud nodes and
- (iii) an optional middle tier consists in Smart Gateways or edge nodes.

Resource Modeling

The first issue about the resource management process is how applications and resource management systems describe resources in an IoT ecosystem. The resource model is a vital part of any RML since it defines the entities, properties and relationships that build up the system, thus driving the whole operation of the resource manager.

Resource Allocation

The final goal of the resource allocation activity, which is the responsibility of a resource allocation system (RAS) within the RML, is to properly accommodate the workload of all the applications currently using the IoT system, by allocating the required (virtual or physical) resources so that expected outcomes of all the applications are provided and the QoS requirements are met.

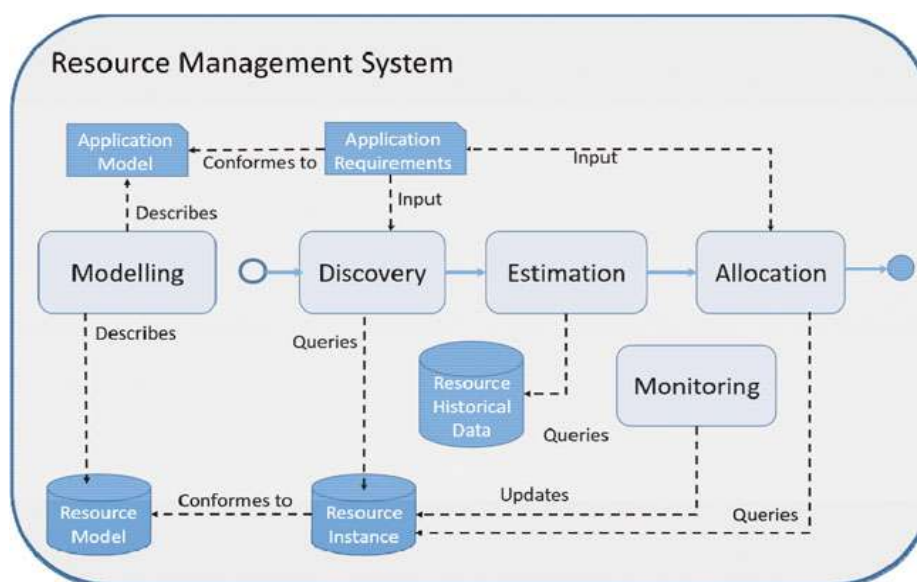


Fig. 1 Activities involved in the resource management

Resource Discovery

Before the necessary resources can be allocated, they need to be discovered in the IoT ecosystem. Resource discovery in such a heterogeneous system is in itself a challenge, worsened by the current lack of standardization of protocols and formats in the field.

Resource Monitoring

Another activity that is necessary so that a RMS tackles the highly dynamic nature of IoT systems is resource monitoring. The execution environment is extremely dynamic, including variations related to the user, the network, the physical environment and the devices. The monitoring of these environmental variations is essential to provide a high-quality service.

Resource Estimation

Sometimes it is useful trying to estimate the amount of resources to be used to better assure the successful completion of the application. Strategies for resource estimation are usually based on keeping historical data of the consumption.

Architectural Reference Model

Starting with existing architectures and solutions, generic baseline requirements can be extracted and used as an input to the design. The IoT-A ARM

It consists of four parts:

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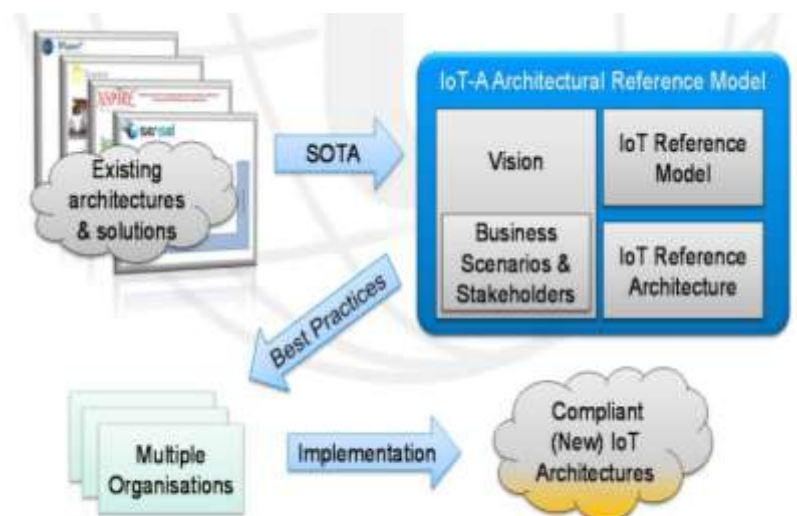


Figure 2: IoT-A architectural reference model building blocks.

The IoT-A ARM consists of four parts: [15]

The vision:

It summarises the rationale for providing an architectural reference model for the IoT. At the same time it discusses underlying assumptions, such as motivations. It also discusses

how the architectural reference model can be used, the methodology applied to the architecture modeling, and the business scenarios and stakeholders addressed.

Business scenarios:

Business scenarios defined as requirements by stakeholders are the drivers of the architecture work. With the knowledge of businesses aspirations, a holistic view of IoT architectures can be derived. Furthermore, a concrete instance of the reference architecture can be validated against selected business scenarios. A stakeholder analysis contributes to understanding which aspects of the architectural reference model need to be described for the different stakeholders and their concerns. According to common usage, this part constitutes a subset of the vision.

The IoT Reference Model

The IoT Reference Model provides the highest abstraction level for the definition of the IoT-A Architectural Reference Model. It promotes a common understanding of the IoT domain. The description of the IoT Reference Model includes a general discourse on the IoT domain, an IoT Domain Model as a top-level description, an IoT Information Model explaining how IoT information is going to be modelled, and an IoT Communication Model in order to understand specifics about communication between many heterogeneous IoT devices and the Internet as a whole. The definition of the IoT Reference Model is conforming to the OASIS reference model definition

IoT Reference Architecture

The IoT Reference Architecture is the reference for building compliant IoT architectures. As such, it provides views and perspectives on different architectural aspects that are of concern to stakeholders of the IoT. The terms view and perspectives are used according to the general literature and standards. The creation of the IoT Reference Architecture focuses on abstract sets of mechanisms rather than concrete application architectures

Conclusion

This paper describes how the Internet of Things (IoT) can shape the educational institutions. The educational institutions are totally rely on the divergent resources and the management of these resources effectively will help the organization to prosper through various means. The IoT Technology can be used in various sectors of educational unit and the transformation can be seen.

REFERENCES

- [1] INTERNET OF THINGS: A Framework for the Next Administration, November 2016, Consumer Technology Association
- [2] D Lee, H Lee, K Yim, "Proxy based Resource Management Scheme in IoT Environment", 10th International Conference on Broadband and Wireless Computing, Communication and Applications, 2015
- [3] K Patel, S Patel, "Internet of Things-IOT: Definition, Characteristics, Architecture, Enabling Technologies, Application & Future Challenges", IJESCISSN 2321 3361, Volume 6 Issue No. 5, 2016
- [4] D.Narendharsingh, A Reddy, S Sudhir, IOT BASED WIRELESS ATTENDANCE MANAGEMENT SYSTEM USING FINGER PRINT RECOGNITION, International Journal of Latest Trends in Engineering and Technology, e-ISSN:2278-621X, DOI: <http://dx.doi.org/10.21172/1.73.554>, Vol.(7)Issue(3), pp. 410-418
- [5] BAGHERI, Maryam and HAGHIGHI MOVAHED, Siavosh, The Effect of the Internet of Things (IoT) on Education Business Model, <http://shura.shu.ac.uk/14405>
- [6] Zebra Technologies, "How the Internet of Things Is Transforming Education"
- [7] SUTD Library Special Alerts, Smart Campus, December 2016
- [8] Mo Xiaocong, Qiu Xin Jiao, Shen Shaohong, "An IoT-based system for water resources monitoring and management", 7th International Conference on Intelligent Human-Machine Systems and Cybernetics, 2015
- [9] M Maksimović, "TRANSFORMING EDUCATIONAL ENVIRONMENT THROUGH GREEN INTERNET OF THINGS (G-IOT)", 2017.32, Paper No.T1.1-3
- [10] Osisanwo, F.Y, Izang, A.A, Kuyoro, S. O, & John, Henry Chukwudi, "Internet of Things (IOTs) Bridging the Gap in Tertiary Educational Process", International Journal of Computer Trends and Technology (IJCTT) – Volume 42 Number 2 – December 2016
- [11] SE Water Avenue Suite, Portland, Oregon 97214, 248–4300, clarity-innovations.com
- [12] Xu Ziqian, Sha Li, Yu Shuyi, "Design and Implementation of an expandable SSTP system for educational administration", Eighth International Conference on Measuring Technology and Mechatronics Automation, 2016
- [13] D Jadhav, S Nikam, "Need for Resource Management in IoT", International Journal of Computer Applications (0975 – 8887), Volume 134 – No.16, January 2016
- [14] F Delicato, P Pires, T Batista, Resource Management for Internet of Things, "SPRINGER BRIEFS IN COMPUTER SCIENCE".
- [15] "Introduction to the Architectural Reference Model for the Internet of Things"

Online E-Campus Interview Training MOOC Framework for Graduates

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Abstract :

Currently, Academic MOOC (Massive Open Online Courses) is widely recognized as a major step in disruptive innovations that is taking place in Higher Education sector today. Simulative MOOC is also adopted in corporations for staff or personnel trainings for cutting down training costs and time at Industry. Moreover, with E-HRM also partially disrupting orthodox HR Processes at Industry level, Online E-Campus Interviews have also become more immensely evident towards graduate hiring presently. Therefore, training job seeking graduates for achieving success in current online interviews in this regard too has also become a very paramount challenge for training & placement services cell of educational institutions. Therefore as a solution, this paper attempts to construct a very basic simulative MOOC prototype framework with a very comprehensive online interview training contents which we feel shall benefit all the stakeholders involved. Accordingly, possible sample contents, materials and syllabus are formulated for developing into full-fledged online e-training & learning platform for further studies.

Keywords: E-Campus Interview Training, MOOC Training for Online Interviews, Online Interview Training, Skill Development Training, Vocational MOOC

I. Introduction :

Present days in industry recruitment or selection processes is the foreplay of E-HRM in the limelight. E-HRM refers to widespread usage & application of electronic methodologies, digital platforms plus cutting edge technologies plus World Wide Web internet to social media in candidate recruitment process. E-HRM is significantly influencing campus recruitment processes at business schools presently and is expected to be recognized as a

standard single running procedure or format to be followed in future by campus recruiters with rapid development in Automation, Robotics, Artificial Intelligence Technology as well as Internet of Things (IoT) or any other revolutions in digital world. This E-HRM powered process is identified as online e-campus interview/placement/recruitment at management institutions. Apparently, Industry in this regard is expecting the Training & Placement teams at business schools to train the students to confront or interface E-HRM process powered online e-campus interviews in the days coming to up-skill the campus student talent pool for their career prospects in Industry. Therefore, this paper attempts to develop a Framework for Online E-Campus Interview training MOOC (Massive Open Online Course) towards job seeking students at campus and also for the benefit of industry. The framework along with its detailed required expected criteria will be presented before the stakeholders in this study.

II. Objectives of the Study :

The main objective of this paper is to develop a robust student e-placement training MOOC (Massive Online Open Course) blueprint for placement success at E-HRM powered Online E-campus interview. The aim under the framework here is to propose a digital platform where MOOC can be hosted as well as the online e-interview training contents uploaded into the MOOC. Secondary purpose of the study also seeks that framework constructed if brought into reality will serve as a basic level training extension of E-HRM Industry requirements at graduate education campuses. Final aim is that the study will focus on efforts made to bridge the gap between Industry and Academia.

III. Research Methodology :

The Information gathering process required to develop the sample framework was divided into a two-step process. Firstly, to construct the online e-training components expected in the MOOC framework Sample, direct interview method was utilized via field visits and telephonic conversations to gather information from industry recruiters on their expectations from fresh graduates in alignment to E-HRM. The technology used to interview or source the candidates were also discussed. Accordingly, these recruiters formed as a part of head hunters of NIRF (National Institute Ranking Framework India) ranked Top 10 Indian Business Schools. For the second set of data collection, select group of professors from Srinivas College of Computer & Information Sciences were consulted for the work-flow required for constructing the MOOC Server Platform in the framework. The gathered data in aforementioned methodology is then converted into modular table representation under relevant headings for understanding actual proposal determination and interpretations.

IV. Proposed MOOC Framework for Stakeholder Interpretations :

Based upon collected data and intended plan, the recommended MOOC framework for training students for online e-campus interview facing preparations is expected to be conceptualized as per below diagrams :

Table 1 : Basic proposed Component Architecture of expected Online E-Campus Interview Training MOOC :

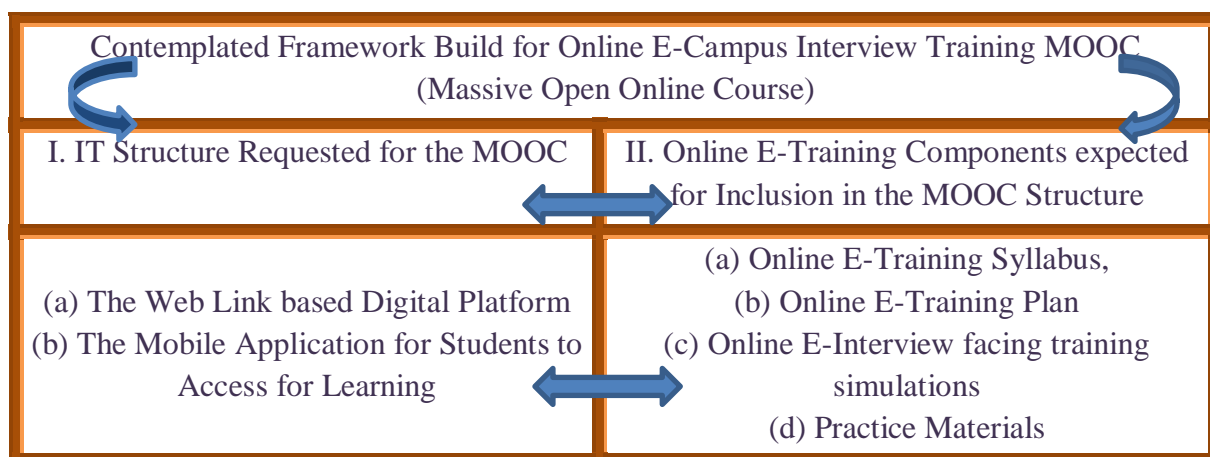


Table 2 : Detailed IT Structure Segregation Build expected for the proposed MOOC

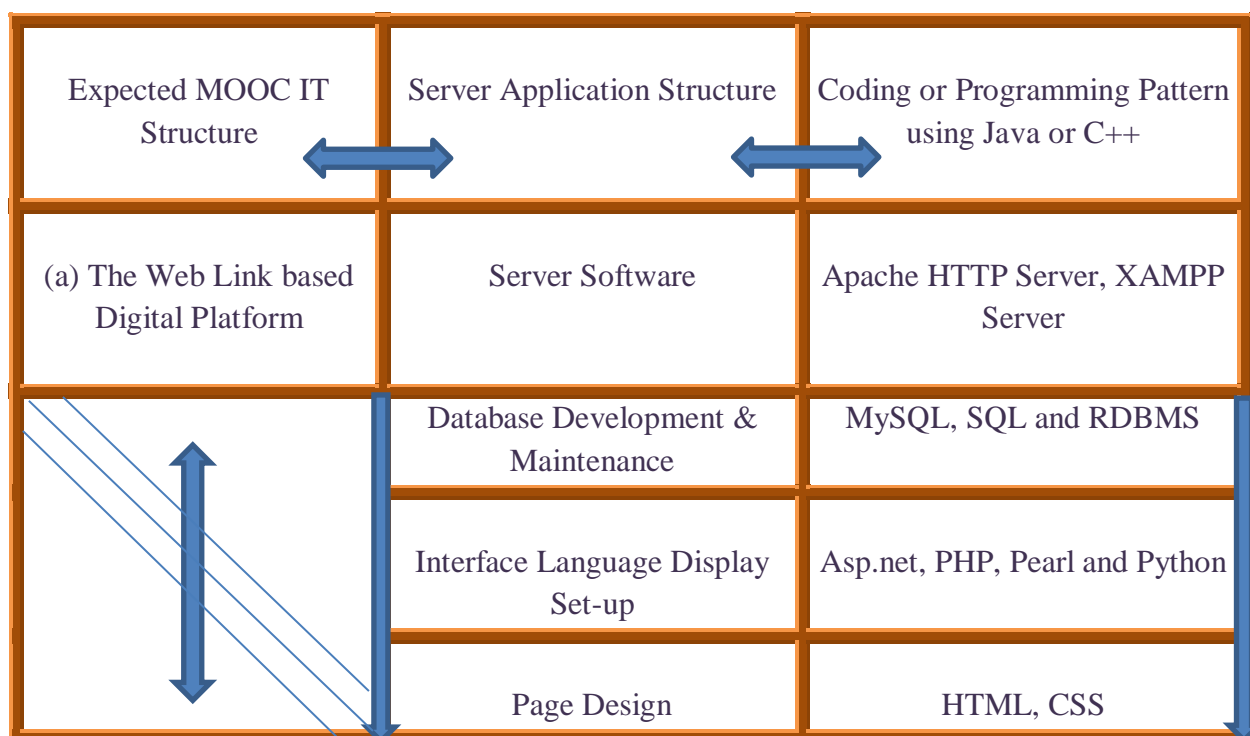




Table 3 : Detailed Segregation of Online E-Training Components expected for Inclusion in the MOOC Structure

Online E-Training Components expected for Inclusion in the MOOC IT Structure	Sample Components
(a) Online E-Training Syllabus,	Detailed Unit-wise plan structure with Training Objectives, Purpose, Components, Training Pedagogy
(b) Online E-Training Plan	Session Wise Units with relevant topics, time hours, practical aspects, reference websites, links and so on
(c) Online E-Interview facing training simulations	Online Employability Test Studies, Simulated or Animated Group Discussion Video Studies,

	Video Conference Interview sessions, Webinars and Video Panel Interviews, Essay Typing tests, Video Opinion Tests and so on
(d) Practice Materials	Huge Library of Simulated learning using audio-visual and electronic learning

As discussed in the tabular diagram 1 above, the primary proposal for constructing a robust Online E-Campus Interview Training Model can be categorised into (a) The Digital Platform where course will be hosted and (b) Actual Training Contents.

Table 2 and 3 details the complete expected construction build for the prototype framework. However, to realize this idea into reality for the benefit of placement success of students at online e-interviews, stakeholders are requested to develop interest for employing the required personnel, facility, key resources, capital and time as a project for bringing the portal into reality. The inventors would be happy for Patent Agreements and Knowledge expertise sharing. Interested Students could also take this idea up to develop into a full-fledged platform through start-up initiatives.

V. ABCD Listing of the proposed MOOC Framework :

The proposed Online E-Campus Interview training framework is evaluated through ABCD Analysis's listing technique developed by Aithal et.al (2015).

(1) Advantages :

- The framework promotes the spirit of self-learning among students.
- The Model is advantageous for Industry to align their E-HRM Requirements.

(2) Benefits :

- The MOOC enables students to practice from home anytime/anywhere.
- The Framework is a Cash Cow Opportunity for Investors and Companies in product development work space.

(3) Constraints :

- Converting the Framework into working reality is challenge oriented owing to varying requirements of the market player or decision makers.
- Licensing and Patenting Constraints.

(4) Disadvantages :

- Inherently disadvantageous if the framework lacks the required feature as per changing industry trend in the prototype phase.

VI. Conclusion :

To summarize this study, we have formulated a sample draft Online E-Placement Training MOOC Framework for successful student placements at online e-campus interviews. The framework constructed by authors include (a) the digital platform where the MOOC is hosted (b) training contents designed based on information collected from Industry as per E-HRM alignment. Anyways in coming future, inventors of this framework hope this idea can be realized through converting the framework into an actual full-fledged platform for the e-interview training or practice of job seeking students in an E-HRM set-up of today. Inventors also welcome for any further feedback or suggestions from stakeholders interested in the idea to improve the draft or its contents subject to evaluative requirements.

References :

- [1] Kosciulek, J. F., Prozonc, L. A., & Bell, D. (1995). On the congruence of evaluation, training, and placement. *Journal of Rehabilitation*, 61(4), 20.
- [2] Rathod, N., Shah, S., & Shirsat, K. (2013). An Interactive Online Training & Placement System. *International Journal of Advanced Research in Computer and Communication Engineering*, 3(12).
- [3] Kasture, H., Saraiyya, S., Malviya, A., & Bhagat, P. (2014). Training and Placement Web Portal. *International Journal on Recent and Innovation Trends in Computing and Communication*, 2(3).
- [4] Shewale, R., Chodhary, P., Powale, S., Chimankar, S., & Umale, A. (2015). Training and Placement Web Portal. *Research Journal of Science and Technology*, 7(2), 111
- [5] Neill, N. T., & Mulholland, G. E. (2003). Student placement–structure, skills and e-support. *Education+ Training*, 45(2), 89-99
- [6] Collins, S., & Jerry, P. (2005). The Campus Alberta Applied Psychology Counselling Initiative : Web-based delivery of a graduate professional training program. *Journal of Technology in Human Services*, 23(1-2), 99-119
- [7] Hella, Sylva., Stefan T. Mol. (2009). E-Recruitment: A study into applicant perceptions of an online application system. *International Journal of Selection and Assessment*, 17(3), pp. 311-323

-
- [8] Stadtlander, L. M., & Giles, M. J. (2010). Virtual instruction: A qualitative research laboratory course. *Teaching of Psychology*, 37(4), 281-286.
- [9] Bauer, T. N., Truxillo, D. M., Paronto, M. E., Weekley, J. A. and Campion, M. A. (2004), Applicant Reactions to Different Selection Technology: Face-to-Face, Interactive Voice Response, and Computer-Assisted Telephone Screening Interviews. *International Journal of Selection and Assessment*, 12(1), pp. 135–148.
- [10] Ruël, H., Bondarouk, T., & Looise, J. K. (2004). E-HRM: Innovation or irritation. An explorative empirical study in five large companies on web-based HRM. *Management revue*, 364-380
- [11] Furtmueller, E., Wilderom, C., & Tate, M. (2011). Managing recruitment and selection in the digital age: e-HRM and resumes. *Human Systems Management*, 30(4), 243-259.
- [12] Shenoy, Varun., Aithal, P. S. (2017). A New Box Framework for E-Campus Interview Training. *International Journal of Applied Engineering and Management Letters (IJAEML)*, 1(2), 17-26.

Effectiveness of Social Security Measures- A Study of Fisher Folks Living in the Thota Bengre Fishing Village in Coastal Mangaluru

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Abstract:

Fisheries Sector has become a source for income and employment to those who engage in unorganised employments for their life. India is the second largest producer of fish in the world by contributing 5.68 per cent of global fish production and second largest producer of fish by aquaculture after China. In the National Fish Productivity, State of Karnataka contributes almost 5.8 per cent securing 6th Position in marine productivity and 9th position in the inland fish productivity. Fisheries sector has enriched its share in the national development after effective usage of technology to increase yield per area of water thereby earning more foreign exchange. Fishing occupation is normally hazardous causing harm to the health of the fisher folks. It is essential to provide Social security protections to the fisher folks against contingencies including disability, sickness, employment injuries, occupational diseases and unemployment. The maximum welfare to the fisher folks can be assured only through the execution of Comprehensive Social Security Policy linking Social Assistance Programmes and Social Security Schemes. This study is descriptive and analytical in nature. The study results analyse the implications of social security measures among the fisher folks living in the ThotaBengre fishing village of MangaluruTaluk in DakshinaKannad District of Karnataka State in India.

Keywords: Unorgnaised Sector, Fisherfolks, Fishing, Hazardous occupation, Social Security,

INTRODUCTION

The Unorganised Workers Social Security Act 2008 defines unorganised sector is an enterprise owned by any individual engaging less than ten employees in the production and

sale of goods and services including the self-employed workers. Fishery is considered to be a prime sector in most of the countries due its ability to generate income and employment. The people of coastal areas have adopted fishing as their occupation for life. The increased fish production in the country facilitates availability of nutritious food, employment and export earnings thereby contributing towards economic growth. India produced 10.79 million metric tons (Provisional) of fish during 2015-16 with 7.21 MMT from inland sector and 3.58 MMT from marine sector. It also recorded an increase in the production trend reaching 8.18 million tons (Provisional) during the first three quarters of 2016-17. By recording the fish production of 11.41 million metric tons during 2016-17 become the second largest fish producing country in the world. The Government of India allowed usage of LED lights and prohibited bull trailing within the Exclusive Economic Zone spread beyond 12 nautical miles in order to safeguard the interest of the traditional fishermen through 'Blue Revolution' (My Government India 2017). Social security is considered to be the economic protection offered by the society or personal protection from the family, community, organizations and other social groups for ensuring social wellbeing of the individuals for their life. The disbursement of social security benefit is greatly influenced by the external factors such as economic pressure, political protocols, inflation, unemployment and financial constraints. Proper steps need to be initiated to identify the best delivery system having extended coverage to the domestics, farmers, unorganised workers, contract labourers, tribes and marginalized fishermen, artisans, craftsmen, potters, animal husbandry workers, croppers etc. working in the secondary sectors (Pradeep M.D. & Ravindra B.K. 2016).

SCOPE OF FISHERIES SECTOR

The availability of Rich aquatic resources, varied fish species, tropical temperature in India has created opportunities for million dollar business through fishing and allied activities in the international market (Sujatha H.R & Mahesh V Mudhol 2006). Traditionally, fishermen were deprived from the normal catches due to the extensive fishing by the trawlers in the inshore areas. The offshore fishing operations are based on the market demand and targeted fishery. As the trawl fisheries are based on the geographical positing systems, it is difficult to execute policies to avoid juvenile catch by the trawlers. The policy against juvenile exploitation can be implemented through imposing responsible fisheries guidelines to avoid fishing in certain specified geographical areas during specified seasons to reduce the damage caused over the commercial fishery (Dinesh Babu & Radhakrishnan E.V. 2009). Fisheries sector is claiming momentum from the inflow of export earnings, source for protein rich food, employment, income generation and its contribution towards the Gross Domestic Product of the Country. Traditional fisher folks through their constant interaction with ocean and fish have developed a treasure of scientific knowledge over diverse marine eco systems and fish behavior. The adoption of modern technology has lead in the transformation of eco-friendly fisheries to eco-destructive fishery by destructing the traditional skills and knowledge(Rajan J.B., 2002).In spite providing many benefit schemes, the life of the traditional fishermen are miserable and

further infliction of technology in fishery will definitely marginalize them into greater poverty. The unregulated entry of rich outsiders as boat owners, employers, money lenders, middlemen and traders into the caste bound sector has given rise for the exploitation of the poor fisher folks (Krishnakumar. R. 1999). Traditionally, fish culture was practiced in small ponds in the eastern parts of India. Initially, The State of Tamil Nadu (1911) started fish culture which was followed by the States of West Bengal, Punjab, Uttar Pradesh, Gujarat, Karnataka and Andhra Pradesh in the later point of time.

(i) Fisheries Resource: Fisheries resources in India consist of 2.02 million sq. km, of Exclusive Economic Zone (EEZ), 5,30,000 Sq. Km of Continental Shelf and a Coastline of 8,118 km. Traditionally, Karnataka Coast is known as “Mackerel Coast” covering 27000sq km of Continental Shelf and 87000 Sq. km of Exclusive Economic Zone rich with Pelagic Fishes like sardines, mackerels etc. State of Karnataka emerged as a maritime state in 1956 and established Department of Fisheries in 1957. The State comprises 300 km long coast line stretching from Majali (Karwar) in the north to Ullala (Mangalore) in the south with three coastal districts via Uttar Kannada (160Kms), Udupi (98Kms) and Dakshina Kannada (Mangalore Taluk 42Kms) surrounded by the Western Ghats in east and Arabian Sea in the west.

(ii) Socio-economic Composition: The Dakshina Kannada District consist 42 Kms Coastal belt, 17 fishing villages and 14 landing centres. Among existing 27,281 fisher folks population, 4,570 belongs to fishermen families, 3,941 from traditional fishermen families and 1,485 from BPL families respectively. The fishermen population consist 11,474 male adults, 9,538 female adults and 6,269 children with an average family size of 5.97 and sex ratio at the rate of 843 female per 1000 males. The educational status comprises 5,514 persons having primary education, 6,518 with higher secondary education, 2,826 studied above higher secondary and remaining 9,448 are illiterates. Among total 6,139 active fishermen in the district, 3,691 are full time workers, 2,383 are part timers and remaining 65 people engage in fish seed collection. The occupational profile comprises of total 18,173 employed persons among which, 6,139 are working as active fishermen and 12,034 engage in fishing and allied activities (4,069 marketing of fish, 3,74 making/repairing net, 206 curing/processing, 135 peeling, 6,157 labourer, 145 others and 948 other than fishing). The population comprises 3,721 people from Hindus, 764 Islams, 85 Christians and 33 Scheduled Caste and Scheduled Tribe respectively in the district. Out of 5,511 persons enrolled into cooperative Societies, 3,699 are the members of Fisheries Cooperatives and 1,812 are members of other Cooperatives. The fishing craft operating in the district consist 1,050 Trawlers, 72 Purse-seiners, 1,194 mechanized, 1,962 motorized and 57 Non-Motorized boats.

(iii) Allied Activities: The Fishing industry generates income to allied sectors including canneries, processing establishments, gear and equipment manufacturing, boat yards,

refrigeration and ice making and transport services etc. It facilitates in food supply thereby increase the level of nutrition among the people. Certain by products are made out of fish such as fish oil, fish meal, fish manure, fish leather, fish glue etc. The perishable nature of the fish, bulk production pattern and consumption style provides ample opportunities for the growth of processing and marketing activities by the effective infrastructural support from the freezing plants, canning plants, ice plants, fish meal plants, preprocessing centers and cold storage.

(iv) Blue Revolution: The Ministry of Agricultural and Farmers Welfare, Department of Animal Husbandry, Dairying & Fisheries has restructured the existing scheme into a Central Plan Scheme with Central Sector Components on Blue Revolution for the integrated development and management of fisheries at a Central outlay of 3000 crores for five years. It includes National Fisheries Developing Board (NFDB), Development of Inland Fisheries, Marine Fisheries, Infrastructure and Post-Harvest Operations, Strengthening of Database & Geographical Information System, Institutional Arrangements, Monitoring, Control, Surveillance & other need based interventions. The National Scheme on Welfare of Fishermen provides Saving cum Relief for the fishermen, Housing schemes, Provision for basic amenities like drinking water, Construction of Community Hall with basic facilities, Group Accidental Insurance, Grant in Aid for the National Federation of Fishers Cooperatives Ltd (FISHCOPFED).

(v) Components of Social Security: Social Security as a Comprehensive National Programme aims to reduce sufferings due to Poverty, Unemployment and Diseases by providing health services during sickness, provision for pension, financial assistance to face widowhood, compensation for the accident victims, protection against occupational diseases, unemployment compensation etc. The following components are covered in the social security system.

(i) Social Insurance: It is a compulsory contributory scheme constituted for the employment with liability spread through the length of service or period of contribution. Benefit payable shall be paid from the contribution collected from both employer and employee into a public fund. Minimum noncontributory pension based on age criteria funded from the general revenue of the state. The benefit to the local level can be sought with the community participation and local financial support (Ehtisham Ahmad 1991) .

(ii) Social Assistance: The entire benefit rendered under the scheme will be completely paid from the general revenue of the Government.

(iii) **Employers Liability:** According to the statutory requirements, the employer is made liable to pay the compensation for the instances including employment injury, sickness, retirement, provident fund and maternity.

(iv) **National Provident Fund:** It is a compulsory savings scheme constituted by the government where employees shall make regular contributions and the benefit will be payable in lump sum on the happening of specified contingencies.

(v) **Universal Schemes:** The scheme financed from the general revenue including old age and disablement pension, widow, widower, orphan and family allowances.

SOCIAL SECURITY SCHEMES

(1) **Distress Relief Fund:** The scheme provides compensation of Rs. 2,00,000 in cases of death or permanent disability caused in the course of employment and Rs. 1,00,000 against partial disability. Rs. 25,000 is fixed for relief against any loss or damage caused to boat/net and medical expenses. Rs. 6,00,000 will be provided to dependents as relief in cases of death of the fishermen due to natural calamity or accident. During 2017-18, Rs. 25.00 lakh was given to the fund. 71 cases have been settled. For these, Rs. 142.84 lakh relief has been given.

(2) **National Scheme of Welfare of Fishermen:** Several Social Security programs are offered to fishermen including the relief measures offered to the poor fishermen for the lean fishing period. Low cost houses are initiated exclusively for the fishing communities. Government of India safeguards large number of fishermen belonging to Below Poverty Line, Women and Scheduled Caste/Scheduled Tribe beneficiaries as per the directives issued by the Planning Commission by reserving 16.2% funds for Scheduled Castes, 8 % for Scheduled Castes and 10% for women beneficiaries. The schemes will be implemented by the respective State Government or its agencies either with 50:50 expenditure share between Centre and State or in North Eastern States on 75:25 basis and for Union Territories by the Government of India.

(a) Development of Model Fishermen Villages

State/UTs shall provide land for building required amenities under the programme. The scheme includes following sub plans (Annual Report 2017-18)

(i) **CSS Housing Scheme:** State/UTs will select beneficiaries for allotting houses to the active fishers with special preference to people from below poverty line, landless fishers and those own land or kutchha houses. The State shall distribute houses to all fishermen village

with minimum 10 houses in proportion to the number of eligible fishers. The plinth area and cost of construction of a house would be limited to 35 Sq. mts and Rs. 75000 respectively. Subsidy is being borne equally by the State and Central Government. Under this head, HUDCO loan is being reimbursed with Rs. 61.03 lakh towards loan and interest.

(ii) Drinking Water: Every fishermen village with minimum 10 and maximum 20 houses, shall be provided with 01 tube well at an installation cost not exceeding Rs. 40,000. In North Eastern States, government can extend the installation cost upto Rs. 45,000. Alternative sources of drinking water supply shall be initiated in other cases by the State Government.

(iii) Common Facility: A fishermen village with at least 75 houses can seek assistance for construction of a community hall within the area of 200 sq. mts with toilets facility and tube well at the cost of not exceeding Rs. 2,00,000. The hall can be used as a common working place for fishermen for drying and mending purposes.

(b) (i) Group Accident Insurance for Active Fishermen: The fisher folks licensed or registered with the government shall be insured for 12 months with a policy for Rs. 2,00,000 against death or permanent total disability and for Rs. 1,00,000 against partial permanent disability. Rs. 10,000 will be paid towards hospitalization expenses in the event of accident. No contribution shall be collected from the fishermen towards this scheme. The annual premium at the rate of not exceeding Rs. 20.27 per person shall be payable to FISHCOPFED, New Delhi by an equal share from State and Central governments. The said premium shall be shared in the ratio of 75:25 between State and Central governments respectively for the North Eastern States and at 100 per cent contribution from the Central Government for the Union Territories. During 2017-18, Rs. 20.00 lakh was distributed for relief against 10 cases.

(ii) Grant in Aid: FISHCOPFED a National level federation constituted to provide insurance and training facilities to the traditional fishers through its resources or utilizing the funds provided for other schemes. Rs. 50 lakhs per annum was sanctioned during the 11th five year plan.

(iii) Saving cum Relief: A Centrally sponsored scheme for the fishermen engaging in full time fishing and a member of any Cooperative Society/Federation/Welfare Society who is living below the poverty line and below the age of 60 years. Any member of fishermen family having regular income or engaging in any other income generating activity shall not be eligible for this scheme. Where Rs. 1500 is collected annually and matching contribution of Rs. 1500 will be contributed from State and Central Governments respectively. Thus accumulated, Rs. 4500 will be distributed by the Director of Fisheries during the lean months at the rate of Rs. 1500 per month. In the Union Territories the government share of Rs. 3000

will be borne by central government and in the north eastern states the contribution will be shared in the 75:25 ratio between Centre and the State respectively. The interest accrued on such savings will be distributed along with the third installment. During 2017-18, a budget allocation of Rs. 980.00 lakh was made for this scheme.

(iv) Training & Extension: The Central and State Government shall share the expenditure in 50:50 ratio normally but for North Eastern States at 75:25 ratio and for Union Territories, it is completely supported by the Central Government. This scheme is provided at par with the schemes offered by the FISHCOPFED for the Union Territories (Government of India 2015). The representation on the assistance provided for Training & Extension Programme is provided in the Table-01.

Table 01: Assistance for Training & Extension Programme

Sl. No	Component	Assistance Approved
01	Human Resource Development	Stipend @ Rs. 125 per day subject to a maximum of Rs. 1875 per participant during the training period of maximum 15 days and an actual to and fro train/bus fare subject to a maximum of Rs. 500/- per trainee. Honorarium of Rs. 1,000/- per Guest lecture subject to maximum of two lectures per day for resource person and actual to & fro travel expenditure subject to a maximum of Rs. 1000/-.
02	Establishment of Fish Farmers Training and Awareness Centre	Keeping in view the common facilities and infrastructure, it has decided to merge training and awareness centre and henceforth establish Fish Farmers Training & Awareness Centre at a cost of Rs. 30.00 lakh. Financial assistance to the maximum extent of Rs. 60.00 lakh to each State for the establishment of maximum two Fish Farmers Training Awareness Centre. The Land and Operational cost would be met by the respective States/UTs.
03	Publication of Handbooks	Rs. 15,000 as an honorarium for each handbook to the author which will include an approximate expenditure of Rs. 5000/- to be incurred by him on Stationery, Typing, illustrations, transparencies etc. in addition Rs. 50,000/- will be paid to the State Government /UT/Organisation for the printing of about 500 copies

		of each handbook.
04	Publication of Training/Extension Manuals	Rs. 5,000/- as an honorarium to the expert for the preparation of a manual and Rs. 20,000/- to the State Government/UT/Organisation for the Publication of 500 copies for each manual.
05	Organization of workshops, Symposia, Seminars, Meetings, evaluation studies etc.	For organizing workshops/seminars/symposia etc. at the National level, a lump sum amount not exceeding Rs. 1.00 lakh will be provided mainly for the publication of proceedings. The amount for meeting expenditure on the miscellaneous items, etc. shall be determined by this division with the concurrence of integrated finance. For organizing workshops, seminars etc. at the State/UT level, a lump sum amount not exceeding Rs. 50,000/- will be provided to each State/UT.
06	Activities of Fisheries Division at Head Quarters	Overhead expenditure at Headquarters in the Department of Animal Husbandry, Dairying & Fisheries for strengthening the training & extension skills of personnel and upgrading the reference material including audio visual aids. In addition this will include committed liabilities like International Conference/Seminar/Symposia etc.

(3) MatsyaAshrayaYojane: Scheme provides subsidy of Rs. 1.20 to construct houses for the houseless fishermen belonging to general category, Rs. 1.75 lakhs for Scheduled Caste and Scheduled Tribes living in the rural areas and Rs. 2.00 lakh for the urban residents. Rs. 1500.00 lakh was released to the Nodal Agency, Rajiv Gandhi Housing Corporation, Bangalore and assisted in constructing 3000 houses during 2017-18.

(4) Fisheries Co-operative Societies: In the State of Karnataka, out of the existing 612 Fishermen Cooperative Societies, 554 are found to be functioning. It also comprises of 01 State level Cooperative Fisheries Federation for Inland and 02 District Cooperative Fish Marketing Federation for Marine fisheries. State Governments provides share capital, requisites, loan and subsidy to these cooperatives. There are approximately 2.05 lakh members in the FCC's. Allocation of funds during 12th Five Year Plan under CSS & CS Scheme (Refer Table-02).

Table 02: Funds released during 12th Five Year Plan under CSS & CS Schemes

Schemes	12 th Five Year Plan Period			
	2012-13	2013-14	2014-15	2015-16
Development of Inland Fisheries & Aquaculture	3141.64	3103.87	2632.17	3665.00
Development of Marine Fisheries, Infrastructure & Post Harvest Operations	7457.73	6375.68	9285.08	7000.00
National Scheme of Welfare of Fishermen	3938.47	5214.73	5204.25	4349.00
Strengthening of data base & geographic information system for fisheries sector	379.02	551.79	750.00	495.00
National Fisheries Development Boards (NFDB)	10681.00	12316.00	13750.00	15786.00

(a) Motorisation of Traditional Fishing Crafts: A Centrally Sponsored Scheme since its inception from 1987-88 has motorized 3493 traditional crafts. The scheme provides to each outboard motors, 50% of the unit cost as subsidy upto the maximum limit of Rs.30,000. The subsidy is shared equally between the State and Central Government. The rest of the amount is borne by the beneficiaries with the assistance from the financial institutions. During 2014-15 out of the released Rs. 89.20 lakhs, Rs. 88.33 lakh was spent for motorization of the 310 traditional crafts.

(5) Special Component Plan & Tribal Sub Plan: This scheme was initiated to protect the of Scheduled Caste & Scheduled Tribes beneficiaries. It provides Fibre glass coracle and Fisheries requisites Worth Rs. 25000 to the Inland fishermen and fishermen working in the non-motorized boats in the coastal areas free of cost. Assistance to coastal fishermen provided to purchase FRP Gillnet and OBM at the unit cost of Rs. 5.00 lakh of which 90 % upto 4.50 lakh will be provided as subsidy. Assistance is provided to purchase four wheeler at the unit cost of Rs. 5.50 lakh of which 80 % cost of Rs. 4.40 lakh is provided as subsidy. An allocation of Rs. 87.00 lakh was made during 2017-18 of which Rs. 86.57 lakh was spent under various programmes benefitting 19 beneficiaries.

(6) Matsya Mahila Swavalambana Yojane: A revolving fund of Rs.10,000 is provided to SHGs of fisherwomen engaging in the fishing activities including marketing.

METHODS

This paper is descriptive in nature. ThotaBengre is one among the 17 fishing villages of MangaluruTaluk in Dakshina Kannada District belonging to Karnataka State. The village comprises of 564 traditional fishermen families and 208 BPL families with 2,819 fisher folks. Out of the total population, 1125 are adults, 1129 females and 2819 children. Educational status comprises of 617 people with primary education, 654 with higher secondary education and 370 with higher secondary education. Among 2214 occupied persons in the village 922 are active fishermen, 441 engage in marketing, 23 in making or repairing net, 70 in curing/processing, 05 in peeling, 691 labourers, 23 engage in other activities and 39 employed in other than fishing activity. Out of total active fishermen 731 are fulltime fishers, 190 are part timers and 01 involving in Seed Collection. Out of 604 persons having membership in cooperatives, 304 are the members in Fisheries Cooperatives and rest 300 are the members of the other cooperatives. Existing 731 fulltime fishers are identified to the population for this study (Marine Fisheries Census 2010). The sample size for this study was decided by using statistical formula $Z\alpha^2 \times p(1 - p) \div e^2$ Where, $Z\alpha^2$ = Confidence Interval, (95 per cent) which is equal to 1.96 %, P = Prevalence which is calculated by finding the % of Study Population, then the value will be converted to % to derive the prevalence, E = Error level at 5 % i.e., 0.05. Therefore, $1.96 \times 0.0731 (0.926) \div 0.05^2$; $0.143 \times 0.926 \div 0.0025$; Therefore, the Sample size for this study will be 53. This study excludes persons engaging in Ice Factory, Merchants, Middlemen, Financier, Processing, Packing, maintenance of crafts and Marketing activities, Employees of Fisheries Department, Karnataka State, Office bearers and Staff of any fishermen Cooperatives or Harbour and Inland Fisher folks and Part time fishers.

RESULT

(a) Socio-demographic Status

Out of Total 53 respondents, majority 26 (49.1 %) respondents are above the age of 46 years, 41 (77.4 %) are married, 16 (30.2 %) having 04 dependents, 42 (79.2 %) living in nuclear family, 44 (83.0 %) with more than 16 years of work experience, 17 (32.1 %) with Primary & High school education, 44 (83.0 %) are skilled workers, 19 (35.8 %) earn between Rs. 6,095 to 10,157, 56.6 % lives in the Tiled House, 27 (50.9 %) participate in associations and 36 (67.9 %) having food security. It is inferred from the analysis that majority respondents are above 46 years of age, married, having 4 dependents, living in nuclear family, having more than 16 years of work experience with primary & high school education working as skilled workers earning below Rs. 10,157 lives in the tiled house having membership with associations and food security.

(b) Socio-economic Class

Socio-economic class for this study is determined according to the Kuppaswamy's Standardized Socio-economic Status Scale with the updated Income Ranges for the year 2015 (HemaThakkar & Rawat C M S 2015). Out of Total 53 respondents, Majority 39 (73.60 %) belongs to Upper middle class and remaining 14 (26.40 per cent) belongs to Lower Upper Class. It is inferred from the above analysis that most of the fisher folks belong to upper middle class.

(c) Status of Social Security

Out of Total 53 respondents following percentage are the beneficiaries of 15 (28.3 %) for credit, 08 (15.1 %) Training, 17 (32.1 %) Saving Schemes, 19 (35.8 %) legal awareness, 12 (22.6 %) subsidy on fishing equipments, 20 (37.7 %) insurance, 11 (20.8 %) mutual guarantees schemes, 19 (35.8 %) educational programmes, 24 (45.3 %) medical services, 19 (35.8 %) recreation, 07 (13.2 %) price control, 10 (18.9 %) auction facility and 05 (9.4 %) housing facility. It is inferred from the study that majority respondents are not the beneficiaries of these schemes.

(d) Non awareness on Social Security Schemes

Out of Total 53 respondents following are not aware about 40 (75.5 %) distress relief fund, 34 (64.2 %) group accident insurance scheme, 50 (94.3 %) Centrally sponsored scheme on housing, 37 (69.8 %) Centrally sponsored savings cum relief schemes, 49 (92.5 %) Matsya Ashraya Yojana, 43 (81.1 %) mobile advisory services, 25 (47.2 %) subsidy on life saving equipments, 13 (24.5 %) subsidy on fuel for mechanized boats, 04 (7.5 %) identify card scheme, 49 (92.5 %) national scheme for welfare of fishermen, training & extension, 44 (83.0 %) Rastriya Swasthya Bima Yojana, 42 (79.2 %) Pradhan Mantri Jan Dhan Yojana, 47 (88.7 %) Pradhan Mantri Suraksha Bima Yojana, 48 (90.6 %) Pradhan Mantri Jeevan Jyothi Bima Yojana, 48 (90.6 %) Atal Pension Yojana, 47 (88.7 %) subsidy on construction of houses and 27 (50.9 %) boat registration schemes. It is inferred from the study that most of the fisher folks are not aware about the social security measures provided by the government which made them to be deprived off many social benefits of the state.

HYPOTHESIS TESTING**H₁: There is a significant association between Socio-economic Class of the Fisher folks and Social Security Measures**

The relationship between Socio-economic Class and Social Security Measures. At 01 degrees of freedom and significant level of 0.05 percent, the calculated Chi Square Value is

.098 and Table Value is 3.841. As the calculated value is less than the table value hypothesis is accepted. It is inferred from this analysis that Majority 39 respondents belonging to Upper Lower Class are not getting effective Social Security Measures. Hence there is a significant relationship between Socio-economic Class of the respondents and Social Security Measures.

H₂: There is a significant association between Socio-economic Class of the fisher folks and Occupational Health Hazards

The relationship between Socio-economic Class and Occupational Health Hazards. At 02 degrees of freedom and significant level of 0.05 percent, the calculated Chi Square Value is 5.632 and Table Value is 5.991. As the calculated value is less than the table value hypothesis is accepted. It is inferred from this analysis that, Majority 39 respondents from Upper Lower Class are having average health. Hence there is a significant relationship between Socio-economic Class of the respondents and Occupational Health Hazards.

H₃: There is a significant association between Work Experience of the Fisher folks and Awareness on Social Security Measures

The relationship between Work Experience and Awareness on Social Security Measures. At 03 degrees of freedom and significant level of 0.05 percent, the calculated Chi Square Value is 1.980 and Table Value is 7.815. As the calculated value is less than the table value hypothesis is accepted. It is inferred from this analysis that, Majority 44 respondents having more than 16 years of work experience are unaware about the Social Security Measures. Hence there is a significant relationship between work experience of the fisher folks and awareness on social security measures.

RECOMMENDATIONS

This study found that majority fisher folks are belonging to the Upper Middle Class who are prone to the occupational health hazards and not the beneficiaries of the available social security benefits. There is a requirement to initiate the facility for providing credits through the Cooperative Societies or fishermen's association. The fisheries department could enrich the training programmes to boost the employability. Fishermen's Self Help Groups can be encouraged in order to facilitate micro credit within the groups. Steps shall be taken to provide free legal aid for fighting against litigations. There is a need for extending the subsidy on fishing equipment to maximum beneficiaries through special allocation of budget in this regard to the TalukPanchayats. The Employees State Insurance shall be extended to the fishing occupation also. Every fishing village can be provided with a medical centre and ambulance facility in association with the government district hospitals. There is a need to

find out the fishermen without own house shall be included under the housing schemes and provided with required assistance.

CONCLUSION

The unorganised workers comprise 93 % of the entire work force of India. They are the victims of many problems including unemployment, exploitation and hazardous working conditions (Satyam Mishra, 2017). Right to life includes protection of health enabling him to live with dignity. The Government is liable to take measures to promote health of the workers in the course of employment extending even after the post retirement period (Mihir Desai 2009). Vagaries of nature highly influence upon the fishing occupation. The small scale fishers can only be secured through protecting their rights, skill development and empowerment (Sen Amartya 1984). Social security programmes need to be integrated with the National Policy in order to provide social protection to all including the excluded majority (M. D. Pradeep & Kalicharan M.L. 2016). The socio-economic status of the fisherman can be improved by initiating advanced fishing and farming technology and training (Basavakumar K. V., Devendrappa S & Srenivas S. T. 2011). Self-help groups can be encouraged among fisher folks along with micro credit options which definitely promote quality of life by reducing the poverty considerably (Pradeep M.D. & Rakshitha Rai R.P 2016). There is a need for empowerment, equal participation, collective efforts and creating awareness in the rural areas (Pradeep M.D. & Deeksha 2016). Securing the life and livelihood is possible only with the elimination of deprivation and vulnerability from the society (Kurien John 1993). There is a need to analyse the available Social Security policies to improve the socio-economic conditions (Smith, I.R. 1979). The fisheries department should organized awareness programmes on the available social security schemes in the fishing villages during the fishing lean period so as to ensure maximum usage of the available benefits. Sustainable growth through economic empowerment is possible by identifying job opportunities, reducing power politics at workplace, granting decision making, leadership and career enrichment (Sonia Delrose Noronha, Aithal P.S. & Pradeep M.D. 2017).

REFERENCES

1. Annual Report, Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, Government of India (2017-18).

2. Dinesh Babu&Radhakrishnan E.V. 'Trawl Fishery of Juvenile Fishes along Mangalore-Malpe Coast of Karnataka and its Impact on Fish Stock', *Asian Fisheries Science*, 22, (2009), pp. 491-500.
3. Ehtisham Ahmad 'Social Security and the Poor, Choices for Developing Countries', *The World Bank Research Observer*, 6, 1, January (1991), pp. 105-127.
4. HemaThakkar&Rawat C M S., 'Kuppuswamy's Socio-economic Status Scale: Updated Income Ranges for the Year 2015' *Indian Journal of Community Health*, 27, 4, (2015), pp. 415-417.
5. Kurien John., 'Socioeconomic Issues in Coastal Fisheries Management, Proceedings of the IPFC Symposium Held in Conjunction with the Twenty-fourth Session of IPFC Bangkok, Thailand, November (1993), pp. 23-25.
6. Krishnakumar.R. 'Livelihood issues a Land Mark Proposal', *Frontline*, 16, 2, January (1999), pp. 16-29.
7. Mihir Desai, 'The Judicial response to Workplace Safety'; *AGENDA- Occupational Safety and Health*, 15 (2009), p. 15.
8. My Gov India, 'Fortnightly Newsletter', 2, 11, 27th November (2017), p. 12.
9. Marine Fisheries Census Report (2010), Ministry of Agriculture, Department of Animal Husbandry, Dairying & Fisheries, Central Marine Fisheries Research Institute, Kochi, pp. 31-126.
10. Pradeep M.D. &Ravindra B.K., 'Effective Disbursement of Social Security Benefits to the Labour Through Information Technology in India', *International Journal of Advanced Trends in Engineering and Technology*, 1, 1, (2016), pp. 114-121.
11. Pradeep M.D. &Kalicharan M.L., 'Social Security Measures for Indian Workforce - A Legal Intervention', *International Journal of Computational Research and Development*, 1, 1, (2016), pp. 47-57.
12. Pradeep M.D. &Rakshitha Rai R.P. "Women Empowerment through Self Help Groups- Interventions towards Socio-Economic Welfare" in *International Journal of Management, IT & Engineering*, 06, 01, Jan (2016), pp 424-441

-
13. Pradeep M.D. &Deeksha “Multi-Dimensional approach for empowerment-Effective strategies to face problems and challenges of women in India” in International Journal of Scientific Research & Modern Education (IJSRME), 1, 1, July (2016), pp. 744-755.
 14. Rajan J.B., 'Labour Mobility in the Small Scale Fisheries Sector of Kerala', Discussion Paper No.44, Kerala Research Programme on Local Level Development, Centre for Development Studies, Thiruvananthapuram (2002).
 15. Sujatha H.R. & Mahesh V Mudhol., 'Electronic Information Resources on Fisheries: A Study', Annuals of Library & Information Studies, 53, June (2006), pp. 96-102.
 16. Satyam Mishra., 'Social Security for Unorganised Workers in India' Journal of Social Sciences, 53, 2 (2017), pp. 73-80.
 17. SenAmartya., 'Resources, Values and Development', Harvard University Press, U.S.A. (1984), p. 13.
 18. Smith, I.R. (1979) ARresearch Framework for Traditional Fisheries'. ICLARM Stud. Rev (2), p. 40.
 19. Sonia Delrose Noronha, Aithal P.S. &Pradeep M.D. 'Study on the Policy Framework towards Work Life Balance in India', International Journal of Multidisciplinary Research & Modern Education, 3(2) (2017), pp. 11-16.

Public Private Partnership Model to Promote Tourism in Karnataka

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Abstract:

In today's world there is a great impact of service industry to the world economy and one of the major contributors to this sector is the tourism industry. There are some countries in the world namely Thailand, Sri Lanka etc... where tourism is one of the major contributors to its GDP. When it comes to India, we see a huge opportunity on the whole. It is still not tapped its huge potential. This is a conceptual paper where the tourism opportunities of Karnataka state of India is given prominence with special reference to the collaborations with public and private sector. Karnataka has huge untapped potential which can be tapped with proper & efficient management along with innovative ideas. Both government and private partners can join hands in accelerating the tourism in Karnataka. Some of Karnataka's neighboring states like Goa & Kerala are on the right track in terms of tourism within their state. The potential in Karnataka is so huge that even many residents living in Karnataka for a long time are not aware of many of the possible tourist attraction spots. Tourism not only contributes to the overall development of the economy at large but also solves many of the problems like unemployment and it can create many business opportunities for local vendors. With the right framework and decent marketing activities, Karnataka can soon catch up in the era of Tourism. The present paper focuses on ways and ideas to promote & develop tourism in Karnataka with a special focus on public private partnership.

Keywords: Karnataka Tourism, Public Private Partnership, Innovative Ideas, Collaborations, Creative Promotions.

INTRODUCTION

Tourism industry is an important source to every country and it is the world's largest and most diverse industry. Travel and tourism will be one of the world's highest growth sectors in the current century. It is an important phenomenon of our times and tourism offers us an opportunity to learn to enrich humanity and to identify what may be termed as goods for better life and a better society (Dr. Honnappa S, Sujathamma 2016)

Tourism is an economic activity of immense global significance. The tremendous growth in tourism in recent times at the global level is due to various factors such as the impacts of globalization, emergence of the global village and preference for overseas jobs in general. According to world Tourism organization (WTO), "tourism enriches individuals, families, communities and the entire world" (Mrs. Lakshmi P, Dr. S J Manjunath 2014). Tourism is an industry capable of changing the socio-cultural, economic and environmental face of the world. In developing countries like India tourism has become one of the major sectors of the economy, contributing to a large proportion of the National income and generating huge employment opportunities. It has become the fastest growing service industry in the country with great potentials for its further expansion and diversification.

LITERATURE REVIEW

Dayananda.K.C (2014) studied Tourism and Employment: Opportunities and Challenges in Karnataka- Special Reference to Kodagu District and in their studies they have explained about challenges and employment opportunities in tourism with reference to kodagu. Mrs. Lakshmi P, Dr. S J Manjunath(2014) did a An Empirical study on Tourism Policy in Karnataka with an objective to analyze tourism policy 2009 – 2014 for the improvement of tourism sector within the state and also to offer suggestions to make Karnataka tourism policy more effective. In the study they found that the Karnataka Tourism Policy has the main aim of attracting more number of both domestic and foreign tourists which increases the revenue to Government as well as economic development of the state. According to the study, the policies framed should take care of fulfilling the responsibility in developing tourism sector in a proper direction. Rajiv Kumar and Annu Dahiya(2015) undertook a study Public Private Partnership: A New Paradigm for promoting Tourism Sector and in their study they tried to examine the PPP (public private partnership) model in Indian tourism industry. Dr. Honnappa S and Sujathamma(2016) studied the Problems and prospects in tourism industry: With Reference to Karnataka. This study can be considered as a useful information and guidance for tourism related decisions. Anitha KP and Dr. B Chandrashekara(2017) in their study on prospects and problems of heritage tourism in Karnataka, revealed the potentials and problems of heritage tourism in Karnataka, which can help in shaping our society. According to the study the state has everything to offer to a tourist and in spite of its high potential in heritage tourism product development and tourist infrastructure, Karnataka state has not

attracted the maximum number tourists as expected. So the study focused on potentials of heritage tourism in Karnataka and the measures to improve it. G.Venkateswarlu & M. Jayalakshmi(2016) in their study on public – private-partnership in tourism sector, identified the different types models in PPP and also evaluated the responsibilities of PPP projects. In the study they found what are different types of schemes and incentives provided to tourism sector in India.

OBJECTIVES AND METHODOLOGY OF THE STUDY

The objectives of the present study is to find ways and ideas to promote& develop tourism in Karnataka with a special focus on public private partnership.The present study is based on secondary data, which is collected from various journals and websites.

TOURISM IN KARNATAKA

Karnataka is situated in the Southern part of India, and province of Karnataka spreads over the Deccan plateau. Karnataka is the largest state in India in both area and population. It was formerly known as Mysore. On November 1, 1973, the name Mysore was changed to Karnataka. The name of the land Karnataka has come from “Kari-nadu” meaning the land of black soil say the scholars and some others hold that “Karunadu” also mean beautiful country. Ranked the 4th most popular tourist state in the country, Karnataka has a bouquet of attractions to offer. Expanded from Belgaum in the North to Bangalore in the south which is also its capital, it has all the features of a great tourist destination. Beautiful beaches adorn the coastal line to the midst of the state with lush mountains, valleys and landscapes of farmlands.

Karnataka, true to its tagline, is one state that accumulates many worlds in itself. The Malayalis, the Tamils, Konkanis, Kannada, even the Muslims and Christians have made Karnataka their home with their culture beautifully merging with that of the state. Karnataka has the second highest number of protected monuments in India, Hampi being one which houses the maximum of them, was the capital of Vijayanagar- 14th-century empire and now has the ruins of numerous palaces, forts, caves and monuments. Apart from history, Karnataka is also rich in nature's bounty and wildlife. It has 5 National Parks and over 25 wildlife sanctuaries of which Bandipur and Nagarhole National Parks are most famous. The world's largest monolith structure is in Karnataka in Sharavanbelagola, the statue of Lord Gomteshwar sees tens of thousands of pilgrims during Mahamastakabhisheka festival. Karnataka has also been emerging as a healthcare tourism spot because of many approved health systems and therapy centers being opened in the states.

MAJOR TOURISM DESTINATIONS

The major tourism destinations in Karnataka can be classified under the following tourism themes described below:

- Heritage and culture - Hampi, Badami, Pattadakal, Aihole, Mysore palace, Srirangapatana etc
- Wild life and forests - National parks at Bandipur, BR Hills, Rajiv Gandhi National Park, Kudremukh National Park etc
- Beaches – Mangalore, Karwar, Gokarna, Malpe etc
- Religious destinations- Hindu temples (Kukke Subrahmanya, Kadri Manjunatha temple, Mookambika temple etc), Jain basadis (Moodabidri, Karkala etc) and statues of Bahubali (Sravanabelagola, Vennur,), Churches (St. Aloysius, Milagres), Mosques & Dargahs (Jama Masjid, Dargah of Syeed Madani etc)
- Adventure sports- white water rafting (Dandeli, Kemphole, Sitanadi, Netravati), rock climbing (Ramnagar near Bangalore, Badami), trekking (Shimoga, Chikmagalur, Hassan, Kodagu), angling (Cauvery fishing camp), aero sports (Hebbal in Bangalore) etc.
- Hill stations and scenic spots- Coorg, Chikmagalur, Agumbe BR Hills, Nandi Hills, Jog

PUBLIC PRIVATE PARTNERSHIP IN TOURISM

Public-Private Partnership means a development of a project with a private people with an agreeable terms and conditions. It broadly refers to “an arrangement between the public and private sectors with clear agreement on shared objectives for the delivery of public infrastructure and public utilities.” In this partnership the public partner is represented by the government at a local, state or a national level. The private partner can be a privately-owned business, public corporation or consortium of businesses with a specific area of expertise (G. Venkateswarlu & M. Jayalakshmi, 2016). Today tourism has become an important source of income for most of the countries of the world. Tourism affects all aspects of a country including business, government services, natural environment, historical assets, religious and cultural values and local residents. Tourism is concerned with the interaction of different sectors like transportation, communication, accommodation, destination and event. Sector cannot be singularly handled by the government. It requires that private sector must be involved in the development and promotion of tourism industry (Rajiv Kumar and Annu Dahiya, 2015)

MEASURES TO IMPROVE TOURISM IN KARNATAKA

- **Better Marketing & Promotional Activities:** The most popular marketing and promotions now a day are those which are done with the help of social networks having the advantage of search engine optimizations.
- **Clear A to Z Information on the official Website:** The official website should contain Straightforward search filters, beautiful images, Customer reviews, Clear pricing without hidden fees, Google map integration, Comprehensive Yet Uncluttered Search Results.
- **Add Maps of all important places:** Another way to promote tourism is to create a detailed map for tourists and this would help the tourist to plan their visits to these different places. The map can include a brief description of key attractions and sites, as well as activities tourists can do at these location.
- **Tie-ups with hoteliers,** resorts, rental cabs & bus Services, Guides, Restaurants, Sports Events, Exhibitions, Recreational Organizers etc.
- **More Tie-Up's & MOU's** with various Stakeholders: successful tourism development depends greatly on excellent cooperation and communication between all stakeholders involved in the tourism system, MoUs can be signed with corporates for adoption of tourist destinations in the state.
- **Collaborations:** Even joint collaborations with near by state tourism organizations like Kerala, Goa, Andhra Pradesh, Maharashtra etc.
- **Creation of Annual calendar:** There is a need to create an Annual calendar with events spread across as well as strategic timing to have many events clubbed together to attract tourists.

SUGGESTIONS

- Synergy can be truly formed by this combination of public and private partnership
- More Qualitative Resorts can be built.
- Better and smarter usage of Beaches.
- More Exhibitions on strategic Dates and Seasons.
- More Entertainment Carnivals on Strategic Dates & Seasons.
- Tie ups with Sporting Events, Tour Agents etc...
- Better medical tourism offers and promotion packages

CONCLUSION

It is concluded that public –private-partnership can enhance tourism sector in India. It will help to make designs, build business plans, and financial assistance from private ownership. Here we find private owners plays a vital role to development of tourism industry in India. It has the potential to create substantial new destinations for attracting new tourists from abroad. It is also an opportunity to enter private ownership into a tourism sector. In public – private-partnership there are more number of incentives that would be provided to private people for improvement of tourism industry in India. Karnataka with its rich history and amazing culture has all the potential and ingredients of heritage tourism development. Heritage tourism can make a significant contribution in the economy of Karnataka and definitely the public private partnership in Karnataka tourism would help the industry to grow further.

References:

- Mrs. Lakshmi P. & Dr. S J Manjunath (2014), “An Empirical study on Tourism Policy in Karnataka”, IOSR Journal of Business and Management (IOSR-JBM) e-ISSN: 2278-487X, p-ISSN: 2319-7668. Volume 16, Issue 5. Ver. IV, May, PP 49-52
- Dayananda.K.C (2014), “Tourism and Employment: Opportunities and Challenges in Karnataka- Special Reference To Kodagu District”, IOSR Journal Of Humanities And Social Science (IOSR-JHSS) Volume 19, Issue 11, Ver. IV, November, PP 01-11 e-ISSN: 2279-0837, p-ISSN: 2279-0845
- Rajiv Kumar and Annu Dahiya (2015), Public Private Partnership: A New Paradigm for promoting Tourism Sector, International Research Journal of Management Science & Technology, January, ISSN 2250 – 1959(Online) , 2348 – 9367 (Print)
- G. Venkateswarlu & M. Jayalakshmi (2016), “Public – Private-Partnership In Tourism Sector”, International Journal of Management, Information Technology and Engineering (BEST: IJMITE) ISSN (P): 2348-0513, ISSN (E): 2454-471X, Vol. 4, Issue 1, January, 1-6
- Dr. Honnappa S & Sujathamma (2016), “Problems and prospects in tourism industry: With Reference to Karnataka”, International Journal of Commerce and Management Research ISSN: 2455-1627, Impact Factor: RJIF 5.22 www.managejournal.com Volume 2; Issue 7; July; Page No. 47-50
- Anitha KP and Dr. B Chandrashekara (2017), “A study on prospects and problems of heritage tourism in Karnataka”, International Journal of Applied Research ; 3(5): 107-109, ISSN Print: 2394-7500 ISSN Online: 2394-5869
- <https://www.holidify.com/state/karnataka/>
- <https://www.holidify.com/state/karnataka/>
- <https://www.econsultancy.com/blog/65940-10-essential-features-for-travel-websites>
- <http://www.dnaindia.com/business/report-karnataka-signs-6-mous-with-companies-for-adopting-tourist-spots-2105297>

Detailed Evidence Based Study on Cockroach Theory of Organizational Sustainability and Scalability of Bottom of the Pyramid Approach

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Abstract

The issue of survival and sustenance are at the very foundation of every individual or organization. There are various factors that are essential for growth and sustenance of companies. There has been many research studies undertaken to gauge the success factors or to breakdown the components and study success in detail. Especially so, it gains even more importance when companies are serving the markets where consumers have very low incomes and have several unmet needs. Companies serving the base of the pyramid markets need relatively unique strategies and value propositions for success. The base of pyramid came into forefront when management thinkers C K Prahalad and Stuart L. Hart, formulated the “Bottom of the Pyramid” theory in a 2002 article about how businesses can help the poor while still able to make a profit. They noted that there was little competition among the millions of the poor, who essentially live in a world of non consumption. Through low prices, new business models and innovative products, and inclusive value creation corporations along with the help of nongovernmental organizations (NGOs) and local governments, could make money and do good for the larger cause by tapping this underserved market. It has been the belief of many that BOP consumers are typically characterised by several unmet needs, it could range from food, sanitation, transport, communication, and connectivity. It is also interesting to note that in several BOP markets where are overlapping needs not necessarily following the need hierarchy. Information and communication technology businesses have been able to occupy a larger share of the BOP consumers wallet than even basic needs such as sanitation or electricity. What then prompts these consumers and how can businesses reach out to these segments in a phased successful manner. This paper develops the concept, postulates, explanations, theoretical model, and business case based

proof on Cockroach Theory of Organizational sustainability and scalability by considering BOP business companies performance evidence.

Keywords: Bottom of the pyramid (BOP), Survival, Sustenance, Cockroach theory.

1. Introduction

‘Sustainability’, a simple definition of the term would fetch the meaning as, “the ability to be maintained at a certain rate or level. In the last decade, the word has attained higher usage due to the increased importance individuals, firms, large corporations, governments, global economies are placing on the orientation of all activities aimed to enhance current and future potential of society, it can be termed as a process predominantly characterized by the pursuit of an ideal. Today, aiming at sustainable development has become a need in the light of depleting resources, environmental degradation, and a uniform human ecosystem creation. The environment, society, and economy have been considered to be the cornerstones of any discussion on sustainability. More conclusively, as per some thinkers sustainability implies responsible and proactive decision-making. As the term itself can be read as - sustain-ability, it calls for ideas, thoughts, strategies, focus around sustenance. For our discussion on doing businesses successfully in the base of the pyramid, markets sustainability is based on the premise of being able to continue to serve the low income markets and emerging markets. Especially for many companies which are flourishing financially through continued commercial success may overtime be unsustainable. Even though they might make laudable efforts to venture into virgin terrains like the low income markets, only reducing serving sizes or using renewable energy sources or green product engineering may not ensure their commercial success. It is essential then to understand what drives sustainability.

Every organization wants to scale fast and grow rapidly, at the same time it is imperative that the business creates sustainable value not only for the establishments in concern but also for the society at large. The quest for wealth by serving the base of the pyramid markets was brought into focus when management thinkers C K Prahalad and S L Hart wrote about the proposition almost two decades back. Since then, many multinationals and large domestic corporations have seen profitable opportunities in serving the world’s largest market of more than four billion population. This segment has been largely ignored or overlooked because of the large presence of the informal unorganized sector in this market [1-4]. Hence it is surmounted by issues such as lack of knowledge, poor literacy, unattractive income levels, and tightly bound closed door communities. These bottlenecks make the entry and operational issues seem more difficult. Building sustainable and scalable businesses in unknown volatile terrains are not easy and there are bound to be a lot of learning’s involved. Over a period of

time, these learning have been studied and certain best practices have been identified to enter and thrive in certain markets and uncertain terrains.

Introduction about BOP - The bottom of the pyramid (BOP) approach as propounded by C.K. Prahalad and Stuart L. Hart in 'The Fortune at the Bottom of the Pyramid' (2002) [2] used the 4-tiered pyramid to represent the global distribution of wealth and the capacity to generate income. Right at the top of the world economic pyramid are 75 to 100 million affluent Tier I consumers from around the world [7, 8]. This is a cosmopolitan group composed of middle- and upper-income people in developed countries and the few rich elites from the developing world. In the middle of the pyramid, in Tiers 2 and 3, are poor customers in developed nations and the rising middle classes in developing countries, the targets of MNCs' past emerging-market strategies. They categorized 4 billion people in Tier 4 i.e. at the bottom of the pyramid. Their annual per capita income based on purchasing power parity in U.S. dollars is less than \$1,500, the minimum considered necessary to sustain a decent life. For well over a billion people roughly one-sixth of humanity per capita income is less than \$1 per day [6, 14].

As per World Bank projections, the population at the bottom of the pyramid could swell to more than 6 billion people over the next 40 years, this is due to the fact that the bulk of the world's population growth occurs there. Most Tier 4 people live in rural villages, or urban slums and shantytowns, and they usually do not hold legal title or deed to their assets (e.g., dwellings, farms, businesses).

Table 1 - The World Economic Pyramid

Annual Per Capita Income*	Tiers	Population in Millions
More Than \$20,000	1	75-100
\$1,500-\$20,000	2 & 3	1,500-1,750
Less Than \$1,500	4	4,000

* Based on purchasing power parity in U.S.\$

Source: U.N. World Development Reports (Adapted from Prahalad & Hart, 2002 [3])

Most people who earn less than \$2 per a day are categorized as Tier 4, and live mostly in the under developed countries, here they dwell in rural villages and shanty towns. Prahalad and Hart were of the opinion that the private sector and specifically large multinationals participation in this sector was central to transforming the poor into consumers. They argue

that multinationals by serving this bottom of the pyramid segment would not only contribute towards global poverty eradication but can create employment opportunities in local markets while generating profits for themselves in a multitrillion dollar market segment. It is estimated that the BOP population in most of the countries are not integrated into the global market economy and generally do not stand to benefit from it. The World Resources Institute figures estimate that close to one billion of this population have incomes of less than \$ 1 per day (in local purchasing power) irrespective of the country [3]. Integrating this population into the global market economy cannot be left to the task of aid agencies and the governments. Hence it is imperative that companies embrace this segment in a strategized manner as a formal market for their goods and services.

Business opportunities to serve BOP sector - Low income is not no income. The base of the pyramid markets was ignored for a large part of the 21st century by global corporations while looking at opportunities to expand market outside of their home turf. Interestingly while a majority of the global population lives outside of the west, corporations had been looking at creamy layers of the consumers in developing countries such as Asia, Africa, and South America and so on. While there were efforts to scale and sustain in developing countries they tended to focus only on the higher income category of consumers, since the masses were low income and they are typically characterized by living a sustenance livelihood. This meant that the little income was primarily meant for addressing the basic needs [1-5]. Organizations were not looking at an opportunity to fulfill these basic needs itself by scaling their operations and looking at diverse strategies. The traditional approach to ‘serving base of pyramid markets’ was from a charity and public aid perspective. The population in this segment was deemed to be too poor to help themselves and external agencies thus had to provide relief measures as a public good service. As a result, the efforts was directed towards providing necessities such as basic healthcare, access to clean water and other basic necessities such as sanitation.

In the aftermath of the proposition by Prahalad and Hart, the traditional approach paved the way for a more business oriented market based approach – this was built on the premise that even the poorest of the poor had an income or could trade labour. The focus was on people as consumers or producers and not just mere beneficiaries’. Many multinationals and large corporations understood this approach and built strategies focused on making these low income consumer markets competitive, inclusive and efficient. The major successes in a market approach to the BOP community can be seen from major sectors in India – FMCG, financial services and ICT. While predominantly most market based BOP entries start by focusing on basic needs such as water, healthcare and other basic needs, it has to be understood that BOP consumers also have the same needs of food, clothing, and transportation. The World Resources Institute had undertaken an exhaustive research based on income data from 110 countries, into BOP market size and components of the consumer basket and it has been found that by and large the most significant share of the expense pie is

taken up by food, followed by energy, housing, transportation, healthcare information and communication technologies (ICT) and other needs.[1,18] Some of the successful companies who have made great inroads into emerging markets are Unilever, the India subsidiary of the multinational- Hindustan Unilever Limited has seen phenomenal scale and growth by being BOP focused and co partnering with the local communities as business drivers with income earning opportunities. Another domestic FMCG giant in India, Nirma which predominantly sells detergents and washing cakes in rural and BOP sectors has been a pioneer which in fact inspired many FMCG multinationals to realize the potential of the BOP segment in India. ITC Ltd was started in 1910 (as Imperial Tobacco Company India Limited and went on to become ITC Ltd after they diversified into FMCG, Hotel industry, Information Technology) and the core business was cigarette manufacturing. In the last five decades ITC has diversified to be one of the top five players in the FMCG sector in India. ITC is also one of the earliest companies to partner with local farmers and people from the BOP communities to co create products, they used innovative ‘choupals’, which was informal gatherings of villagers from surrounding locations where they could meet and discuss issues pertaining their occupations. ITC provided kiosks which would give details on agricultural crops, rainfall forecasts, and advice on crops to be grown, eliminating middlemen and making the crop selling process easier, going forward ITC used the services of these communities of predominantly agrarian population to grow oils seeds which would be bought back by ITC for its edible oil business. When farmers became members of these choupals ITC took care to ensure that they provided warehouses for storage, and there was complete transparency and immediate payments made to farmers which made their lives easier especially the small farmers who were looted by middlemen earlier. ITC eventually created hyper marts (included all products right from a matchbox to a motorbike) in certain large villages which ensured that their products were well accepted and the community and company were in a win – win arrangement.

The second most well accepted and adopted product for the BOP in India is financial services. While we need to remember that the BOP segment is characterized by an informal economy where a major portion of the transactions are cash based, most consumers are without any identity documents and lack of banking habits. However, microfinance institutions have been very successful in getting a firm foot on the ground as far as small finances are concerned. Firms started as back as 1997 SKS Microfinance (now Bharath Financial Inclusion Limited, BFIL), Share Microfinance Limited (1998), Shri Kshetra Dharmashthala Rural Development Project (1991) all usually have a member contingent as large as 20,000 to 30,000 spread across more than 500 branches across India, they have been very aggressive in small lending to low income population especially those who could not approach banks and were being exploited by local money lenders. Even multinationals like HUL, P&G etc tied up with some microfinance institutions to provide finance to their community salespersons and partner to sell their products. The third major segment is Information and Communication Technology (ICT). Pioneers such as Airtel, Reliance Communications and recently Reliance Telecom

have focussed at the BOP segment. Reliance Communications launched in 2003-04 their ambitious CDMA handsets at a mere INR 500 through which they were able to capture the low income market in a span of two months. Especially in the BOP communities in Indian and many other countries, it has been seen that as per statistics that ICT penetration and acceptability is very high. Most companies like Celtel in Africa and Reliance Communication earlier and Reliance Telecom recently, in India have succeeded by creating hybrid products for the segment, franchise agents, and small credit facilities. They have seen success and scale by involving buyers as sellers in all of the product suites.

2. Objectives

- (1) To study the successful strategies used by companies who have been able to make companies advance inroads into BOP markets.
- (2) To develop a theory to create a roadmap of time tested strategies for other companies on factors that need to be practiced to create sustainable and scalable growth.

3. Background to the Proposal

The Cockroach theory (named after Cockroach – an insect synonymous with indestructible features that enable sustainability and growth) has been attributed to certain features of the cockroach that can be compared to be the key factors for sustainable and scalable growth in BOP markets, these are as follows [14] -

- (1) Cockroaches have Feelers** – these enable them to feel and smell, being highly alert and sensing any situation that could be a danger or threat.
- (2) Molting** – Cockroaches have the amazing capability to molt and regrow a lost limb. In many situations heavy losses may occur to business, strategies may incur high costs with no profits, operations, and businesses should have the tenacity to bear the loss and regrow lost opportunities. In dull phases, they will stay discreet and reappear with renewed ideas and strategies [14].
- (3) Sustainability** - An amazing feature is that a headless cockroach can live for several days because it breathes through its sides, not through nose or mouth. Business especially those embarking or having embarked to BOP segments and emerging economies will suffer a severe paucity of information. Even firms that have done years of ground research have failed miserably at times. Businesses need to sustain through the tough times because primary and secondary data cannot compensate for on the ground experience at a larger scale.

(4) It has 3 pairs of legs – Almost all creatures of the insect family have three pairs of legs, every business has an open opportunity to tap the largest consumer base in the world. They can move over any territory or terrain but like the cockroach which is characterized by the fact that groups of cockroaches make collective decisions, similarly, businesses have to use their collective information and take strategic decisions. The stakeholders, management, directors, administrative body, operational staff, everybody has to be involved right from top to bottom and a cohesive model that embarks being in the community as a part of it since a long time. Every move needs to be incorporated into a collaborative interdependence, like how cockroaches always live cohesively in groups only. Creating interdependence right at the lowest link of the value chain is critical for boosting margins and enhancing customer conversion. This, in turn, ensures that BOP consumers will feel a sense of ownership in business development with community co-creation.

(5) Indestructibility - These creatures are blessed with a tough exoskeleton making them seemingly indestructible. Multinationals or large domestic corporations that venture to serve BOP markets need to be armoured with a tough skin. New markets and new terrains are not for the weak in any internal resource. A lot of investment and gestation is needed to start generating wealth in these markets. Certain strategies may create initial buzz and provide returns to distributors or break even profits but to sustain and scale the business constant reinventing and rethinking strategies are needed which may also fail at certain times [14].

(6) Cockroaches are Omnivores – They will eat almost anything to survive. For building large scales of businesses in emerging economies especially in the BOP sectors, the important factor is to be able to digest all shortcomings that can come along the way and use these as food to sustain. Organizations need to have a keen understanding and be prepared at all times for strategic changes because the BOP markets are not homogenous. In a country like India, there is great heterogeneity, shaping strategies suiting to the surroundings and then adapting it to the local conditions.

(7) Scalability - Cockroaches fit into extremely small spaces. It is very important like the cockroach to be as discreet as possible in a way that the communities perceive these businesses, people, and offerings as one of their own. They outlive humans even in the event of a full scale nuclear war; this is probably the biggest challenge to scale to a great extent. It is not possible to do so with one gigantic decision, it is a community we are talking about, the strategies itself should slowly grow out discreetly from one success to the next, the strategy that any successful multinational or corporation has not come put a single step, several successful experiments have led to small success that have been built upon to scale businesses. All along the way, there has been a constant exercise of creating a sustainable business by creating products, strategies, and practices that have the ability to provide an opportunity to the BOP consumer to increase his quality of life.

4. Postulates

- (1) Serving the world poorest need not be termed as an exercise in charity.
- (2) Innovation is the key for reaching out to unventured markets.
- (3) Consumers in BOP look for opportunities within their means to improve their quality of life.
- (4) Companies have to enable access to consumers.
- (5) Localized Value creation is critical.
- (6) BOP consumers have traditionally been burdened by a BOP penalty.
- (7) Need fulfilment of BOP consumers need not necessarily follow a need hierarchy.
- (8) Sustainable value creation can only be successful through unconventional partnerships.
- (9) BOP markets are characterized by a dead capital.
- (10) Significant portion of BOP income comes from activities and sources which are only indirectly reflected in national income statistics.

5. Explanation of Postulates

- (1) Serving the world poorest need not be termed as an exercise in charity - a couple of decades back, the general assumption by most corporations that serving or doing business in the low income markets profitably was not possible. They would either approach these markets via their charitable foundations or it was considered to be the task of aid agencies and local governments. It was after the 2002 paper by Prahalad and Hart that served as an eye opener and showed ample cases and opportunities to make profits in these markets.
- (2) BOP consumers have traditionally been burdened by a BOP penalty - BOP markets are characterized by low incomes and lack of products and services. Most of the times, these products and services are sold by local traders and vendors at exorbitant prices. There high prices, low quality of products or no products available at all. For instance, loans offered by local money lenders at exorbitant interest rates, a local trader would be seen selling adulterated loosely packed tea powder at a much higher price than what a giant FMCG could provide.
- (3) BOP markets are characterized by a 'dead capital' - BOP consumers are owners of informal properties and businesses, they usually may not have legal title to the place, they might be operating out of makeshift outlets which accounts for 'dead capital'. If systems are

made more functional to serve this usually illiterate, category this dead capital could be accounted for in the nation's assets.

(4) Significant portion of BOP income comes from activities and sources which are only indirectly reflected in national income statistics – as the primary occupation as studied by various research organizations reveals the base of pyramid consumers are in most cases in an informal cash based economy, they earn a livelihood out of odd jobs as daily wage earners, house maids, cleaners etc. They do not possess any banking facilities and since this economy is predominantly cash based the BOP incomes are not directly reflected in the GDP of a nation.

(5) Innovation is the key for reaching out to unventured markets - There have been many failures by companies in reaching out and doing businesses in these markets successfully, but what is key is innovative out of the box strategies and practices that bear result.

(6) Consumers in BOP look for opportunities within their means to improve their quality of life – BOP consumers are not sitting ducks for multinationals and large domestic players, though there is lack of education and information sources, they make careful decisions. If there is a gain for them they would opt to purchase that product or service, BOP consumers are not impulsive decision makers.

(7) Companies have to enable access to consumers – BOP markets are characterized by lack of access it could be basic needs, infrastructure, communication, good quality products and services sometimes created by companies not wanting to venture to these territories.

(8) Localized Value creation is critical - it is very essential that BOP consumers see a value in the products and services offered to them. They have limited means and the opportunity cost of acquiring various goods is influenced markedly by value creation and their involvement in the creation process or some economic gains from the same.

(9) Need fulfilment of BOP consumers need not necessarily follow a need hierarchy – BOP consumers need not necessarily be driven by the need hierarchy in that order little income obviously means there is some limited means to acquire sources of need and want. In BOP communities in Asia, and Africa it has been seen that even though certain lower order needs may be unsatisfied, BOP consumers spend on quality education for their children, jewellery for marriage and such other higher order more pressing needs within their circumstances of culture and society.

(10) Sustainable value creation can only be successful through unconventional partnerships - Since BOP consumers attempt to see a value creation and are looking for opportunities to improve their quality of life, co-creation strategies and partnerships with BOP community can help make inroads to untapped and underserved communities.

6. Theoretical Model :

To sustain and grow in BOP markets in emerging economies some of the key success factors [14] are listed below-

1. Community benefit Model - Any market entry mode in today's circumstances has to be an adaptive model where there is peaceful co-existence for the community and the corporation. The business has to create value for the community and improve the standard and quality of life for the people of the BOP market. It could be the most simplest product or the most complex technology oriented product but if there is no community involvement in the creation exercise or benefits that arise to the communities at large it is bound to fail or will only be a short lived phenomena.

2. Collaborative Value Partnerships - For multinationals that enter low income markets with diverse products and technologies to suit the market needs a big risk arises because of unenforceable legal mechanisms to protect their internal resources and capabilities such as patents, brands and contracts. At this juncture the sustainable model would be to enter into collaborative partnerships with local firma or domestic players. This will give them the advantage of ease of adoption to domestic legalities and enforceable legal contracts to protect copyright and knowledge transfers that may be required. These partnerships should create value for both the parties involved; there have been cases where too heavy dependence on local partners expertise has failed business growth [1, 14]. The expertise of local partners has to be sought for building social infrastructure and local legitimacy.

3. Leverage on global strengths – While partnering locally and co-creation are the key success elements, they have to be worked along with leveraging on global expertise that the multinational or large corporations have built over the years. Certain best practices that have been tried and tested over the years can be adapted to suit local conditions and strength drawn out of this global expertise [14]. But in many cases where firms have relied on existing technology, products, partners, distribution models can call for doom. This expertise necessarily needs to be adapted to local conditions with involvement of local community and this model has to have a long term strategy to give scale to the operations. In many cases, initial successes have created internal cannibalization of distribution models and local communities have been negatively affected by this move, any strategy adopted has to be scalable in the same manner with local involvement.

4. Local Resource Sharing- Most BOP markets have non-governmental organizations and aided insinuations' trying to create fabrics of support for local communities and this fabric is upset by multinationals when they enter these markets. They need to make discreet movements so as not to upset the existing coexistence but incorporate themselves silently into this market. Local resources and capabilities have to be built by sharing resources and knowledge. These markets are characterized by social contracts, shared users of various assets and informal rules hence corporations need to focus on building inclusiveness and sharing of critical resources be it knowledge, know how, socio cultural systems and subsystems.

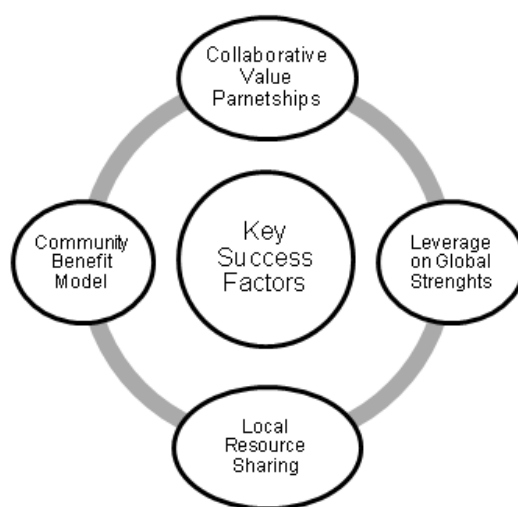


Fig 1: Key Success Factors for sustainable and scalable growth in BOP Markets [14]

Most of the thinkers on sustainable businesses or on base of the pyramid markets theorists also have propounded scalability and building sustainable businesses in base of the pyramid requires innovative strategies that focus on sustainable environmentally and community friendly value chain creations that elucidate capability generation over time and in a sustained manner. Socially embeddedness is what will drive deep rooted business growth and sustenance.

In the “The Cockroach Theory” or the “Theory of Sustainable & Scalable growth” we have drawn a parallel between the cockroach and organization efforts to sustain and scale in BOP markets for the simple reason that scalability requires time and cockroach have been in

existence as far back as 320 million years, and they have been able to outlive humans even in nuclear wars, they are creatures that have been aggressively adapting to the surroundings around them and can survive even in extremes of weather. Sustainability requires adaptability; this quality enables them to find ways to survive in most environments. Though they have not been endowed with any special feature, they have been able to survive very discreetly over long periods of time. Companies have to be keen to co-exist and adapt to circumstances' if they have to survive in economically backward developing countries or emerging markets where the obvious attractiveness might be low [14]. They have to constantly gauge the situation around them and react to these changes, strategize in groups and take collective decisions. The most important aspect, especially for our discussion on BOP segments in emerging markets is the critical criteria of success being co-existence [1-6]. Multinationals and corporations have been able to succeed only when they have realized the need to co-create and co-exist with the community and this has given them scalable sustainable growth and acceptance in these markets [12-13].

7. Applicability

There are several case studies [9-11] of corporations that have been successfully sustained their businesses in the BOP sector by embracing innovative partnership strategies, co-partnering.

1. HUL – By co-partnering innovatively with community members, through the wide spread Shakti Project, HUL was able to enter right into the BOP heartlands of the Indian markets. HUL was able to counter two objectives simultaneously, one was widespread acceptability since they were using people from within the same communities as sales persons and two, a value creation which was perceivable by the community. Company officers lived in these villages to understand the lives of the people they would be selling to. By partnering with HUL to sell its products or grow produce which would be bought back all led to economic well being and an enhanced value creation for the BOP communities. It ensured that the strategy was scalable and sustainable, of course, HUL had to devise newer ways of ensuring that they could scale the Shakti model without affecting their distribution network negatively.

2. SELCO - A bright light in the dim world of the BOP world, is SELCO, which is an Indian based company founded in 1995 by Dr. Harish Hande, having started with a negligible capital they have managed to light up more than 100,000 rural homes and institutions. The task was very difficult since the rural poor were not in a position to pay the annual maintenance charges. Then SELCO relentlessly worked trying to get financial assistance to the rural poor for buying this solar lighting. For success in this business it requires continued adaptation and constant lookout for opportunities because same strategies may not be viable in another State. For SELCO, their tie ups with Grameen Bank in one state of India meant

success only there. Going forward to another State was a new task altogether requiring new tie ups and new ideas.

3. D- Lite - Another successful world leader, operating in 62 countries in solar lighting business, founded by Sam Goldman and Ned Tozun in 2006, has impacted over 83 million lives so far. It has seen success in countries like India by its strategic partnerships with local microfinance companies and using local community for sales. And they have adapted to local market conditions and requirements.

4. ITC - ITC become a formidable top five in the FMCG industry in India by being one of the earliest companies to co-partner with farmers to grow oil seeds for its edible oil manufacturing unit. Setting up their own hyper mart stores and providing kiosks for farmers, storage facilitates to store their produce and subsequent purchase and timely well researched information relating to agriculture etc were part of strategies to build collaborative relationships.

5. Godrej - Godrej is a diversified businesses company of more than 100 years like ITC, and are leaders in safety lock and metal high gauge cupboard businesses. In 2013, led by the company Vice President of corporate development ventured into disruptive innovation after the first launch of an inexpensive, thermoelectric refrigeration device was unsuccessful. The team was able to unlearn and discovery product innovations and partnerships that were critical for success and Godrej 'Chotukool' was able to capture the low income market which so far had a void in the refrigeration space. These are products that are predominantly not considered necessary for the BOP but if created right and sold using the right strategies they will create a vast new market.

8. Limitations:

The limitations of this study would be a time constraint and certain BOP markets that have seen failures of certain co-partnering, value creation studies. The failures may have been to a variety of causes inherent to the company, its decisions or strategies to give up certain ventures entirely after initial failures. While we discuss sustainability, the sustenance cannot come with any one single way of doing things. Sustainability is a cohesive decision making exercise that comes after a period of initial bottlenecks and failures for any organization or individual.

9. Comparison with Other Theories

(1) With Theory of Firm - The earliest theory of the firm was founded in neoclassical economics that states that firms exist and make decisions to make profits. The business of any given entity is said to be driven by profit maximization motive. Dictated by a market

economy, profit maximization was considered a rational approach for any firm in business. Going forward there were several economists who developed that theory to include transaction costs, giving due property rights, assignment of ownership and management and its affects. While the theory of the firm and modern takes on the theory of the firms sometimes distinguish amongst long term goals such as sustainability and short run goals such as profit maximization. The other theories of the firm, rested on the optimization concept. Baumol suggested managers maximize sales revenue and Marris suggested maximization of growth. In their book, A Behavioral Theory of the Firm (1963) Cyert and March [19] have studied that bureaucratic structure of the firm and the nature of interrelationships of its various parts. They postulate that the form in most cases will be pursuing five goals - production goal, inventory goal, sales goal, market share goal and profit goal. It postulates these goal maximizations [17].

These earlier theories have looked at a firm and its rationale from a predominantly economic perspective. But, as Prahalad and Hart had advocated, there is a vast population at the base of the pyramid which most corporations will tend to ignore if the opportunity is not shown in the light of the ability to gain a larger market share albeit with a longer gestation period. Hence the need for a theory which focuses primarily on what forms can do and need to do to succeed and sustain in BOP markets.

(2) With Complex theory of Sustainability – It has its foundations in systems theory [15-16], cybernetics, theory of autopoiesis, computational genetic algorithms, dissipative self-organization, deterministic chaos theory and fractals — complexity theory [17] originated towards the end of the twentieth century in the aftermath of the recognition by groups of scientists that certain systems were dynamic, complex and far from equilibrium. These systems came to be known as complex systems. In complex systems, there are several dynamically interacting parts, wherein the macro-level patterns of behaviour emerge from micro-level interactions of parts or agents. It was considered that, complex systems were intelligent and capable of adapting to their environment hence they were termed as complex adaptive systems. Characteristic properties common to complex adaptive systems include the presence of simple agents following simple rules relative to the whole system — networks of agents acting with individual knowledge capacities and behavioural rules at micro levels result in outcomes that demonstrate higher coordination and collective intelligence than the sum of individual knowledge at macro levels [17]. However, the world is very complex and a difficult to understand set of systems and subsystems exist within each diverse concept, these complexities could be in the form of social sciences, economic patterns, cultural dynamism, while there are various dimensions to sustainable development today, poverty, terrorism and a deeper understanding of the complex dynamics of the human environment system within which businesses exist. The theories are lacking in the understanding that exists in building

interconnectedness, interdependence and embeddedness at all levels of businesses and it can be improved only by focusing on human wellness.

10. Conclusion

Consumers everywhere are driven by their needs, in certain cases such as the BOP markets it could be just basic needs or overlapping needs, they are looking for products and services that can fulfill their needs while improving the quality of their lives, at prices they perceive affordable. As has been evidenced by several case studies on companies operating in BOP markets, affordable offerings through localized collaborative value partnerships providing socio economic progress will herald success for organizations. Thus in this Cockroach theory of organizational sustainability and scalability, like cockroach, business organizations should be highly alert and sense any situation that could be a danger or threat for survival, should have the tenacity to bear the loss and regrow lost opportunities, need to sustain through the tough times, have an open opportunity to tap the largest consumer base in the world, venture to serve BOP markets need to be armoured with a tough skin, for building large scales of businesses in emerging economies especially in the BOP sectors by digesting all shortcomings that can come along the way and use these as food to sustain, and to be as discreet as possible in a way that the communities perceive these businesses, people and offerings as one of their own by serving the BOP sector. Sustainability and scale is built around providing the best within available resources while making arrangements to provide continued value in the future as well.

References

- [1] Prahalad, C. K., & Hart, S. L. (1999). Strategies for the bottom of the pyramid: creating sustainable development. Ann Arbor, 1001, 48109.
- [2] Prahalad, C. K. and Lieberthal, K. (1998) 'The end of corporate imperialism', Harvard Business Review, 76(4), 68-79.
- [3] Prahalad, C. K., & Hart, S. L. (2002). The Fortune at the Bottom of the Pyramid. *Fortune + Business*, Issue 26, pp. 4, <https://people.eecs.berkeley.edu/~brewer/ict4b/Fortune-BoP.pdf> Referred on 10th June, 2018.
- [4] Simanis, E. (2011). Needs, needs, everywhere, but not a BoP market to tap. Next generation business strategies for the base of the pyramid, 103-126.
- [5] Prahalad, C. K. (2006). The Fortune at the Bottom of the Pyramid. Pearson Education India.
- [6] Prahalad, C. K., & Hammond, A. (2002). Serving the world's poor, profitably. Harvard business review, 80(9), 48-59.

- [7] Prahalad, C. K., & Ramaswamy, V. (2004). The future of competition: Co-creating unique value with customers. Harvard Business Press.
- [8] London, T., & Hart, S. L. (2004). Reinventing strategies for emerging markets: beyond the transnational model. *Journal of international business studies*, 35(5), 350-370.
- [9] Keerthan, R. & Aithal, P. S. (2017). A 'Desi' Multinational – A Case Study of Hindustan Unilever Limited. *International Journal of Case Studies in Business, IT and Education (IJCSBE)*, 2(1),1-12. DOI: <http://dx.doi.org/10.5281/zenodo.1147365>.
- [10] Aithal, P. S. (2017). An Effective Method of Developing Business Case Studies based on Company Analysis, *International Journal of Engineering Research and Modern Education (IJERME)*, 2(1), 16-27. DOI: <http://dx.doi.org/10.5281/ZENODO.400579>.
- [11] Aithal, P. S., (2017). ABCD Analysis as Research Methodology in Company Case Studies. *International Journal of Management, Technology, and Social Sciences (IJMTS)*, 2(2), 40-54. DOI: <http://dx.doi.org/10.5281/zenodo.891621>
- [12] Raj, Keerthan and Aithal, P. S., Literature Review of Impact of Branding on Base of the Pyramid Markets with Special Reference to India (March 6, 2018). *International Journal of Applied Engineering and Management Letters (IJAEML)*, 2(1), 43- 63. DOI: <http://dx.doi.org/10.5281/zenodo.1189047>.
- [13] Raj, Keerthan and Aithal, P. S., (2018). Generating Wealth at the Base of the Pyramid – a Study Using ABCD Analysis Technique. *International Journal of Computational Research and Development (IJCRD)*, 3(1), 68-76. DOI : <http://doi.org/10.5281/zenodo.1205586>.
- [14] Raj, Keerthan & Aithal, P. S. (2018). The Cockroach Theory for Sustainable and Scalable Organizational and Individual Growth. *International Journal of Advanced Trends in Engineering and Technology*, 3(1), 146-149. DOI : <http://doi.org/10.5281/zenodo.1237899>.
- [15] Aithal, P. S. (2015). Concept of Ideal Business & Its Realization Using E-Business Model. *International Journal of Science and Research (IJSR)*, 4(3), 1267 - 1274, DOI : <http://doi.org/10.5281/zenodo.61648>.
- [16] Aithal, P. S. (2015). Mobile Business as an Optimum Model for Ideal Business. *International Journal of Management, IT and Engineering (IJMIE)*, 5(7), 146-159. DOI : <http://doi.org/10.5281/zenodo.163880>.
- [17] Norberg, J & Cumming, Graeme. (2008). Complexity theory for a sustainable future: conclusions and outlook. *Complexity theory for a sustainable future*. 227-293.
- [18] <http://www.wri.org/publication/next-4-billion/> accessed on May 16, 2018.
- [19] Cyert, R. M., & March, J. G. (1963). A behavioral theory of the firm. *Englewood Cliffs, NJ*, 2, 169-187.

An Introducing “Cap Concept” in a Class Room Learning for the Students to Achieve Success

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Abstract

Unchanged Indian education system has blocked student’s interest in active learning in the classroom. All the time and all the ways students are demotivated, distracted and pressurized. Teaching in the class room made the teachers get limited for completion of the portion and also the modern educational institutions are wordless in beyond classroom teaching. Corporal punishments, exams and home works are only become the methods to measure the children. It made all the way children feel helpless, hopeless and worthless. In the classroom students are only expected to be silent and pay attention towards continues sessions. The other hand teachers have no way to pay little time to make children get motivated and active. However unless we create a positive and motivational environment in the classroom no use whatever we teach, only we can complete the portion not inculcating values of concept we teach. The main aim of this study is to implement the cap concept which creates attention of the students towards positive change in their behaviour, concentration in the class, developed confidence, motivated towards social involvement and many more. Cap concept is nothing but awarding an attractive cap to a student in the classroom for the appreciation of a small positive work that he or she has done. The student awarded cap will wear it and sit in the particular session. It influences the student to feel proud by the identity and claps given by the classmates. The particular student will also will start liking and accepting the particular teacher and their guidance. The activity is conducted for 50 high school students; 25 girls and 25 boys. Interview schedule, primary and secondary methods are used and the study is descriptive in nature.

Keywords: Students, Teachers, Behaviour, Adolescents, School and Motivation.

INTRODUCTION

According to 2011 census the population of India is 1.21 billion. 315 million of this population is below the age of 20 years. This young population is getting nurtured in the schools, colleges and other educational institutions. Learning is a major aspect of this young population where mankind get civilized. Article 45 of the Indian constitution states that, “The state shall strive to provide free and compulsory education to all citizens up to the age of 14.” But the thing is that whether the students are encouraged towards inculcation of knowledge in the learning environment. This young population is really influenced by the modern education system and teachers. Whether classrooms are the places to produce future personalities in to the society? Is teacher and student relationship is well maintained for better understanding and sharing knowledge. Or student is well supported mentally and socially in his response towards classroom behaviour. If we think towards today’s education system it gives us an unbelievable truth. One student suicide per hour in India and it has highest suicide rate in the world, these all due to the collapse of confidence, lack of support, motivation and academic pressure in students. Cap concept will try to support the students isolated by the society in identification of his real potential and create a healthy nurturing in the classroom teaching.

CLASS ROOM BEHAVIOUR OF THE STUDENTS

Unchanged and modernized education system made students to be the failures to adopt social values. They lack to understand the behaviour concept according to the social aspects and its differences. Students are made to develop complicated in thinking, work and response. Exams are playing major roles behind students in making them often fall in to depression, stress and some time to the suicidal thinking. Corporal punishments in the class room, discrimination on the basis of marks, gender and cast, religion, economic and family background of the students are also influencing the students to get negative behaviour in the classroom or fall in to hopelessness, helplessness and worthlessness. Students in the classroom with certain behavioural problems like identity seeking, arrogance, bullying, lying and irrespective. Being destructive, some time making noise to disturb the class, pinching others, laughing, looking through window is the common behaviour of the students in the classroom.

CAUSES BEHIND BEHAVIOUR PROBLEMS

There are various causes for behaviour problems. The result of the survey shows that the 30% of young students population expressed several behavioural problems. Behavioural change in students is much more significant than their academic problems. Behaviour will always divert the teacher’s attention towards particular student. Sometime it pulls down the positive thinking of the student or creates social isolation. Student discouraged, de motivated or negatively treated will get adopted some unacceptable attitudes such as increased anger,

hyper activity, being irrespective, being arrogant, bullying, lying, distractive behavior, inappropriate dressing, negative attitude towards subjects & teachers. In some cases students involve in antisocial activities such as drug or substance abuse robbery, physical harm etc. suicide and suicidal attempts are also toady challenging social problems. On the other hand there are several causes behind such behavioural problems in students.

Case study 1: Kiran (name changed) studying in class IX was disciplined & good at study. A day before mathematics exam he got emotionally disturbed by some family issue. So that he was not able to perform better in the exam & failed. His mathematics teacher had lot of expectation & hope on him but by seeing his result teacher got angry and blasted at him in the classroom in front of all his classmates, as she was ignore about the problem. This had made impact on the behaviour of Kiran and he started disliking that teacher and her subject. Kiran also started miss behaving in the class by disturbing the class day by day. In the time of three weeks Kiran was awarded cap for 5 times which cause positive change in his behaviour. He could obsolete come out of emotional problems and perform better in mathematics.

Case study 2: Hema (name changed) from class VIII since three years she is studying in an educational institution. She is a girl who always helps others, share & care others very good in her academics too. But her shy nature never made her utilize any opportunity. By seeing her friend's participation & achievement in extracurricular activities she started feeling guilty considering herself as useless. The class teacher awarded cap for Hema in the duration of 3 weeks for 7 times. Hema was so happy and motivated to come forward, expressed her interest in activities and learning. The case studies are specifically highlighting that the child in the classroom with several emotional, social & psychological problems can be treated by the 'Cap Concept' to encourage & give an identity to the particular student to influence towards positive change.

CLASSROOM TEACHING

Teachers in the classroom will expect students to be silent and attentive towards teaching. But when some student will not meet her or his expectation or set of principles in the classroom they change in their approach towards those particular students. Such changed approaches includes corporal punishments, being partial, demotivate the student etc. Balancing the different learning needs of students is very difficult and challenging too. Every student who walks through the system of education is different. Respecting expectations from school admits, Helping parents and students meet long-term goals. As a teacher is important to be flexible in rearranging plans and having backups for when school-wide activities might disrupt your normal routine. "I usually have my week planned out ahead of time. Good communication and good planning can help to ensure that students are getting the full educational and social experience of school. Many of my students don't understand the value of education because they have never seen the benefits education can offer them. I talk to

them about their futures and their goals, guiding them through their education route if they want to become a doctor or a lawyer or a teacher. I have guest speakers come into my class so that students can see what kind of careers are available and what type of education they need to be successful in those careers”. Students are one of the most vulnerable groups of people who could be prone to mental health issues. According to a study, around 37% college students in India are suffering from depression or some form of mental illness. India also has one of the highest student suicide rates in the world, and on an average, one student commits suicide every hour, according to the data presented by the National Crime Records Bureau (NCRB)

CHALLENGES IN TEACHING THE STUDENTS WITH BEHAVIOURAL PROBLEMS

It is really a challenge to the teachers to influence the students towards their subjects, make them stay in attention, well understanding and motivated. Today’s social aspects made students get often distracted and sudden change in their behaviour. Students are really critical to predict and understand. There are no ways left to the teachers to reach out the unique behaviour of the students.

Case study 1: I am a teacher of class X, since 13 years I am in this profession. I have a student who is critical to predict and tough to understand. His father is an owner of a bar and mother housewife. Financially rich but not educates. The student is also given bike to come for school. He will form group of the students, makes party in the school campus and spend lot of money. If we object, his father makes it as an issue and brings public in to the school. This is influencing the child to think anti institutional and considering himself that he can do anything in the school premises. *Case study 2:* A girl of class VIII with lot of fear and lack of confidence. From the time she enters to the classroom to the time she leaves, there will be no response towards teachers. If anyone asks about her problem she starts tearing. Social, emotional and psychological problems of the children are major reason on their scholastic backwardness. It is a challenge to the teachers to deal with such students who appear with such problems. Sometime family problems such as illiteracy, financial issues, relationship breakup, husband and wife conflicts, blind beliefs in the family, single parenting or working parents, family migration will also play the major role in influencing children’s classroom behaviour. Such students express lost hope, confidence, concentration, discipline, and humanity in the class which is a challenge to the teachers to control, change or modify it.

CAP CONCEPT

The “Cap concept” is one of the effective tools in bringing significant changes in student’s behaviour inside the classroom. It is also a therapeutic approach which motivates and encourages the students to get adopted positive behaviour and improved academic and extracurricular performance. It will also increase the confidence level in the students to step

forward in to extracurricular activities. Cap concept is nothing then awarding an attractive cap to a particular student in the classroom by identifying his or her positive work done in the school. Mainly this concept is to influence the students who with lack of confidence, scholastic backwardness and negative behaviour such as ADHD, HD, ASD etc.

PROCESS OF CAP CONCEPT

A teacher in his or her class will list out the students with several behavioural problems like being isolated, arrogant, hyperactivity, and bullying, lying, aggressive, destructive behaviour. Teacher will identify any positive work done by them through observation, counselling, feedback by the deferent teachers and his or her classmates. After identifying a student for the cap award teacher will ask him to come on the dais and tell the positive work done by him congratulate. Cordially all the students in the classroom will clap and wish the awardees. The student received cap will be allowed to wear it and sit in the classroom for that particular session. A chart will be designed on the classroom wall where awardees' name and numbers of time award received will be written which motivates the awardees as well as his or her class mates to adopt good behaviour and win the cap. At the end of the session teacher will encourage the awardees to express his feedback and recollect the cap. Duration of cap concept program from not lesser then 4 months to maximum one full academic year. In each session feedback should be taken by the awardees. Each month feedback should be taken by the teachers and his or her classmates as their observation, but this feedback must be confidential (not in the open session) and make sure that the client is not aware of this. And after the monthly feedback it is important to make the awardees understand hiss aria of improvement and also make him understand his or her need in aria of focus to have positive change. It is very important to maintain the confidentiality during the period of therapy on any negatives of the client. Only positive improvement of the client must be disclosed and announced in the class by giving appreciation. Class 4th to 10th students only eligible for this therapeutic activity. Before conducting this activity Therapist must understand the student's behaviour, family background, emotional, physical and social history of the students by teachers and respective people and by observation, questionnaire method also can be used.

ANALYSIS

Personal Data: Number of respondents taken for the study is 50. Male respondents were 50% and female were 50%. 40% of respondents aged between 15 and 16 years, 30% between 14 and 15 years and 30% between 13 and 14 years of age. 94% of samples belong to Hindu religion and 6% of samples from Muslims. Education vice distribution of the sample is 30% from the class 8th, 30% from class 9th and 40% samples from class 10th.

Behavioural problems of the Students: The report of the data collected from the samples indicates that 54% of the male and 38% of female respondents often express emotional weakness in the learning aspects. 68% of male and 64% of female respondents developed

negative attitude towards subjects and teachers. 18% overall respondents expressed that they often fall in to isolation and 48% of male and female respondents showed aggressive behaviour towards peers. 32% of respondents are scholastically backwards and 22% of respondents have hyperactive disorders. 28% of overall respondents expressed that the often lie to the teachers. 20% of the male respondents have repetitively expressed bullying with their peers and 28% female respondents reported that they back bite on each other with their peers.

Result of Cap concept: in 50 (100%) samples total 32 (64%) samples (male 20 (40%) and 12 (24%) female) respondents are awarded cap in the duration of 3 weeks. 8 (16%) male respondents 6-8 times, 7 (14%) male respondents 4-6 times and 5 (10%) male respondents 2-4 times received cap in the duration of 3 weeks. 8 (16%) of female respondents 8-10 times and 4 (8%) female respondents 4-8 times awarded cap in the duration of 3 weeks. In 32 (64%) respondents who received cap 28 (56%) respondents expressed very good positive behavioural change in them, 4 (8%) respondents expressed good behavioural change.

CONCLUSION

There are no spirits then motivation to influence an individual towards stepping forward to achieve his or her goal. The greatest achievers always lay down behind the inspiration of one or another person's, situations or by the stories of success. Motivation is one of the important aspects behind life leaving of each mankind. "Life is hope and hope is life" if there is no hope in life there is no individual longer on this earth. To create the great hope in an individual in the classroom for learning need of his or her life leading cap concept play the major role in this competitive and complicated world. Every individual are unique and their behaviour can be modified on the basses of this concept. Cap concept will work to inspire the individual to make his or her uniqueness in to practical. The above study made it very clear that the cap concept will surely help the teacher to influence the students with behavioural problems to bring positive change in them. By the data of the above study says that 64% of respondents have expressed positive change in their behaviour in

REFERENCES

- (1) All India educational survey- *NCERT 2002*
- (2) Dr. D. Balaramulu. (2013). Students Attitude owtard Teacher's Behaviour. *International journal of Scientific and Research Publications*, ISSN 2250-3153
- (3) Rambha Pathak and Ravi C Sharma. (2011). Behavioural and emotional problems in school going adolescents, PMCID: *PMC3448127*
- (4) Anindya Kumar Gupta, Monica Mongia and Ajoy Kumar Garg. A descriptive study of behavioural problems in school going children, PMCID: *PMC5810175*

-
- (5) Rachel C. F. Sun and Daniel T. L. (2012). Student Classroom Misbehaviour An Exploratory Study Based on Teachers' Perceptions. *The Scientific World Journal*, Article ID 208907
- (6) Dr. G. N. Tiwari, Heena Panwar (2014) A study on the management of classroom behaviour problems at secondary level. *American research thoughts*, ISSN: 2392 – 876
- (7) Vello Hein. (2012). The effect of teacher behaviour on students motivation and learning outcomes. *A review. vol. 18, PP. 9–19*
- (8) Yousef Mehdipour, Dr. D. Balaramulu. (2013). Students attitude toward teacher's behaviour in Hyderabad Universities. *International journal of scientific and research publications*, ISSN 2250-3153
- (9) Miller, A., Ferguson, E., & Moore, E. (2002). Parents' and pupils' causal attributions for difficult classroom behaviour. *British Journal of Educational Psychology*, 72(1), 27-40.
- (10) Chatzisarantis, N. L., Biddle, S. J., & Meek, G. A. (1997). A self-determination theory approach to the study of intentions and the intention–behaviour relationship in children's physical activity. *British Journal of Health Psychology*, 2(4), 343-360.
- (11) Daley, D., & Birchwood, J. (2010). ADHD and academic performance: why does ADHD impact on academic performance and what can be done to support ADHD children in the classroom?. *Child: care, health and development*, 36(4), 455-464.
- (12) Homme, L. E., Debaca, P. C., Devine, J. V., Steinhorst, R., & Rickert, E. J. (1963). Use of the Premack principle in controlling the behavior of nursery school children. *Journal of the Experimental Analysis of Behavior*, 6(4), 544-544.

Paper18

Banks and Frauds – An Analysis

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Abstract:

Financial institutions face an ever-increasing range of challenges within the financial crime arena, both internal and external. Rapid technological and social changes combined with evolving consumer demands are creating numerous new opportunities for the perpetrators of fraud. Consumers want products that are quicker, faster and easier to use, delivered through the platforms of their own choosing.

This paper discusses the various frauds that are in existence in the modern or the e-age banking system & the ways to overcome these frauds or be alert to avoid these frauds.

Keywords: E-age, Frauds, challenges.

INTRODUCTION:

Financial institutions face an ever-increasing range of challenges within the financial crime arena, both internal and external. All institutions/organisations which as part of their normal activities, engage themselves in financial transactions, run the risk of being put to loss sometime or through frauds perpetrated on them. The probability of being defrauded is more in the case of banks as the transactions which they handle involve monetary and financial dealings. Further, they are liable to be defrauded not only by their own employees and constituents but also by third parties. At times persons in two or even all the three of the aforesaid categories collude in perpetration of frauds. Hence the procedure and systems to prevent/expose frauds need adherence at all times and deserve attention and review on a priority and continuous basis.

OBJECTIVES:

The main objectives of the study are to know

1. The meaning of fraud & the Categories of fraud in banking.
2. Varieties of fraud associated with technology.
3. Suggest Ways of preventing technological frauds.

RESEARCH METHODOLOGY:

Since this is a conceptual paper, the data is collected mainly through secondary sources and then analysed to meet the objectives.

FRAUDS IN BANKING:

Frauds, as they are popularly understood, are acts of criminal deception resorted to by persons singly or in collusion with others with a view to deriving gains to which they are not legally entitled.

As per RBI in the Report of the Study Group On Large Value Bank Frauds

“Fraud is a deliberate act of omission or commission by any person, carried out in the course of a banking transaction or in the books of account maintained manually or under computer system in banks, resulting into wrongful gain to any person for a temporary period or otherwise, with or without any monetary loss to the bank.”

Fraud impacts organizations in several areas including financial, operational, and psychological. While the monetary loss owing to fraud is significant, the full impact of fraud on an organization can be staggering. The losses to reputation, goodwill, and customer relations can be devastating. As fraud can be perpetrated by any employee within an organization or by those from the outside, it is important to have an effective fraud management program in place to safeguard your organization's assets and reputation.

A year-wise break up of fraud cases reported by the banking sector together with the amount involved is given in Table 1 below:

Table 1: Year-wise no. and amount of fraud cases in the banking sector

(No. of cases in absolute terms and amount involved in Rs. crore)Year	No. of cases	Total Amount
2009-10	24,791	2,037.81
2010-11	19,827	3,832.08
2011-12	14,735	4,491.54
2012-13	13,293	8,646.00
Total frauds reported as of March 2013	1,69,190	29,910.12

It may be observed that while the number of fraud cases has shown a decreasing trend from 24791 cases in 2009-10 to 13293 cases in 2012-13 i.e. a decline of 46.37%, the amount involved has increased substantially from Rs 2037.81 crore to Rs. 8646.00 crore i.e. an increase of 324.27%.

CATEGORY OF FRAUDS:

Broadly, the frauds reported by banks can be divided into three main sub-groups:

- a) Technology related
- b) KYC related (mainly in deposit accounts)
- c) Advances related

Frauds in the Modern era of Banking is mostly related with technology. A closer examination of the reported fraud cases has revealed that around 65% of the total fraud cases reported by banks were technology related frauds (covering frauds committed through /at internet banking channel, ATMs and other alternate payment channels like credit/ debit/prepaid cards). Hence we would be considering only technology related frauds in our present study.

a. TECHNOLOGY RELATED FRAUDS:

The substantially larger proportion of technology related frauds by number is only expected as there has been a remarkable shift in the service delivery model with greater technology integration in the financial services sector. Banks are increasingly nudging their customers to adopt newer service delivery platforms like mobile, internet and social media, for enhanced efficiency and cost-cutting. But while banks' customers have become tech-savvy and started using online banking services and products, evidence suggests that even fraudsters are devising newer ways of perpetrating frauds by exploiting the loopholes in technology systems and processes. There have been several instances of low value frauds wherein the fraudsters have employed hostile software programs or malware attacks, phishing, Vishing (voicemail),

SMSishing (text messages), Whaling (targeted phishing on High Networth Individuals) techniques apart from stealing confidential data to perpetrate frauds.

Following are the various technology related frauds in the present generation banks;

1. **ACH Fraud:** Is a generic term used to represent transfer of funds by a fraudster (usually a well connected gang operating across borders) using the login credentials of a victim. The login credentials are obtained through phishing attacks or by using social engineering techniques. The fraudsters often go scot free leaving the banks and their customers to fight in courts and try to recoup whatever losses they can. The funds are usually transferred to accounts in the names of fictitious persons and then withdrawn as soon as the credit hits. Many of these beneficiary accounts are held in countries with weak law enforcement. Then there are unsuspected money mules lured by prospects of easy money. All this makes recovering the money difficult.
2. **Identity Theft** – The most broadly defined of the types of online banking fraud, identity theft gets the most attention from the media and is of highest concern to consumers. Identity theft can be very simple or quite complex. Identity theft can be extremely difficult for its victims. It can take months or even years to correct the damage it can cause. If the thief has acquired enough information to satisfactorily answer the questions asked by the financial institution, he or she will be able use the information to commit fraud. Because the level and types of questions asked can determine whether or not an identity theft succeeds, those questions must be crafted so that only the true person will know the answers.
Your information can be obtained in any of the following ways:
 - Theft, including theft of mail from your mailbox at home
 - By going through your garbage bins
 - Telephone, Fax and Mail scams
 - Internet.
3. **Friendly Fraud** – This kind of fraud, also known as “civil fraud” or “family fraud,” refers to fraud committed using information that belongs to a trusted friend or family member. As much as financial institutions, independent organizations and the media communicate to consumers that they should not share confidential data, many people do share their information with close friends and family. A growing number of identity theft cases indicate that some close friends and family members will pretend to be the customer and steal from that individual. These are very time-consuming cases to research, but they can present a lower risk to the institution if the case is referred back to the customer to handle in a civil (rather than criminal) manner. Because it can be devastating to an individual to learn that he or she has been deceived by a close friend or family member, these cases can be especially difficult for victims. The strongest defense against this type of fraud is to emphasize to customers the importance of keeping their passwords completely confidential.

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- 4. Internal Fraud** – This type of fraud is not new, but online banking has added another channel through which an employee can steal. If a financial institution allows employees access to customer data, and that data is the same information needed to gain online access to customer accounts, an employee can easily commit fraud. Because of this, financial institutions should require a password or PIN for online banking, and the password or PIN should be stored in an encrypted format. Another option is to truncate account numbers and customer data and limit employee access to the full numbers.
- 5. Cross-Channel fraud :** Customers – legitimate and otherwise – tend to see the institution as a single brand represented across various contact channels: phone, automated contact center, ATM, branch office and online. But the institution tends to see its customers as diverse entities based on product: mortgage, credit card, DDA, home equity, consumer banking, small business, etc. This disparity creates inefficiencies that fraudsters can exploit. Criminals know the above facts all too well. They know bank fraud systems rarely monitor customer behavior across multiple accounts, channels and systems. That weakness opens the door for cross-channel fraud, in which a fraudster gains access to customer information in one channel and uses that knowledge to commit fraud through another.
- 6. Credit card and debit card fraud:**
- Credit or debit card fraud can also occur when your card is lost or stolen and used by a third party to purchase goods with those cards or to remove cash from the cards.
 - Credit or debit cards can also be intercepted in transit while being sent to you.
 - Your cards can also be compromised by a dishonest merchant who undertakes unauthorised duplicate transactions on your card. This type of crime is known as ‘skimming’. It is a crime whereby your credit or debit card can be reproduced in order to use the credit balance to obtain a financial advantage. The creation and/or alteration of a credit/debit card occurs when the information contained on the magnetic strip is reproduced.
- 7. Email scams and fake websites:** A number of customers from financial institutions have been targeted with hoax emails. These emails appear to be genuine bank emails. Some emails inform the customer that their security details and passwords need to be updated by logging into an authentic looking, but fake website. The purpose of these websites is to obtain your log on details to access your bank accounts. Others communicate security messages and advise you to install software from the email that checks and removes viruses. By downloading the software you are in fact tricked into downloading a virus.

8. Computer Threats: Each and every time you log onto the internet your computer is at risk of various threats with the aim of getting your personal details and accessing your money. Here we describe the main threats to your computer and how to protect yourself from them.

- a. Phishing
- b. Spyware and Adware
- c. Viruses and Worms
- d. Trojans.

a. Phishing

Phishing is a scam where hackers 'fish' for your personal details by using hoax emails claiming to be from financial institutions. This method continues to be favoured by online thieves.

Hoax emails claiming to be from banks are often generated overseas and are sent in bulk. The email asks the recipient to provide sensitive information such as their username, password, customer registration number or PIN by providing a link leading to a fake website, enabling thieves to gather the details for later fraudulent use.

b. Spyware and Adware

- **Spyware:**

Spyware is a type of software that cleverly collects user information while on the Internet.

- **Adware:** Adware is a type of spyware used by marketers to track Internet user's habits and interests for the purpose of customising future advertising material. Adware can monitor information such as the types of sites visited, articles read or the types of pop-ups and banners the user clicks on. The information is then used to customise future advertisements directed to the user, or can be sold to a third party for the same purpose.

c. **Viruses and Worms:** A computer virus is software that affixes itself to another program like a spread sheet or word document. Similar to a biological virus, it must attach itself to another program to survive and reproduce. Unlike Trojans, which are self-sufficient programs, viruses can only run if the infected program is running. While active, the virus attempts to reproduce and attach itself to other programs. This can tie up resources such as disk space and memory, causing problems on any home computer.

An email virus is the latest type of computer virus. It is transported through email messages and usually replicates by automatically distributing itself out to all contacts on the victims email address book.

A worm is similar to a virus. It exploits computers in a network that contain security holes. Once a security hole is found, the worm will attempt to replicate itself from computer to computer. Like viruses, worms can be equally destructive.

d. Trojan's:

A Trojan is a destructive program that poses as a harmless application. Unlike viruses, Trojans do not replicate themselves and do not need a host program to attach to. Today's computer users often accept Trojan horses onto their computers, believing that the program is harmless or even helpful. Some Trojans will claim to get rid the computer of viruses or other harmful applications, but instead introduce viruses and leave it vulnerable to attacks by hackers and intruders. Trojans can appear as pop ups or some don't appear at all and silently in the background do damage.

SUGGESIONS FOR USERS TO PREVENT THESE FRAUDS:

- Ensure you know the person/entity you are giving information to over the Internet.
- At least once a year, order copies of your credit report from each of the three major credit bureaus, ensuring all of the information is accurate.
- Monitor your accounts and monthly statements thoroughly, ensuring that all the activity is accurate. If your account statements are late, immediately contact your banks to ascertain if and when they were mailed.
- Always thoroughly tear or shred personal information, such as pre-approved credit offers, that may contain account information, Social Security numbers, date of birth, etc.
- Check merchant privacy policies and only shop with those who have published privacy policies that you agree with.
- Only do business with Internet companies that use a secure form to capture private information, such as an account numbers or credit card numbers. (The key symbol on your browser status bar indicates whether or not a page is secure.)
- Avoid instant credit offers, ensuring they are properly shredded/discarded.
- Ensure your computer is equipped with anti-virus protection and firewalls to help keep trespassers out. Always back up your data.
- Never divulge personal information to anyone, as identity thieves often obtain information through social engineering.
- Avoid purchasing a product from a merchant or an auction site where the deal looks "too good to be true" because it usually is.
- Always protect your account information. Don't write your personal identification number (PIN) on your ATM/Debit Card. Don't write your Social Security number and/or credit card number on a check.

- When using your ATM, cover your hand when entering the PIN number to protect the information from shoulder surfers.
- Carry only those pieces of identification you absolutely need, and keep them secure.
- Always log off from your online banking session.
- If you suspect your identity has been stolen, contact your financial institution and the authorities immediately.

CONCLUSION:

With the advent of technology there have been positive as well as negative impacts to the banking industry. Positive is that technology has brought in lots of savings in terms of time and money to both the bankers as well as the customers. Similarly every good thing comes at a cost and the cost here is the growing amount of frauds that have mushroomed over the years. It is important for all the people involved in this system to be alert, follow rules and never take things for granted.

As Jodi Rell says “At the end of the day, the goals are simple : safety and security”

REFERENCES:

1. Soni R R and Soni Neena, 2013, ”An investigative study of banking cyber frauds with special reference to private and public sector banks”, Research journal of management studies, Vol 2(7),22-27,July 2013.
2. Ashu Khanna and Bindu Arora, 2009, ”A study to investigate the reasons for bank frauds and the implementation of preventive security controls in indian banking industry”, Volume 4, issue 3,2009.
3. Ellen Joyner, 2011, ”Detecting and preventing fraud in financial institutions”,SAS Global Forum 2011, Paper 029-2011
4. Fraud prevention strategies for internet banking, BITS Financial services round table, April 2003.
5. <http://www.anz.com/personal/ways-bank/security/online-security/tips-protecting-yourself/>
6. http://www.rbi.org.in/scripts/BS_ViewMasCirculardetails.aspx?id=8178
7. <http://www.mondaq.com/india/x/250030/Financial+Services/Banking+Frauds+Prevention+Or+Lament>
8. http://rbi.org.in/scripts/BS_SpeechesView.aspx?Id=826

A Study on the Teacher-Student Relationship and its Impact on the Behaviour of High School Students

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Abstract

High school students are in the stage of Adolescence and it is the time for developing independence. Typically, adolescents exercise their independence by questioning and sometimes by breaking rules. Parents and teachers must play a major role in supporting & influencing the children positively by their ethical & appropriate approaches. Teachers in school as well as parent at home, often wonder how to discipline a child and to mould their behaviour so to bring up the child with virtues. Although some children truly have challenging behaviours regardless of what strategies to try, many children just need to have the adults in their lives make changes in the way they react, respond, or interact with them. It is also a great responsibility of the teacher in school to have positive approach towards students. If not there are possibilities in change of behaviour among students & leads to several problems. For example, frequent episodes of fighting, scholastic backwardness, substance abuse; antisocial or institutional activities, destructive behaviour and change in attitude are much more significant than isolated episodes of the same activities. Other warning signs include deterioration of performance at school and running away from home. This research paper's aim is the teacher-students relationship and its impact on the behaviour of High school students. The objectives are to know the teachers attitudes both positive and negative towards students and its impact to bring positive as well as negative behaviour change in the students. 50 high school students; 25 girls and 25 boys were taken and interview schedule is used. Both the primary and secondary methods are used and the study is descriptive in nature.

Keywords: Students, Teachers, Behaviour, Adolescents, School and Relationship.

INTRODUCTION

To find out the behavioural changes in students by the approach of the teachers, it is necessary to understand the several behavioural problems faced by students and deferent approaches done by teachers. Normally in Indian schools the teachers follow some traditional & unethical approaches to influence the students towards academic or activities. These approaches will negatively influence the child to get discouraged, misbehaved and also it will impact on the performance of the child in the academic or activities. This is a main cause behind individual's behaviour in the society. The time child completes the education and come to the social life, the impact of the negative approach in the school by the teacher will be exhibited through its personality. By this negative and inappropriate behaviour will spoil the respect, identity and social acceptance of the individual. So it is very essential to change the approach in the school which brings appropriate behaviour and social acceptance to the child in the society.

APPROACHES AT THE SCHOOL

Physical abuse: Two out of three school going children in India are physically abused says the national report on child abuse by the Ministry of Women and Child Development in 2007. The crime is rampant in every single district of the country. Boys are marginally more likely to face physical abuse (73 per cent) than girls (65 per cent). Corporal punishment in both government as well as private schools is deeply ingrained as a tool to discipline children and as a normal action. But most children do not report or confide about the matter to anyone and suffer silently. To help and encourage children with several emotional and behavioural problems a set of approach is formed. The positive and healthy parenting and classroom management by the teacher model is based on the great work done by the Alfred Adler and Rudolf Dreikurs which started in the year of 1920s. It consists of a specific set of techniques for inculcating positive behaviour and curtailing negative behaviours. It is a program designed to teach children to become responsible, respectful and resourceful and inculcates a spirit of self-discipline.

Social influence: Due to the change in the life style, work stress, family related issues individual lost to have a healthy communication, He frequently fall in to imbalance in his emotions and thoughts. These are the major facts to decide the individuals approach towards others. The researchers say that in India majority of the schools reported that they consider corporal punishment as better way to correct the child in its behaviour. Evan though corporal

punishment has been classified as an act of violence and abuse on child, till today in India children are abused physically and mentally in the schools. Corporal punishment is one of the major approaches by the teacher such as beating, pinching, hit the child with belts, hands, sticks or any other tool. Such violence may be a deliberate act of punishment or simply the impulsive reaction of the an irritated teacher, no matter what form the violence however it will impact to the negative change in children's behaviour. So it needs to be taken serious action to put end to the corporal punishment in every school.

Mental abuse: Not only physical abuse, even mental abuse of the child in the school is also a cause behind inappropriate behaviour of the child. One of the challenging problem in developing India is that suicidal thoughts in children. High expectation by the teacher in their academic, creating unhealthy computation between low and high achievers, study pressure, lack of flexible environment created in the schools by the teachers for the child to share feelings and get encouraged are the causes in influencing child get mentally disturbed. Any types of abuses of the child (physical, mental, emotional) is against to the child rights and punishable. But also repetitive irritation by the child or inability of the child to cope with the teacher's expectation is making the teachers fall in taking action against child by abusing them physically or mentally. Such as scolding, threaten to complaint the parents and principal, issue the transfer certificate, insulting the child in class, scolding the parents, not giving importance to the child, indirectly taunting and being partial to the particular child. These types of mental abuse is also will damage the behaviour of the child to develop several unhealthy attitude and suicidal thoughts.

BEHAVIOUR CHANGE AND PROBLEMS IN CHILDREN

Beyond violating a fundamental right of the child causes pain, injury, humiliation, anxiety and anger that could have long term psychological effect and destroy the personality of the child. Repeated negative approach by the teacher in the school may exhibit dysfunction behaviour such as poor communication and child may report aggressive behaviour towards itself and others. These are the unethical approaches of the teacher may a significant reason for child to dropping out of school. Emotionally or physically effected children by the negative approach of the teachers may also refuse to return and think against the teachers and subject.

Deferent problems among children: Child abuse in the school can produce feelings of guilt, violation, loss of self-control and degraded self-esteem. It may pull the child in to the feeling of hopelessness, worthlessness and uselessness which will leads suicidal thoughts. Physical and mental abuse of the children in the schools may reinforce them in to revenge and identity of failure. The children interviewed also reported that, when they experience negative approach of the teacher they feel hurt and would like to exhibit their pain through anti-social thinking or activity. Negative approach by the teachers in the school towards children is

totally against to the law and violation in child right and it leads to permanent damage in the child's behaviour. In India many schools are considering some unethical & traditional approaches are as recognized law; though it leads to negative behaviour among children the teachers in schools tend to have these negative approaches repetitively.

RELATIONSHIP BETWEEN APPROACH AND BEHAVIOUR

Deferent approaches: Approach of the family, peers, society and teachers in the school will play the major role in shaping the behaviour of children. There is a direct relationship between approach of the external world and behaviour of the individual as most of the behavioural corrections done by deferent approaches. Mother use the approach of love and care to train the child to get adopted the same behaviour towards others. In the other hand teacher use the approach of hitting or scolding the child to get corrected in its mistakes; but during the interview majority of the children have reported that they also use the same approach towards others done by the teachers. If there is a change in the behaviour of the child as negative or positive in the school it is definitely by the approach of the teachers, peers or by the family.

Behaviour change by approach: There are several reasons behind the teacher's approach towards children. That may be the work pressure given by the management or heads of the organization, emotional disturbance by the family, lack of patience to understand the child its behaviour, sometime lost humanity due to the modern life style may influence the teachers to have an unhealthy approach towards children. The other hand human behaviour is a broad area of study but in this study the minor part of the child's behaviour in the school is taken such as lying, negative attitude towards teacher and subject, Destructive behaviour, Bullying and isolation by the social involvement. For example: if mathematics teacher insult the child in front of class mates for the reason of scoring the less marks; the child starts developing negative attitude towards that particular subject and teachers. A common behavioural problem in the children is lying; which is also one of the problems caused by approach of the teacher.

Problems of behaviour change: When the child shows the interest to share the mistake committed to the teachers, if teacher encourage and give them an opportunity to tell their problem they feel to tell the truth if not they lie. Sometime fear on teacher also will influence the child to develop lying behaviour. During the interview children reported that the time teacher negatively approach the children they get angry and emotionally disturbed; but they are not able to exhibit it in front of teachers. In such time they develop a destructive behaviour by exhibiting such behaviour towards friends, family members, school and things. If the teachers approach is negative and damaging the emotional wellbeing of the child may that make the child fall down to the social isolation.

RELATIONSHIP BETWEEN TEACHER AND STUDENT

Those students have close, positive and supportive relationship with their teachers will reach the higher level of success in academics, extra-curricular activities as well as in their social life. The students with more conflict in relationship with their teachers will slowdown in their wellbeing at day today's life. A positive relationship builds healthy communication. It may motivate, encourage and bring the students up to the activeness and more engagement in learning, behave better in both at class and home. A student will spend valuable time in school with teachers then spending at home and it is a time to learn values, ethics, culture and many more. Teachers play the ultimate role in influencing the students positively to get adapted all the good and appropriate behaviour.

Behavioural impact by negative relationship: If there is a negative relationship between teacher and student, student may get increased anger, demotivation, discourage, miss behaviour, changed attitude, disrespect may block the active and positive growth of overall personality. It is very essential to the teacher to understand and create healthy, supportive and positive relationship with their students. Great responsibility of the teacher is to create flexible environment that students feel free to share their feelings. Once they start talking, teacher should develop a confidence in students. Teacher should appreciate the student for selecting them as right person to share their feelings by maintaining confidentiality and respecting student's feelings. Teacher should play the major role in guiding, by making them understand about the mistake committed, miss behaved or by telling them about their great responsibilities in the school, home and society. Approach based on empathy will make the students to go beyond the intentions of the guidance, expectation and the responsibility given by both parents and teachers. "In every child's life parents are important for student's teachers". Here it is very essential for both teachers and students to understand that the importance of the mutual understanding and have positive relationship between them.

ANALYSIS

Personal Data: Number of respondents taken for the study is 50. Male respondents were 50% and female were 50%. 40% of respondents aged between 15 and 16 years, 30% between 14 and 15 years and 30% between 13 and 14 years of age. 94% of samples belong to Hindu religion and 6% of samples from Muslims. Education wise distribution of the sample is 30% from the class 8th, 30% from class 9th and 40% samples from class 10th.

Behavioural problems in adolescents: The report of the data collected from the samples indicates that 54% of the male and 38% of female respondents often fall in to the depression by the academic pressure given by teachers. 68% of male and 64% of female respondents developed negative attitude towards subjects and teachers. 18% respondents expressed that they often fall in to isolation and 48% of respondents showed aggressive behaviour towards

peers. 32% of respondents are scholastically backwards and 22% of respondents have hyperactive disorders.

Teacher's approach towards students: The approach related problems experienced by the respondents were identified for 72% of scolding by the teacher, 34% physical abuse and 38% mental abuse. 64% of male respondents have reported that they often get beatings by the teacher for the mistakes committed the other hand 20% of respondents are getting punishments without any mistakes and it is very less in female as 14%. 70% of males and 68% of female have reported that most of the time they experience scolding by their teachers. 40% of male and 14% of female respondents is not willing to express their feelings to teachers. 66% of male and 78% of female respondent are willing to accept guidance given by teachers.

Scholastic backwardness: in total samples 38% of male and 22% of female respondents are scholastically backwards, repetitive negative academic performance. 72% male respondents are medium and 28% are very good in their academic. 44% of female respondents are medium and 56% are very good in their academic achievement. 30% of male respondents reported that they are demotivated and 12% of females are also demotivated by continues academic pressure from their teachers. 32% of male respondents are very serious about their academic future and 68% are not so serious. 28% of female respondents reported they are also serious about their academic future and 72% are not.

RECOMMENDATIONS AND SUGGESTIONS

The children with several behavioural problems in the school are not given importance to understand the real cause behind their problems. There is a belief in the schools that negative approaches are the best methods to control the children; so frequently the same methods are used to approach the child which is again and again damaging the physical and mental wellbeing of the children in the school. About 70 % of the population has reported that they are often falling in to emotional disturbances by the negative approach of the teachers. It is recommended that to create awareness among teachers in the school for the smooth handling the children with the positive approaches. Different programs must be planned to strengthen the children's capacity to cope with challenges and to make them emotionally strong. A flexible environment in the school must be created to make the child develop academically and socially.

BIBLIOGRAPHY

1. R. Kalaivani. (2016). Corporal Punishment in Schools. *International journal of mental health service*, ISSN-230-0530(O).

2. Michelle Banbawale, Jemima Hughes, Amy Lighfoot. (2018). Exploring Teachers Evaluation Process and Practices in India. *International journal of British Council*, ISBN:978-08635-890-0
3. Dr. D. Balaramulu. (2013). Students Attitude owtard Teacher's Behaviour. *International journal of Scientific and Research Publications*, ISSN 2250-3153
4. C. Jagadambala, Dr. K. Perumal. (2015). Student Teacher Relationship. *International journal of Advancement in Research & Technology*, ISSN 2278-7763.
5. Ogunshola F. Adewale A. M. (2012). Effects of Parental Socio-Economic Status on Academic Performance of Students. *International journal of Academic Research in Business and Social Science*, pp. 230-239.
6. Panda B. N. (1999). Effects of Socio-Economic Status on Academic Achievement. *All India Association for Educational Research*, pp. 15-21.
7. Willms J. D, Somers M. A. (2001). Family Classroom and School Effects on Children's Educational Outcomes. *International journal of School Effectiveness and Improvement*, pp. 409-445
8. Pandey R. C. (2008) Academic Achievement as Related to Achievement Motivation and Parental Background. *Indian Psychology. Rev.* pp. 213-216
9. Jyoti Prakash, A. K. Mitra, H. R. A. Prabhu. (2008). Child and Behaviour. *Delhi Psychiatry Journa.*
10. Robert A. Baron, Girishwar Misra (2016). Psychology Indian Subcontinent Edition: *Pearson India Education Service Pvt. Ltd*, New Delhi.
11. Josie Hadley, Carol Staudacher (2001). Hypnosis for Change. *New Age Books Pvt. Ltd*, New Delhi.
12. Dr. Joseph Murphy (2014). Psychic Perception. *Manjul Publishing House Pvt. Ltd.*, New Delhi.
13. B. G. Ramesh. Vidyarthigalalli Vattada (2013). *Sapna Book House Pvt. Ltd.*, Bangalore.

A Case Study on - Birla Corporation Limited

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Abstract

Birla Corporation Limited, is an Indian-based flagship company of the [M P Birla group of companies](#), founded by [Shri Ghanshyam Das Birla](#) in the late 1910s and carried on by [Madhav Prasad Birla](#). In the 1890s, Birla Corporation was a jute manufacturing company, but over time, it grew to operate four main divisions: cement, jute, vinoleum, and auto trim. It is not a part of the [Aditya Birla Group](#), a multinational conglomerate with products ranging from metals, cements, textiles, agricultural businesses, telecommunications, IT, and financial services. Formerly known as Birla Jute Manufacturing Company Limited, with the expansion of divisions, the company changed their name in 1998 to Birla Corporation Limited. The Company is primarily engaged in the manufacturing of cement as its core business activity. It has significant presence in the jute goods industry as well. The Company has acquired 100% shares of Reliance Cement Company Private Limited (Reliance Cement), a subsidiary of Reliance Infrastructure Limited (RIL). After this acquisition, Reliance Cement has become a wholly-owned material subsidiary of Birla Corporation Limited. The entire cement business of RIL has been acquired for an Enterprise Value of Rs. 4,800 crores. This acquisition provides Birla Corporation Limited with the ownership of high-quality assets, taking its total capacity from 10 MTPA to 15.5 MTPA. The Cement Division of Birla Corporation Limited has 10 plants at seven locations, Satna & Maihar (Madhya Pradesh), Raebareli & Kundanganj (Uttar Pradesh), Chanderia (Rajasthan), Butibori (Maharashtra) and (West Bengal). They manufacture varieties of cement like Ordinary Portland Cement (OPC), 43 & 53 grades, Portland Pozzolana Cement (PPC), fly ash-based PPC, Low Alkali Portland Cement, Portland Slag Cement (PSC), Low Heat Cement and Sulphate Resistant Cement. The cement is marketed under the brand names of MP Birla Cement perfect, Ultimate, Unique, Chetak, Psc, Samrat, Multicem & Concrecem, bringing the product under the common brand of M P Birla Cement. The Jute Division of Birla Corporation Limited, manufacturing more than 120 tonnes of a variety of

jute products in Birla Jute Mills. The product range comprises almost every major application of jute - the most versatile, eco-friendly, bio-degradable fibre available, durable, natural, anti-static. Birla Jute Mills is an IS/ISO: 9001-2008 certified unit. The Jute Division is a leading exporter of Jute Products to the demanding markets of the European Community, USA, Japan and others, Birla Corporation Limited has been acknowledged in these countries for its ability to anticipate buyers' requirements, fulfill expectations and develop technically superior products. As a pioneer, the Jute Division thrives on challenges, and is always ready to customize the golden fibre for new and exciting end-uses.

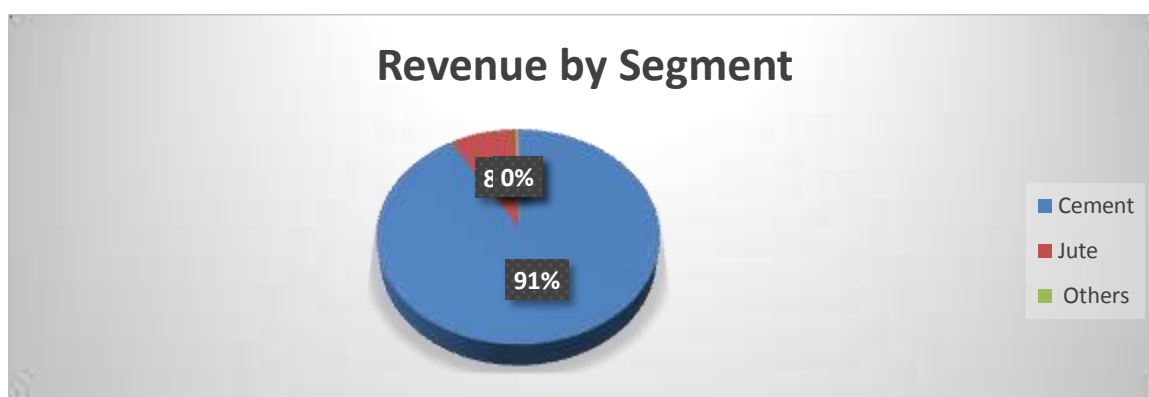
Keywords: Conglomerate, Versatile and Jute Goods.

INTRODUCTION ABOUT INDUSTRY

India is the second largest producer of cement in the world. No wonder, India's cement industry is a vital part of its economy, providing employment to more than a million people, directly or indirectly. Ever since it was deregulated in 1982, the Indian cement industry has attracted huge investments, both from Indian as well as foreign investors. India has a lot of potential for development in the infrastructure and construction sector and the cement sector is expected to largely benefit from it. Some of the recent major initiatives such as development of 98 smart cities are expected to provide a major boost to the sector. Expecting such developments in the country and aided by suitable government foreign policies, several foreign players such as Lafarge-Holcim, Heidelberg Cement, and Vicat have invested in the country in the recent past. A significant factor which aids the growth of this sector is the ready availability of the raw materials for making cement, such as limestone and coal.

INTRODUCTION ABOUT COMPANY

Birla Corporation Limited is the flagship Company of the M.P. Birla Group. Incorporated as Birla Jute Manufacturing Company Limited in 1919, it was Late Mr Madhav Prasad Birla who gave shape to it. As Chairman of the Company, he transformed it from a manufacturer of jute goods to a leading multi-product corporation with widespread activities. Under the Chairmanship of Mrs priyamvada Birla, the Company crossed the Rs. 1,300 - crore turnover mark and the name was changed to Birla Corporation Limited in 1998. After the demise of Mrs priyamvada Birla, the Company continued to consolidate in terms of profitability, competitiveness and growth under the leadership of Mr. Rajendra S. Lodha, late Chairman of the M.P. Birla Group. Under his leadership, the Company posted its best ever results in the years ended 31.3.2006, 31.3.2007 and 31.3.2008. The Company is primarily engaged in the manufacturing of cement as its core business activity. It has significant presence in the jute goods industry as well. The Company has acquired 100% shares of Reliance Cement Company Private Limited (Reliance Cement), a subsidiary of Reliance Infrastructure Limited (RIL). After this acquisition, Reliance Cement has become a wholly-owned material subsidiary of Birla Corporation Limited. The entire cement business of RIL has been acquired for an Enterprise Value of Rs. 4,800 crores.



Continuous Recognition for Consistent Quality

- Birla Corporation Limited has made it to the prestigious list of "200 Best Under a Billion \$" companies in the Asia-Pacific region, published by Forbes Asia, in its October 9, 2009 issue.
- Birla Corporation Limited received the Best Corporate Ethics Award for 2008 from the Indian Institute of Planning and Management.
- Satna Cement Works & Birla Vikas Cement have received the IS/ISO 14001 certificate, an international recognition for "Implementation of environmental management system".
- SCW has received National Award for Excellence in Water Management from CII, Hyderabad 'First Prize for Lowest Thermal Energy Consumption K. Cal/kg clinker under the 10th FLS Energy Award 2007. SCW received the Best Energy Consumption Implementation Gold Award under the Rajiv Gandhi Memorial National Award, Hyderabad, in 2004. It also received the First Prize for Maximum Reduction in KWH/Ton of Cement in M.P. under FLS Energy Award, Bhopal, in 2008.
- SCW has been awarded Green Tech Environment Excellence Award in 2008 by Green Tech Foundation, New Delhi.
- NCBM has given BVC the "Second Best Improvement in Electrical Energy Performance" Award for 2006-07.
- Its cement plant located at Rajasthan has received ISO 9001:2000 certification for quality management system and ISO 140001 certification for environment management. It received LalBahadurShastri Memorial National Awards for excellent pollution control implementation.
- Birla Corporation received the Best Corporate Ethics Award for 2008 from the Indian Institute of Planning and Management.
- Birla Corporation has regularly been receiving CAPEXIL awards for cement exports since the last more than 15 years.

- 2013–14 – Birla Corporation Limited has been ranked 6th among India's "Most Admired Companies" in the Cement Sector by Fortune India, the eminent business magazine. The ranking of the Company has gone up to 6th in 2013 from 8th in 2012. This is Fortune India's second survey of India's "Most Admired Companies". '

Key Success Factors

- Economy in access to key input
- Manufacturing Efficiency
- Geographical diversity in plant location
- Product Management

Business Divisions:

Cement Division - BCL manufactures ordinary portland cement of 43 and 53 grades, fly ash-based portlandpozzolana cement portland slag cement and sulphate resistant cement. It has installed capacity of 5.8 million tonnes.

Jute Division- It manufactures jute fibre that is eco-friendly and bio degradable. It has an installed capacity of 38000 million tonnes. It manufactures wide range of jute such as jute yarn, jute carpets, canvas, sacking bags, decorative fabrics, etc.

Vinoleum division- It has a production capacity of 48,60,000sqmtrs of cushion vinyl flooring and PVC Sheet.

Auto Trim Division- It manufactures door trims for automobile industry. It has clients like MarutiUdyog, Mahindra & Mahindra, General Motors, Hindustan Motors and Tata Motors, among others.

Group Companies:

Entrepreneurship: Birla Corporation is the flagship company of the M.P Birla Group of Companies. The M.P Birla Group includes highly reputed companies like Universal Cables (power, control and electrical cables and capacitors), Vindhya Telelinks (telecommunication cables), Birla Ericsson Optical (optical fibre and jelly-filled telephone cables), and Hindustan Gum & Chemicals (guar gum products). Other than Kolkata, Birlapur and Durgapur, the Group's plants are located at Rewa, Satna, Raebareli, Chanderia, Jodhpur, Viramgam, Bhiwani, Gurgaon and Chakan (Pune).

Joint Ventures: The Group has successful joint ventures and collaborations with world leaders like Rhone Poulenc of France, Ericsson Cables & AB of Sweden, GE of the USA Toshiba of Japan and AEI Cables of UK. **Universal Cables**A leader in the Indian Cables Industry with the widest product range and its cables and capacitors are known by the brand name 'UNISTAR'

Vindhya Telelinks :One of the most sophisticated and technologically advanced industrial complexes, manufacturers, Jelly filled Telephone Cables in technical collaboration with M/s. Ericsson Cables AB of Sweden

Birla Ericsson Optical :Has technical and financial collaboration with Ericsson Cables AB of Sweden to produce Optical Fibre Cables, consisting of different fibre counts of both, Duct & Direct Burial types. The company also produces Polyurethane Jelly filled insulated Cables.

Hindustan Gum & Chemicals :Manufactures guar gum conforming to international standards and exports to various countries the world over. Rhone-Poulenc Inc. of France has 50% financial stake in the company. The company has three plants in India.

Growth Rate

- 1) Production for Q3 FY2018 stood at 3.06 million tons, compared to 2.50 million tons in Q3 FY2017, reflecting an increase of 22.09 percent. For 9M FY2018 stood at 9.08 million tons, compared to 8.12 million tons in 9M FY2017, reflecting an increase of 11.85 percent.
- 2) Despatches for Q3 FY2018 stood at 3.03 million tons, compared to 2.48 million tons in Q3 FY2017, reflecting an increase of 22.2 percent. For 9M FY2018 stood at 8.98 million tons, compared to 8.01 million tons in 9M FY2017, reflecting an increase of 12.03 percent.
- 3) Income from Operations during the quarter was Rs. 13.89 billion, compared to Rs. 12.32 billion in Q3 FY2017, showing a growth of 12.73 percent. For 9M FY2018 was Rs. 42.92 billion, compared to Rs. 33.58 billion in 9M FY2017, resulting in a growth of 27.82 percent.
- 4) EBITDA for the quarter was Rs. 1.52 billion, compared to Rs. 1.41 billion in Q3 FY2017 resulting in the growth of 7.89 percent, and for 9M FY2018 was Rs. 5.98 billion, compared to Rs. 4.96 billion in 9M FY2017, resulting in the growth of 20.41 percent.

Recent Events

Today, the Aditya Birla Group is one of the largest multinational conglomerates in India, worth over \$40 billion, a diversified Fortune 500 company in a wide variety of industries, and grounded with over 136,000 employees.

In 2013, Birla Corporation merged with its subsidiary company, Talavadi Cements Ltd as the firm could not meet requirements for raw materials due to a ban on the mines in Rajasthan.^[4] This caused a decrease in the Birla stock around the months of June and July.

PEST ANALYSIS

POLITICAL

The price of cement is primarily controlled by the coal rates, power tariffs, railway tariffs, freight, royalty and cess on limestone. Interestingly, government controls all of these prices. Government is also one of the biggest consumers of the cement in the country. Most state governments, in order to attract investments in their respective states, offer fiscal incentives in the form of sales tax exemptions/deferrals. States like Haryana offer a freeze on power tariff for 5 years, while Gujarat offers exemption from electric duty.

ECONOMIC

Currently, the industry is on the boom, with a lot of government infrastructure and housing projects under construction. In spite of seeing a fall during 2008-09, the export segment of the industry is expected to grow again on account of various infrastructure projects that are being taken up all over the world and numerous outstanding cement plants coming up in near future in the country.

SOCIAL

Usually, the cement industry in India consists of both the organized sector and the unorganized sector. Organized sector comprises of the well-known cement manufacturing companies while the main players of the unorganized sector are the regional and local cement-producing units in various states across the state. Indian consumers prefer buying branded cement like ULTRATECH, JAYPEE CEMENT, LAFARGE CEMENT etc. It has been seen in the past, as well, that mini cement plants with low brand value and image are not able to survive against the cement giants. With a population of more than 100 billion people, it is expected that cement industry will create another 25 lakhs jobs in the next 4-5 years.

TECHNOLOGY

From mining to production the entire process depends on technology. The Government of India plans to study and possibly acquire new technologies from the cement industry of Japan. The government is discussing technology transfer in the field of energy conservation

and environment protection to help improve efficiency of the Indian cement industry. Cement industry has made tremendous strides in technological up-gradation and assimilation of latest technology. At present 93% of the total capacity in the industry is based on modern and environment-friendly dry process technology.

SUGGESTIONS

- Company should raise funds through short term sources for short term requirement of funds, which comparatively economical as compare to long term funds.

- Company should improve their Inventory Turnover Ratio, by increasing inventory turnover ratio they can increase their sales and cut down their cost of production.
- The company has a Production Capacity installed 6071000 (in lacks) and they produce only 5698004 (in lacks). So they should increase their production level.

Findings

- Cement Division of BCL is the biggest cement manufacturing plant in W.B at single located area.
- The plant has so many departments for the effective production.
- Birla Cement is at third position with 18% of market share in this area
- The monthly sales volume of average dealer is 20 metric tons.
- Birla cement is sold in this area due to its quality perception.
- Dealers count the preference of Masons, engineer & contractor.
- The main promotional activities are done by the co. is wall-paintings.
- The services are provided by BCL to dealers are quite good than other brands.
- After the interaction or communication with the dealers, I come to know that some of them wanted to shift the brand.

SWOT Analysis

Strength	Weakness
Strong and Recognitions Growing International presence Strong Financial Returns Effective Leadership Product innovation capabilities Technological Excellence	Complexity of operation Lengthy processing chain
Opportunities	Threats
Growth of core sector industries Increasing Urbanization	The impact of Currency fluctuations and Interest rates Loss of sales to substitute

Conclusion

Birla Corporation Limited (Birla Corp.) provides diversified products in India. The company's product portfolio includes cement, jute, vinoleum and auto trim. The cement products offered are portland pozzolana cement, ordinary portland cement and portland slag cement. Its jute products are jute yarn, floor and wall covering, decorative fabrics, nursery

cloth scrim, jute carpets, non-woven jute felt, hydrocarbon-free bags and cloth, canvas, carpet backing cloth, hessian cloth and bags, sacking bags and cloth . The vinoleum products include PVC coated wallpaper, coated fabric and cellular plastic sheet; and automotive interiors. The company has seven cement producing plants and one jute mill. It offers its cement products under various brand names which include Birla Cement khajurao, Birla Cement chetak and Birla Samrat and Birla Samrat Ultimate, Birla Samrat Unique. Today, the Aditya Birla Group is one of the largest multinational conglomerates in India, worth over \$ 40 billion, a diversified Fortune 500 company in a wide variety of industries, and grounded with over 136,000 employees.

References

- 1) Becker, B. E., Huselid, M. A., & Beatty, R. W. (2009). The differentiated workforce: Transforming talent into strategic impact. Harvard Business Press.
- 2) Bhayani, S. J. (2009). Impact of financial leverage on cost of capital and valuation of firm: A study of Indian cement industry. *Paradigm*, 13(2), 43-49.
- 3) ["Birla Corp MoU for Assam cement plant"](#). *Business Standard: News & analysis on economy, business and market. BS Reporter*. 27 April 2014.
- 4) ["Huge overcapacity in cement worries Birla Corporation"](#). *The Economic Times. PTI*. 27 April 2014. ["Aditya Birla Group's think tank gets younger-Corporate Trends-News By Company-News-The Economic Times"](#)
- 5) Maity, A. S., & Mithia, B. S. (2018). Resource Mapping of China Clay for LC 3 Application in India. In *Calcined Clays for Sustainable Concrete* (pp. 299-305). Springer, Dordrecht.
- 6) Panda, B., Sharma, S., & Roy, N. R. (Eds.). (2018). *Data Science and Analytics: 4th International Conference on Recent Developments in Science, Engineering and Technology, REDSET 2017, Gurgaon, India, October 13-14, 2017, Revised Selected Papers* (Vol. 799). Springer.
- 7) Tripathi, K. P. (2011). Decision support system is a tool for making better decisions in the organization. *Indian Journal of Computer Science and Engineering (IJCSE)*, 2(1), 112-117.
- 8) Som, A. (2010). Emerging human resource practices at Aditya Birla Group. *Human Resource Management*, 49(3), 549-566.

An Online Comparative Study on Mobile banking Financial Transaction of Major Nationalized Banks in India

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Abstract

Adopting new technology in the banking sector is very useful for the growth of banks in India. The bank is the main financial institution that provides the digital technology-enabled services to the customers in an effective manner. Because of competition today each and every bank is providing modern and innovative services to attract a number of customers. Mobile banking (also known as M-banking) is one of the new, user-friendly and widely used concept in Electronic banking that is used to accomplish cashless financial transactions, fund transfer, credit applications and payment of bills, taxes etc. remotely through mobile devices like smartphones, PDAs, and tablets. The drastic increase in the usage of mobile phones in both urban and rural areas provides exciting opportunities for the growth of mobile banking (m-banking). But in India, a developing country, mobile banking is limited to only some fields such as SMS due to lack of facilities, security issues, poorly performing internet connections and because of high priced. In this paper, we present a comparative study on Mobile Banking transaction of major banks in India. In this paper, we discuss and Analyze mobile banking financial transactions and based on the analysis we also make some recommendations to mobile banking service providers. This will help the researcher to find the gap between the traditional and digital method of financial transactions in India.

Keywords: M-banking, Digital technology, ABCD Analysis, Financial Transactions, Wireless Communication Technology.

1. INTRODUCTION

The quick or rapid development of the mobile telecommunication industry along with wireless technology and internet created a new communication technology named as 4G or Fourth Generation with attributes as speed or customized services, interactive multimedia, superior quality video, and fast broadband internet [1-3]. Mobile Banking is a simple, safe and fast service provided by Banks or other financial institution which allows its customers to conduct financial transactions remotely using a mobile device such as a smartphone or tablet. Initially the majority of Banks started with only SMS banking services to send the transaction messages to the customer. After the evolution of smartphones, various operating systems to mobile phones and many apps, the Bank and other financial institutions adopted some of the new technologies like fund transfer, utility bill payments, ticket booking, mobile/DTH recharge etc [4-10]. Major Banks have developed mobile applications which facilitates Bank's customers to get account statements in the form of passbook and other transaction details with the help of their smart phones/tablets at their convenience without visiting the Banks. It's a convenient way to access account details while on the move.

Fourth Generation (4G) wireless mobile technology framework is a most recent remote electronic device standard with highlights like enhanced information exchange rate, high security, altered and omnipresent services, intelligent interactive media, voice, video, remote web and other broadband services with fast and efficient [11]. This 4G technology can be affectively used in order to successfully implement and deliver mobile banking services worldwide. Mobile Banking (m-banking) is considered to be one of latest online banking services to its customers. Even though Automated Teller Machine (ATM), telephone, and Internet banking are banking services outside the banks and offers successful delivery channels for traditional banking products, mobile banking is the newest distribution channels established by the banks in many developed and developing countries with more emphasis on ubiquitous nature of service availability [12]. A German company Paybox in collaboration with Deutsche Bank at first launched mobile banking in late 1990. In the beginning decade of the 21 century, some developing countries started introducing mobile banking services in that Kenya was the first developing country introduced m-banking service called M-Pesa, in 2007.

In the existing mobile banking system, only user name and password or One Time Password (OTP) is commonly used for authentication purposes. Security is the one of biggest concern for the widespread usage of mobile banking services. As number of mobile users increases rapidly and exponentially, a strong authentication mechanism becomes essential. Location information can be used as one of the factor of authentication purpose. In Location Authentication retrieve user's current location and further process that data to acquire more information near to their current location and to authenticate against individual's claimed identity. In order acquire location information iBeacon or GPS can be effectively using depending on the distance coverage factor. Location based authentication is the special procedure to prove individual persons identity or authenticity on by identifying or detecting user presence at a separate locations using some symbols, special features or using special objects. Location based authentication can be affectively applied in order to avail advanced services to users, which includes some services like Digital Deposit, Mini loan services,

Advanced ATM Security, Advanced Bill Payment, Credit Card Security and Auxiliary Services.

This paper contains six sections. Section 1 describes introductory theory of mobile banking. Section 2 explains related research of mobile banking and financial transaction and it also covers few challenges faced by mobile banking services like securities. Section 3 describes research objectives and methodologies, which helps to know the purpose and contribution made by this paper to other research communities. Section 4 describes different financial transactions and services of mobile banking in major public sector banks of India with its features. Section 5 makes Analysis of mobile banking financial transactions and based on the analysis we also make some recommendations to mobile banking service providers. Section 6 concludes the paper. This will help the researcher to find the gap between the traditional and digital method of financial transactions in India.

2. RELATED RESEARCH

In literature, many related studies are available, which mainly focuses on conceptual study on mobile banking services. Researchers used various terms for mobile banking, Amin et al., (2006) referred mobile banking as pocket banking, Ivatury and Mas, (2008) as branchless banking, while Donner and Tellez, (2008) called m-payments, m-transfers, m-finance and Liu et al., (2009) named as m-banking [13-16]. Veijalainen et al., (2006) argue, the main driving force for the fast acceptance of small mobile devices is due to the capability they offer for obtaining services and running applications anytime, anywhere or ubiquitously or even while on the move [17]. Shaikh, (2013) stated in his research that the increased and dramatic use of smart phones prompted many financial institutions and service providers to introduce mobile banking services along with some non-financial transaction to extend their client reach with the intension to retain and satisfy existing customers, acquire new customers, improve their revenues and to provide new employment opportunities [18]. Mari Suoranta et al., (2003) focused on their research on studying dispersal and adopters of mobile banking. They made an empirical survey on mobile banking and found that certain demographic characteristic and the preferred communication mode of customers, influences on the adoption and future usage of mobile banking services [19]. Jukka Riivari, (2005) stated that mobile banking as a powerful marketing tool to build ongoing and mutually rewarding relationship with new and existing customers and this characteristics was the reason for financial organization across Europe to take advantage of mobile banking services [20]. Mari Suoranta et al., (2005) reviews that new technological advances in banking sector will act as driving force for mobile banking services adoption. Based on empirical inference of the study, the paper proposes a model based on conceptual theory, aggregates different factors affecting the mobile banking [21]. The exploratory study of **Vijayan** et al., (2005) [22] examines the consumer's intention to adopt mobile banking services or any new services based on three commonly used theories as Technology Acceptance Theories (TAT). This study gets more importance due to the factor that financial institutions are facing immense challenge to attract visitors to their website and thereby availing new services and new knowledge or theory can help bankers to fish or attract more clients into mobile banking services.

Lee et al., (2003) [23] performed eight interviews to collect records from participants and concluded that there are some factors which are considered to be positive and negative

attitude for adoption of mobile banking, in which relative pros and compatibility were influencing factors and perceived risk and consumer previous experience was non influencing factors.

Thakur, R., & Srivastava, M. (2014) [24] prepared a research paper with an intension to find functional dependency or relationship between adoption readiness (AR), perceived risk and usage intension of mobile aided payment system in India and also to know the developed model steadiness of structured relationship with different customers group. In their proposed model, five out of six hypothesis was fully supported based on different supporting constructs and on the other hand one hypothesis was partially supported. Nayak, Nath, and Goel (2014) [25] prepared a paper with an intension to know or explore different factors that influence or support the acceptance qualities or behaviours Indian customers for experiencing mobile banking services and paper also makes different recommendations for mobile banking services providers to enhance mobile banking services to retain their existing customers and to acquire new customers.

Jain, J. (2013) [26] employed a random sampling of 100 members in Rajasthan of India, in order to identify factors influencing the adaptation and usage of Mobile banking services by Customers in Southern Rajasthan. He found that consumers are serious about the risk of conducting banking via a wireless channel, measured in terms of overall security and trustworthiness of the services offered. However, because of various problems in m-banking system, this is not widely accepted by South Rajasthan bank customer. He also found that consumers get disheartened by the complicated functions while accessing the mobile banking services which lead them to the dissatisfaction level as no proper guidance is to be provided to them [26]. Sathye, M. (1999) and Mattila, M. (2001) have argued that one of the biggest barriers for the growth of online or more banking is sophisticated security mechanism. In mobile banking transactions confidentiality of traffic, of location and of the communicating parties address are important for privacy [27-28].

3. RESEARCH OBJECTIVE AND METHODOLOGY

The main objectives of the research are given below.

- To study mobile banking financial transactions of major prominent Banks in India which includes private and public sector Banks.
- To analyze mobile banking financial transaction using..
- Based on the analysis recommendations on mobile banking services.

Methodology of the research is based on Banks official website study, analysis based on study of major public sector Banks website and recommendations based on the analysis.

4. MOBILE BANKING FINANCIAL TRANSACTIONS OF MAJOR PUBLIC SECTOR BANKS IN INDIA

In order to realize the true benefits of mobile banking and to effectively implement it, high-speed internet connections are directly available to all locations without any restriction in location place and time. A number of existing or future technologies that enable connections between mobile devices and other information appliances and between mobile devices and the Internet are through the series or generation of 1G, 2G, 3G, 4G and upcoming 5G

technologies. As the mobile communication technology moved from generations to generations speed, broadband capacity, bandwidth, availability increased. Fourth Generation (4G) technology is characterized by advanced personalization, high speed, all IP-based, high speed, ubiquitously available services. Table 1 describes the different facilities available for financial transaction using mobile in major public sector banks in India. Table 2 shows fund transfer limits of various nationalized Banks in India.

Table 1: Facilities available in Major Nationalized Banks in India

Sl. No	Bank name	Facilities available	Mobile Bank App
1.	State Bank of India	<ul style="list-style-type: none"> Funds transfer (within and outside the bank) Immediate Payment Services (IMPS) Enquiry services (Balance enquiry/ Mini statement) Cheque book request Demat Enquiry Service Bill Payment (Utility bills, credit cards, Insurance premium), Donations, Subscriptions Mobile /DTH Top up M Commerce (Merchant payments, SBI life insurance premium) MOBILE BANKING SERVICE OVER SMS MOBILE BANKING SERVICE OVER USSD (UNSTRUCTURED SUPPLEMENTARY SERVICE DATA) 	State Bank Anywhere
2.	Andhra Bank	<ul style="list-style-type: none"> Balance Inquiry Mini Statement Funds Transfer Mobile Recharge /DTH. Utility Bill Payments Credit card Services Cheque Services 	Abtej
3.	Allahabad Bank	<ul style="list-style-type: none"> Balance check Fund Transfer IMPS, ALL payments Balance Enquiry Mini Statement: 	mPay, Allmobile
4.	Bank of Baroda	<ul style="list-style-type: none"> Fund transfer Recharge & Bill pay Mobile recharge, DTH recharge, Data card recharge, Utility 	mConnect-Plus

		bill payment, Credit Card (BOB card) payment, Bharat Bill Payment System <ul style="list-style-type: none"> Account Balance- Mini statement-360 degree view of account. Cheque book request, Stop Cheque, Cheque status enquiry 	
5.	Canara Bank	<ul style="list-style-type: none"> Balance enquiry, Mini statement, Intra bank funds transfer and interbank funds transfer through IMPS 	CanMobile
6.	Corporation Bank	<ul style="list-style-type: none"> Instant Term Deposit /RD opening Instant Blocking and Unblocking of Debit Card Detailed view of your Account with latest balance & Mini statement. Fund transfer. Cheque book request Status inquiry of Cheque Stop cheque Account statement on email (in pdf format) Foreign currency exchange rates Transaction History view & Transaction complaint Management Request for New Savings Account, Current Account, Loans, Credit card etc Branch & ATM Locator Bill payment using Bharat Bill Payment System (BBPS) 	Corp EASE
7.	Union Bank	<ul style="list-style-type: none"> Balance Enquiry Mini Statement (last nine transactions) Fund Transfer IMPS Fund transfer using Mobile No. and MMID IMPS Fund transfer using Account No. and IFSC IMPS Fund transfer using Aadhaar No. Merchant IMPS Fund transfer KVS Fee Payment Mobile Recharge Temple Donations Fees payments Stop Payment of cheques Cheque status 	UMobile

		<ul style="list-style-type: none"> • Hotlist Debit Card • ATM/Branch Locator • Request to Bank for Cheque Book 	
8.	Syndicate Bank	<ul style="list-style-type: none"> • Fund transfer using IMPS • Fund transfer within Syndicate Bank accounts • Debit card management • Value added services and bill payment • Balance Enquiry and Mini Statement • SMS and Email Statement Registration • Aadhaar Seeding • Request for Cheque book • View issued cheque status and Stop cheque payment 	Synd Mobile
9.	Indian Overseas Bank	<ul style="list-style-type: none"> • Balance Enquiry • Mini Statement • Fund Transfer • Bill payments • Cheque requests, Stop cheque, cheque status • ATM Card blocking • Foreign Inward Remittance using IMPS 	IOBMobile
10.	Punjab National Bank	<ul style="list-style-type: none"> • View account transactions any time. • Fast and easy recharge and bill-payment options. • SMS Banking, USSD Banking or Missed Call Banking. • Payments mobility solutions for accepting cards. Accepts Rupay, VISA, Master, AMEX, DINERS. 	PNB Mobile

Table 2: Fund transfer limits of various nationalized Banks in India.

Bank Name	Fund Transfer limit
State Bank of India	Unlimited Funds Transfer Facility: SBI Freedom allows users to transfer funds with no monthly limit. The daily combined limit for funds transfer through IMPS (Immediate Payment Service) is Rs. 99,99,999. However, users can transfer only up to Rs. 50,000 per day in other banks using the application.

Andhra Bank	Per day limit is Rs 2, 00,000/- through App including all type of transaction done through application. Rs 5000/- per transaction for quick pay.
Allahabad Bank	Fund transfer Maximum Rs. 50000/- per transaction & Maximum Rs. 1 lakh per day.
Bank of Baroda	The transaction limits are Rs.50,000 per day and Rs.2.5 lakhs per month.
Canara Bank	Transaction limit: 50,000 per day, 5 lakh for neft/RTGS
Corporation Bank	Within Bank Transfer : No Limit Third Party Within Bank/IMPS/NEFT : Max amount per transaction : RS 1,00,000/- Max amount per day: Rs 1,00,000/- Cumulative fund transfer per day: Rs 1,00,000/-
Union Bank	A maximum of Rs. 2,00,000/day via the UMobile application and Rs. 5000/day using SMS Banking.
Syndicate Bank	Maximum of Rs.5,000/- per-day/per-customer, if transaction is initiated through SMS/IVR or NUUP platform. Maximum of Rs.50,000/- per-day/per-customer, if transaction is initiated through downloaded application. The cumulative limit is capped at Rs.50,000/- per-day/per-customer.
Indian Overseas Bank	Customers can transfer up to Rs.50,000/- in a single day.
Punjab National Bank	Rs. 50,000/- per day. However, through SMS & NUUP variants, limit is Rs.5000/- per day and through ATMs limit is Rs.10000/- per day.

5. ANALYSIS OF MOBILE BANKING FINANCIAL TRANSACTIONS OF MAJOR PUBLIC SECTOR BANKS IN INDIA

In contrast to personal computer, mobile personal devices, typically with a fixed display and keyboard, are well-positioned to provide a practical solution for reducing fraud and allowing the fair allocation of responsibility for compensation from fraud. Some amount of security is already part of the authentication mechanism of existing mobile phones as a way to prevent call theft through password and subscriber identification module (SIM). Moreover, it is relatively easy and inexpensive for device manufacturers to add in additional mechanisms to ensure safe transaction authorization. Major public sector banks of India provide financial transactions through mobile banking with security features username, password and OTP. The analysis of mobile banking financial transactions of major public sector banks in India is analyzed using Advantages, Benefits, Constraints, and Disadvantages.

Advantages

- Mobile banking is available 24/7 – anytime, anywhere, anyplace and anytime.

- We can transfer funds, pay bills, checking account balance, exchange currency without interruptions/suggestions from anyone, waiting time and quick turnaround on requests.
- It delivers paperless statements directly into customers.
- The customers will get loyalty rewards in the form of points or discount coupons for transacting via the mobile banking application.
- Shares real-time updates on transactions executed, provides multi-level security features like OTP to registered mobile for authentication via the banking application.
- Allow the customers to get in touch with bank staff using the banking app.
- A different option like chat and call is available at any point of time for help and feedback.
- Minimize human errors, automate processes and become competitive using a good mobile banking solution.
- Mobile banking is cost-effective, many banks offer paperless transaction service in less cost.

Benefits

- A ubiquitous service of banking transactions improves customer satisfaction, which internally influences on banking sector growths.
- Mobile Banking facility makes global expansion of the banking Financial Transactions.
- Mobile Banking helps to improve the brand name and reputation of the bank by providing fast and secured services to its stakeholders.
- Expansion of smart phone users enhances the business of mobile service providers
- Frequent password change policy, and other high security measures like OTP enhances customer faith over banking financial transactions.
- High quality of services can be provided to users with the aid of 4G mobile communication technology.

Constraints

- Lack of new Security measures like Biometric recognition can reduce the number customer using mobile banking services especially in public sector banks in India.
- Lack of newer technology support can become hindrance for the expansion of mobile banking services.
- Slow network speed also can become another hindrance for the growth of mobile banking services.

Disadvantages

- Mobile Banking is not available on all mobile phone.
- Mobile Banking apps are necessary to do transactions, which are available on the high-end smartphone.
- Regular use of Mobile Banking may lead to extra charges levied by the bank for providing the service.

- Mobile banking users are at risk of getting fake SMS messages and scams.
- The loss of a mobile device often means that criminals can gain access to mobile banking PIN and other sensitive information.
- Apart from this there are the usual risks associated with mobile banking includes hacking.

Recommendations of the Study

- Public sectors bank of India should adopt modern security measures like face recognition or fingerprint recognition or any other biometric recognition system to enhance security features of mobile banking services.
- The transactions should not abort in between and incomplete transactions should not end with debit the money from user's accounts.
- Reimburse of money for failure transactions should take place within hours rather than within weeks.
- Speed of the transactions should increase to expand and improve mobile banking services in public sectors banks of India.
- Bank should adopt new technologies like 4G/5G to enhance speed of transactions.

6. CONCLUSION

Mobile banking (also known as M-banking) is one of the new, user-friendly and widely used concept in Electronic banking that is used to accomplish cashless financial transactions, fund transfer, credit applications and payment of bills, taxes etc. remotely through mobile devices like smartphones, PDAs, and tablets. Even though, the public sectors banks of India adopted mobile banking facility, they lack in speed and some security features. All the public sectors banks of India provides some common services like Fund transfer using IMPS, Fund transfer within the Bank accounts, Debit card management, Value added services and bill payment, Balance Enquiry and Mini Statement, SMS and Email Statement Registration, Aadhaar Seeding, Request for Cheque book, and View issued cheque status and Stop cheque payment. In this paper, we discussed and analyzed mobile banking financial transactions and based on the analysis we also make some recommendations to mobile banking service providers. This will help the researcher to find the gap between the traditional and digital method of financial transactions in India.

REFERENCES

- [1] Woerner, B., & Howlader, M. (2001). Research Directions for Fourth Generation Wireless. In Enabling Technologies: Infrastructure for Collaborative Enterprises, 2001. WET ICE 2001. Proceedings. Tenth IEEE International Workshops on(pp. 60-61). IEEE.
- [2] Kumar, S. N (2013). Emergence of 4G Technology in India and its Future Implications. International Journal of Engineering and Management Sciences, 4(2), 247-249.
- [3] Dixit, S. (2002). Wireless IP and its challenges for the heterogeneous environment. Wireless Personal Communications, 22(2), 261-273.
- [4] Krishna Prasad, K. and Aithal, P. S. (2017). A Study on Online Education Model Using Location Based Adaptive Mobile Learning. *International Journal of Applied Engineering*

and Management nm Letters (IJAEML), 1(1), 36-44. DOI: <http://doi.org/10.5281/zenodo.820457>

[5] Krishna Prasad, K. and Aithal, P. S. (2017). A Customized and Flexible Ideal Mobile Banking System Using 5G Technology. *International Journal of Management, Technology, and Social Sciences (IJMTS)*, 1(1), 25-37. DOI: <http://doi.org/10.5281/zenodo.820457>

[6] Krishna Prasad K. & Dr. Aithal, P.S. (2016). The Growth of 4G Technologies in India- Challenges and Opportunities. *International Journal of Management, IT and Engineering (IJMIE)*, 6(1), 543 – 551. DOI : <http://doi.org/10.5281/zenodo.161130>

[7] Krishna Prasad K. & Dr. Aithal, P. S. (2016). Changing Perspectives of Mobile Information Communication Technologies towards Customized and Secured Services through 5G & 6G. *International Journal of Engineering Research and Modern Education (IJERME)*, 1(2), 210-224.

[8] Krishna Prasad, K. & Aithal, P. S. (2016). An Online Comparative Study on 4G Technologies Service Providers in India. *International Journal of Advanced Trends in Engineering and Technology (IJATET)*, 1(1), 96-101. DOI: <http://doi.org/10.5281/zenodo.240269>.

[9] Krishna Prasad, K. and P.S. Aithal (2016). Mobile System for Customized and Ubiquitous Learning by 4G/5G. *International Journal of Management, IT and Engineering (IJMIE)*, 5(7), 63-71.

[10] Krishna Prasad, K. and P.S. Aithal (2015). Massive Growth of Banking Technology with the Aid Of 5G Technologies. *International Journal of Management, IT and Engineering (IJMIE)*, 5(7), 616-627.

[11] Krishna Prasad K, & Aithal P.S.(2014). An advanced Service Provision Model using 4G Technologies, Proceedings of National conference “Changing trends in Management, IT, and Social sciences”, Manegma, 2014, Mangalore, 09/04/2014, ISBN No. 978-81-929306-0-2.

[12] Safeena, R., Date, H., Kammani, A., & Hundewale, N. (2012). Technology adoption and Indian consumers: study on mobile banking. *International Journal of Computer Theory and Engineering*, 4(6), 1020.

[13] Amin, H., Hamid, M. R. A., Tanakinjal, G. H., & Lada, S. (2006). Undergraduate attitudes and expectations for mobile banking. *Journal of Internet Banking and Commerce*, 11(3), 2006-12.

[14] Ivatury, G., & Mas, I. (2008). The early experience with branchless banking. CGAP Focus Note, (46).

[15] Donner, J., & Tellez, C. A. (2008). Mobile banking and economic development: Linking adoption, impact, and use. *Asian journal of communication*, 18(4), 318-332.

[16] Liu, Z., Min, Q., & Ji, S. (2009, May). An empirical study on mobile banking adoption: The role of trust. In *Electronic Commerce and Security, 2009. ISECS'09. Second International Symposium on* (Vol. 2, pp. 7-13). IEEE.

[17] Veijalainen, J., Terziyan, V., & Tirri, H. (2006). Transaction management for m-commerce at a mobile terminal. *Electronic Commerce Research and Applications*, 5(3), 229-245.

[18] Shaikh, A. A. (2013). Mobile banking adoption issues in Pakistan and challenges ahead. *J. Inst. Bankers Pak*, 80(3), 12-15.

[19] Suoranta, M., & Mattila, M. (2004). Mobile banking and consumer behaviour: New insights into the diffusion pattern. *Journal of Financial Services Marketing*, 8(4), 354-366.

- [20] Riivari, J. (2005). Mobile banking: A powerful new marketing and CRM tool for financial services companies all over Europe. *Journal of Financial Services Marketing*, 10(1), 11-20.
- [21] Suoranta, M., Mattila, M., & Munnukka, J. (2005). Technology-based services: a study on the drivers and inhibitors of mobile banking. *International Journal of Management and Decision Making*, 6(1), 33-46.
- [22] Vijayan, P., Vignesén, P., & Bala, S. (2005). Multimedia banking and technology acceptance theories. *Journal of Internet Banking and Commerce*, 10(1), 1-7.
- [23] Lee, M. S., McGoldrick, P. J., Keeling, K. A., & Doherty, J. (2003). Using ZMET to explore barriers to the adoption of 3G mobile banking services. *International Journal of Retail & Distribution Management*, 31(6), 340-348.
- [24] Thakur, R., & Srivastava, M. (2014). Adoption readiness, personal innovativeness, perceived risk and usage intention across customer groups for mobile payment services in India. *Internet Research*, 24(3), 369-392.
- [25] Nayak, N. I. T. I. N., Nath, V. I. K. A. S., & Goel, N. A. N. C. Y. (2014). A study of adoption behaviour of mobile banking services by Indian consumers. *International Journal of Research in Engineering & Technology*, 2(3), 2347-4599.
- [26] Jain, Y. (2013). Mobile Banking: A Study on Adoption & challenges in Southern Rajasthan, India. *International Journal of Innovative Research and Development*, 2(4), 902-914.
- [27] Sathye, M. (1999). Adoption of Internet banking by Australian consumers: an empirical investigation. *International Journal of bank marketing*, 17(7), 324-334.
- [28] Mattila, M. (2001). Essays on customers in the dawn of interactive banking. Jyväskylän Yliopisto.

Analytical study on State Bank of India

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Abstract

State Bank of India (SBI) is an Indian multinational, public sector banking and financial services company. It is a government-owned corporation with its headquarters in Mumbai, Maharashtra. On April 1, 2017, the State Bank of India, which was India's largest bank, merged with five of its associate banks (State Bank of Bikaner & Jaipur, State Bank of Hyderabad, State Bank of Mysore, State Bank of Patiala and State Bank of Travancore), and with the Bharatiya Mahila Bank. This was the first ever large scale consolidation in the Indian banking industry. With the merger, SBI became one of the 50 largest banks in the world (balance sheet size of ₹33 trillion, 278,000 employees, 420 million customers, and more than 24,000 branches and 59,000 ATMs). SBI's market share was projected to increase to 22 percent from 17 per cent. It has 198 offices in 37 countries; 301 correspondents in 72 countries. The company is ranked 232nd on the Fortune Global 500 list of the world's biggest corporations as of 2016. The bank descends from the Bank of Calcutta, founded in 1806, via the Imperial Bank of India, making it the oldest commercial bank in the Indian subcontinent. The Bank of Madras merged into the other two "presidency banks" in British India, the Bank of Calcutta and the Bank of Bombay, to form the Imperial Bank of India, which in turn became the State Bank of India in

1955. The Government of India took control of the Imperial Bank of India in 1955, with Reserve Bank of India (India's central bank) taking a 60% stake, renaming it the State Bank of India. In 2008, the government took over the stake held by the Reserve Bank of India.

Keywords: Banking Finance, Loans, Money, Multinational Company and Service

1. INTRODUCTION TO INDUSTRY

Banking in India, in the modern sense, originated in the last decades of the 18th century. Among the first banks were the Bank of Hindustan, which was established in 1770 and liquidated in 1829–32; and the General Bank of India, established in 1786 but failed in 1791. The largest bank, and the oldest still in existence, is the State Bank of India (S.B.I). It originated as the Bank of Calcutta in June 1806. In 1809, it was renamed as the Bank of Bengal. This was one of the three banks funded by a presidency government; the other two were the Bank of Bombay in 1840 and the Bank of Madras in 1843. The three banks were merged in 1921 to form the Imperial Bank of India, which upon India's independence, became the State Bank of India in 1955. For many years the presidency banks had acted as quasi-central banks, as did their successors, until the Reserve Bank of India was established in 1935, under the Reserve Bank of India Act, 1934. In 1960, the State Banks of India was given control of eight state associated banks under the State Bank of India (Subsidiary Banks) Act, 1959. These are now called its associate banks. In 1969 the Indian government nationalized 14 major private banks, one of the big bank was Bank of India. In 1978, 6 more private banks were nationalized. These nationalized banks are the majority of lenders in the Indian economy. They dominate the banking sector because of their large size and widespread networks. India's banking sector is sufficiently capitalized and well-regulated. The financial and economic conditions in the country are far superior to any other country in the world. Credit, market and liquidity risk studies suggest that Indian banks are generally resilient and have withstood the global downturn well. Indian banking industry has recently witnessed the roll out of innovative banking models like payments and small finance banks. RBI's new measures may go a long way in helping the restructuring of the domestic banking industry. The digital payments system in India has evolved the most among 25 countries with India's Immediate Payment Service (IMPS) being the only system at level 5 in the Faster Payments Innovation Index (FPII). The Indian banking system consists of 27 public sector banks, 26 private sector banks, 46 foreign banks, 56 regional rural banks, 1,574 urban cooperative banks and 93,913 rural cooperative banks, in addition to cooperative credit institutions. Public-sector banks control more than 70 per cent of the banking system assets, thereby leaving a comparatively smaller share for its private peers. Banks are also encouraging their customers to manage their finances using mobile phones.

2. INTRODUCTION TO SBI

State Bank of India (SBI) is an Indian multinational, public sector banking and financial services company. It is a government-owned corporation with its headquarters in Mumbai, Maharashtra. On April 1, 2017, the State Bank of India, which was India's largest bank, merged with five of its associate banks (State Bank of Bikaner & Jaipur, State Bank of Hyderabad, State Bank of Mysore, State Bank of Patiala and State Bank of Travancore), and

with the BharatiyaMahila Bank. This was the first ever large scale consolidation in the Indian banking industry. With the merger, SBI became one of the 50 largest banks in the world (balance sheet size of ₹33 trillion, 278,000 employees, 420 million customers, and more than 24,000 branches and 59,000 ATMs). SBI's market share was projected to increase to 22 percent from 17 per cent. It has 198 offices in 37 countries; 301 correspondents in 72 countries. The company is ranked 232nd on the Fortune Global 500 list of the world's biggest corporations as of 2016. The bank descends from the Bank of Calcutta, founded in 1806, via the Imperial Bank of India, making it the oldest commercial bank in the Indian subcontinent. The Bank of Madras merged into the other two "presidency banks" in British India, the Bank of Calcutta and the Bank of Bombay, to form the Imperial Bank of India, which in turn became the State Bank of India in

1955. The Government of India took control of the Imperial Bank of India in 1955, with

Reserve Bank of India (India's central bank) taking a 60% stake, renaming it the State Bank of India. In 2008, the government took over the stake held by the Reserve Bank of India. The State Bank of India has 20% market share in deposits and loans among Indian commercial banks.

3. COMPANY BACKGROUND

The roots of the State Bank of India lie in the first decade of the 19th century, when the Bank of Calcutta later renamed the Bank of Bengal, was established on 2 June 1806. The Bank of Bengal was one of three Presidency banks, the other two being the Bank of Bombay (incorporated on 15 April 1840) and the Bank of Madras (incorporated on 1 July 1843). All three Presidency banks were incorporated as joint stock companies and were the result of royal charters. These three banks received the exclusive right to issue paper currency till 1861 when, with the Paper Currency Act, the right was taken over by the Government of India. The Presidency banks amalgamated on 27 January 1921, and the re-organized banking entity took as its name Imperial Bank of India. The Imperial Bank of India remained a joint stock company but without Government participation. Pursuant to the provisions of the State Bank of India Act of 1955, the Reserve Bank of India, which is India's central bank, acquired a controlling interest in the Imperial Bank of India. On 1 July 1955, the imperial Bank of India became the State Bank of India. In 2008, the Government of India acquired the Reserve Bank of India's stake in SBI so as to remove any conflict of interest because the RBI is the country's banking regulatory authority. In 1959, the government passed the State Bank of India (Subsidiary Banks) Act. This made SBI subsidiaries of eight that had belonged to princely states prior to their nationalization and operational takeover between September 1959 and October 1960, which made eight state banks associates of SBI. This one with the first Five Year Plan, which prioritized the development of rural India. The government integrated these banks into the State Bank of India system to expand its rural outreach. In

1963 SBI merged State Bank of Jaipur (est. 1943) and State Bank of Bikaner (est. 1944). SBI has acquired local banks in rescues. The first was the Bank of Bihar (est. 1911), which SBI acquired in 1969, together with its 28 branches. The next year SBI acquired National Bank of Lahore (est. 1942), which had 24 branches. Five years later, in 1975, SBI acquired KrishnaramBaldeo Bank, which had been established in 1916 in Gwalior State, under the patronage of Maharaja Madho Rao Scindia. The bank had been the DukanPichadi, a small moneylender, owned by the Maharaja. The new bank's first manager was Jall N. Broacha, a Parsi. In 1985, SBI acquired the Bank of Cochin in Kerala, which had 120 branches. SBI was the acquirer as its affiliate, the State Bank of Travancore, already had an extensive network in Kerala. There has been a proposal to merge all the associate banks into SBI to create a "mega bank" and streamline the group's operations. The first step towards unification occurred on 13 August 2008 when State Bank of Saurashtra merged with SBI, reducing the number of associate state banks from seven to six. On 19 June 2009, the SBI board approved the absorption of State Bank of Indore. SBI holds 98.3% in State Bank of Indore. (Individuals who held the shares prior to its takeover by the government hold the balance of 1.7%.) The acquisition of State Bank of Indore added 470 branches to SBI's existing network of branches. Also, following the acquisition, SBI's total assets will approach ₹10 trillion. The total assets of SBI and the State Bank of Indore were ₹9,981,190 million as of March 2009. The process of merging of State Bank of Indore was completed by April 2010, and the SBI Indore branches started functioning as SBI branches on 26 August 2010. On 7 October 2013, Arundhati Bhattacharya became the first woman to be appointed Chairperson of the bank. Mrs. Bhattacharya received an extension of two years of service to merge into SBI the five remaining associated banks.

4. PEST ANALYSIS

POLITICAL ANALYSIS

The expected integration of various intermediaries in the financial system would require a strong regulatory framework. It would also require a number of legislative changes to enable the banking system to remain contemporary and competitive. The principal governing body of all financial providers in India is RBI (Reserve Bank of India) and SEBI (Securities and Exchange Board of India). SBI has to always adjust with the new policies regulated by RBI & SEBI, sometimes it leads to uncomfortable situations, not only for SBI but other financial providers. For example: RBI's guideline to limit banks' exposure to their own group nonfinancial and financial entities. Such guidelines lead to credit negative for group companies that rely on parent banks for capital and brand support. Frequent changes in interest rates to manage inflation. There is also rifts between RBI and SBI over high percentage of CRR. International legislations like BASEL II and policies of IMF also effect the bank to a certain extent. Though being a public sector bank SBI enjoys surplus funds and

government backing. But Political policies sometimes hamper the growth of bank and not let them perform as they wish.

ECONOMIC ANALYSIS

The growth of the banking industry is closely linked with the growth of the overall economy. According to a McKinsey report, the Indian banking sector is heading towards being a high performing sector. The rising per capita income is driving the growth of retail credit. Public sector bank has grown its deposits, advances and business per employee by the highest rate – 21.7%, 23% and 21.1% in last 3 years. As far as net interest income is concerned, private banks are ahead in the race by reporting 24.2% growth, followed by public banks (21.4%). Since March 2002, Banker (Index tracking the performance of leading banking sector stocks) has grown at a compounded annual rate of about 31%. Here is comparison of SBI's performance over other banks in India. (54.24 INR= US\$1)

SBI not only helps small and medium size industries, it finances big co-operation's like



TATA with US\$ 7 billion to expand its base overseas and within India. In spite of showing a 12.3 per cent year-on-year growth in September quarter's net profit, higher slippages in nonperforming assets (NPA) led to the SBI stock slide down. SBI has slashed its interest rates in order to increase the lending (from 13.75% to 12.70%). Post rate cuts, SBI sees demand for home and auto loans triple. Banking sector in India is in good health and as a public sector bank SBI's market share is growing but still needs to catch up with Private sector in long run.

SOCIAL FACTORS

Sociocultural forces too can have a deep impact on the banking industry. Changing social trends and people's preferences can affect the business and growth of the banking brands. Consumer demographics and people's attitudes towards the financial services have also changed a lot. The millennials whether students or professionals make use of credit cards for small and big transactions. Businesses whether small or big are more open to taking financial assistance from the banks. Consumer confidence has surged owing to economic factors but socially to the acceptance of banks and banking services has risen. So, several things have changed in the twenty first century. The millennials want great customer service and convenience and it is why the banks have focused in providing a whole range of services online combined with round the clock customer assistance. In this way, banking industry has taken an entire new direction in the 21st century and customer satisfaction as well as customer orientation has become important for them just like other big businesses. Socially other small and big changes to affect the banks like growing use of banking services in the rural sector, among the women and the growing income of the middle class consumers.

TECHNOLOGICAL

Technology is virtually everywhere in the 21st century. A large part of the tasks carried out by the banks are carried out online. Information technology has taken Centre stage and from customer accounts to loans and insurance, several services can be availed of online. Technology has added convenience to banking. However, some issues have also arisen amid all this technological development and innovation. Privacy and security concerns have also grown bigger with the rising use of technology. Banks have to spend significantly large sums on the maintenance of a large technological infrastructure. Apps are common and customers use them any time from their smartphones to shop and pay online. These apps are full of features and make it easy to pay bills online.

<div style="text-align: center;">   State Bank of India <small>With you - all the way</small> </div>	
Political	<ul style="list-style-type: none"> • Regulatory bodies. • Government policies. • International legislations.
Economic	<ul style="list-style-type: none"> • Economic trends(Indian/Global) • Interest and exchange rates
Social	<ul style="list-style-type: none"> • Lifestyle trends • Customer attitude and opinion • Media news and brand image • Advertising and publicity
Technology	<ul style="list-style-type: none"> • Information technology • Competent technology • Global communication

5. SWOT ANALYSIS

Strengths in the SWOT analysis of SBI is SBI is the largest bank in India in terms of market share, revenue and assets. As per recent data the bank has more than 13,000 outlets and 25,000 ATM centres. The bank has its presence in 32 countries engaging currency trade all over the world. The bank has merged with State Bank of Saurashtra, State bank of Indore

and the bank is planning to go further acquisition in the current FY2012. SBI has the first mover advantage in commercial banking service. SBI has recently changed its vision and mission statements showing a sign of inclination towards new age banking services. Weaknesses of SBI is Lack of proper technology driven services when compared to private banks.

Employees show reluctance to solve issues quickly due to higher job security and customers' waiting period is long when compared to private banks. The banks spend a huge amount on its rented buildings. SBI has the largest number of employees in banking sector; hence the bank spends a considerable amount of its income in employee's salary compensation. In spite of modernization, the bank still carries the perception of traditional bank to new age customers. SBI fails to attract salary accounts of corporate and many government sector employees salary accounts are also shifted to private bank for ease of operations unlike before. Opportunities in the SWOT analysis of SBI is SBI's merger with five more banks namely State Bank of Hyderabad, State bank of Patiala, State bank of Bikaner and Jaipur, State of bank of Travancore and State bank of Mysore are in approval stage. Mergers will result in expansion of market share to defend its number one position. SBI is planning to expand and invest in international operations due to good inflow of money from Asian Market. Since the bank is yet to modernize few of its banking operations, there is a better scope of using advanced technologies and software to improve customer relations. Young and talented pool of graduates and B schools are in rise to open new horizon to so called "old government bank". Threats in the SWOT analysis of SBI. Net profit of the year has decline from 9166.05 in the year FY 2010 to 7,370.35 in the year FY2011. This shows the reduce in market share to its close competitor ICICI. Other private banks like HDFC, AXIS bank etc. FDIs allowed in banking sector is increased to 49% , this is a major threat to SBI as people tend to switch to foreign banks for better facilities and technologies in banking service. Other government banks like PNB, Andhra, Allahabad bank and Indian bank are showing. Customer prefer to switch to private banks and financial service providers for loans and mortgages, as SBI involves stringent verification procedures and take long time for processing.

6. RECENT ACTIVITIES

State Bank of India has won Best Technology Bank of the Year in 2017-18. This is the most coveted and prestigious award from IBA. SBI has recently launched the latest customer friendly digital initiative of the Bank MOPAD (Multi Option Payment Acceptance Device). Under this, the customer will be able to make payments through Cards, Bharat QR, UPI and SBI Buddy (e-wallet) on a PoS terminal. This initiative aims at providing digital convenience to customers and ease of doing business for merchants at the same time. SBI has launched

YONO by SBI one App for all Banking, Shopping, Investments, Insurance, and daily Shopping needs. State Bank of India and its employees have donated Rs 10 crore for flood-ravaged Kerala. State Bank of India also offered many schemes for agricultural sector offering farmer-friendly loans for various agricultural activities in the year 2017-18 like 'Marketing Loan' To help farmers avoid distress sale of their produce and to enable prompt repayment of crop loan dues and provide liquidity to farmers to meet contingency needs. SBI has set up 'Agri-Clinic & Agri Business Centres' provides self employment opportunities to technically trained persons and to augment extension services for agriculture. 'Land purchase scheme' this scheme assists Small & Marginal farmers and landless agricultural laborers for purchase of Land, who are our existing borrowers to consolidate land holdings & development of Wasteland & fallow lands. 'Scheme for Debt Swapping Of Borrowers' which extends finance to farmers for paying off loans taken from non-institutional lenders and to enable such farmers in distress, meet their crop production needs. State Bank of India key Products/Revenue Segments include Interest & Discount on Advances & Bills which contributed Rs 141363.17 Crore to Sales Value (64.11 % of Total Sales), Income From Investment which contributed Rs 70337.62 Crore to Sales Value (31.89 % of Total Sales), Interest On Balances with RBI and Other Inter-Bank Funds which contributed Rs 6548.53 Crore to Sales Value (2.96 % of Total Sales) and Interest which contributed Rs 2250.00 Crore to Sales Value (1.02 % of Total Sales) for the year ending 31-Mar-2018. For the quarter ended 30-06-2018, the company has reported a Consolidated Interest Income of Rs 39916.90 Crore, up 13.56 % from last quarter Interest Income of Rs 35150.82 Crore and up 8.03 % from last year same quarter Interest Income of Rs 36949.98 Crore. The bank has reported net profit after tax of Rs -4056.23 Crore in latest quarter. State Bank of India has set up a remittance Centre in the suburb Punggol district in Singapore responding to Singapore government's initiative for making it "easy lifestyle" for construction workers at dormitories. State Bank of India has increased the lending rate by 20 basis points across all tenors up to three years.

7. SUGGESTIONS AND RECOMMENDATIONS

The present management has been able to design a suitable launching pad for State Bank of India from where it can take a leap towards maintaining its industry leader status and even go on to become one of the top global leaders. However, this would require the bank to strategize plans wisely and follow them strictly. Some of the steps that the bank should take are: Start up with intense brand building exercise in India and abroad, so that the SBI brand value can reach its all time high, attracting the best of human and other resources. This would also help the bank in globalizing itself faster. Create a matrix organizational structure, which would equip the bank with the ability to react faster to the constant changes of the international banking industry. A more dynamic SBI can evolve this way. Create smarter technology based banking, which would allow customers to transact faster and safer from

anywhere in the globe. Customer services should be customized to every individual, instead of serving all with the generic ones. This would build closer bank-customer relationship. Branches can be fitted with mechanized banking facilities. Faster grievance resolution systems should be build. Effective succession planning should be designed and implemented. Board of advisors need to created as O.P. Bhatt at its helm after his retirement. Online training for personnel, which they can take up from any location. Sharper performance management system. Augmented services for global middle class and Corporate houses. Specialized agricultural bank for winning the sector globally.

8. CONCLUSION

For State bank of India, change had become absolutely mandatory in order to nullify and reverse the damages caused by the aggressive and advanced business strategies of the private banks, augmented further by the nonchalance and overall apathy towards providing quality banking experience. SBI provides a range of banking products through its network of branches in India and overseas, including products aimed at non-resident Indians (NRIs). SBI has 14 regional hubs and 57 Zonal Offices that are located at important cities throughout India. SBI has 18,354 branches in India. In the financial year 2012–13, its revenue was ₹2.005 trillion (US\$31 billion), out of which domestic operations contributed to 95.35% of revenue. Similarly, domestic operations contributed to 88.37% of total profits for the same financial year.

REFERENCES

- [1] Tuli, R., Khatri, A., & Yadav, A. (2012). A comparative study of customer attitude towards ATM of SBI and ICICI bank. *International Journal of Marketing and Technology*, 2(8), 463.
- [2] Levine, D. A., Platt, S. L., Dayan, P. S., Macias, C. G., Zorc, J. J., Krief, W., ... & Kuppermann, N. (2004). Multicenter RSV-SBI Study Group of the Pediatric Emergency Medicine Collaborative Research Committee of the American Academy of Pediatrics. Risk of serious bacterial infection in young febrile infants with respiratory syncytial virus infections. *Pediatrics*, 113(6), 1728-1734.
- [3] Levine, D. A., Platt, S. L., Dayan, P. S., Macias, C. G., Zorc, J. J., Krief, W., ... & Kuppermann, N. (2004). Risk of serious bacterial infection in young febrile infants with respiratory syncytial virus infections. *Pediatrics*, 113(6), 1728-1734.
- [4] Thagunna, K. S., & Poudel, S. (2013). Measuring bank performance of Nepali banks: A Data envelopment analysis (DEA) perspective. *International Journal of Economics and Financial Issues*, 3(1), 54.
- [5] Zorc, J. J., Levine, D. A., Platt, S. L., Dayan, P. S., Macias, C. G., Krief, W., ... & Kuppermann, N. (2005). Clinical and demographic factors associated with urinary tract infection in young febrile infants. *Pediatrics*, 116(3), 644-648.
- [6] Agung, J. (1998). Financial deregulation and the bank lending channel in developing countries: the case of Indonesia. *Asian Economic Journal*, 12(3), 273-294.

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- [7] Chakrabarti, R., Chawla, G., Rakshit, M., & Bose, S. (2008). Bank efficiency in India since the reforms: An assessmentDynamics of Indian Baking: Views and Vistas, Atlantic publisher, 39-60

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