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AGILE SOFTWARE DEVELOPMENT: AN ALTERNATIVE APPROACH TO SOFTWARE DEVELOPMENT

Garima Verma*

*Associate Professor, IBS Hyderabad

ABSTRACT

Traditionally, software development has been managed through plan based approaches that are full of limitations such as poor quality, not meeting customer requirements, unrealistic project development durations etc. To overcome all these problems, Agile software Development approach is being tattooed as an alternative approach. In this approach, software projects are developed using Iterative and Incremental methods using cross-functional teams and self-organizing. The main focus, in these methods, is to determine requirements and solutions through collaboration between these teams through adaptive planning, evolutionary development and delivery and time-boxed iteration. There is a lot of flexibility and speed lent to development process in this approach to meet customer requirements better and in time. This paper is an attempt to understand Agile Software Development approach in detail to critically examine and compare its utility as an alternative approach to the development of software projects.

Key Words : Agile, time-boxed, adaptive planning, evolutionary development

INTRODUCTION

Software development has gone through significant changes in the recent times. Earlier it was traditional waterfall approach and now it is Agile Software Development approach. As a traditional approach, waterfall approach has been more in use in software development. One of the key reasons for this is even complex software systems could be built in a sequential, phase-wise manner. In this, a detailed requirements analysis is done at the beginning by a team of Requirement Analysts, which then is sent for implementation of master design for further development of software. It somewhat works like a conveyer belt in a production line. Requirement Analysts, Software designers and Software Developers work in tandem to develop quality software. The system specifications are collected by a team of requirement analysts, and then sent to the software designers for creating diagram documents that contain the codes which finally is sent to a team of software developers. All this is done using GANTT or PERT charts which clearly shows the dependencies for each member of the developmental team. Despite this, only 9% to 16% of the projects have been found to be developed on-time and on-budget. Moreover, the problem of

meeting changing customer requirements fully has been another critical issue that cannot be dealt with satisfaction.

Due to the problems inherent to the traditional approach, many improvements were suggested by experienced practitioners and labeled their methods as "Agile Software Development". It has been found that Agile Software Development approach has several advantages in today's scenario when customers have become highly demanding in terms of quality and completion time. The key differentiating merit of this approach is speed and flexibility. Since we use incremental method here, therefore, it very easy to incorporate new changes that a customer wants. This, in the long run also reduces the overall cost of producing the software project. In this paper, we have made an attempt to critically examine and compare two approaches of software development, one is the traditional waterfall approach and other is "Agile Software Development" approach.

LITERATURE REVIEW

Dingsoyr 2008 characterizes the status and main

challenges for research on agile software development, and propose a preliminary roadmap, focusing on providing more empirical research, primarily on experienced agile teams and organizations, connecting better to existing streams of research in more established fields, giving more attention to management-oriented approaches, and finally give more emphasis to the core ideas in agile software development in order to increase our understanding.

Malik 2008 they said that new software development methodologies were introduced to fit the new culture of the software development companies. Agile methodologies were introduced to meet the new requirements of the software development companies.

Frauke, Armin 2003 made a comparative analysis between both approaches in term of requirement engineering methods.

PURPOSE OF THE STUDY

The purpose of this study to analyze two software development approaches i.e. traditional and agile software development. In this study, we shall compare these two approaches and bring out their benefits and limitations. In addition, we wish to find out the efficacy of agile software development approach and discuss how it can be improved in future.

TRADITIONAL DEVELOPMENT METHOD

Generally when we talk about the traditional way of software development then we think about an approach which is sequential as well as phase wise. It starts from problem identification, analyzing, designing, and then documenting and validating requirements for the system to be developed. The requirement is a phase in which developer try to gather different kind of requirements from the customers in the beginning of the project. After that they go for analysis phase in which all the

requirements are analyzed and represented using different methods so that they can be assured that whatever requirements they have collected are correct and accurate. After analysis they prepare a document called as SRS it acts like a contract between customer and developer so that there should not be any problem related with requirements can occur. After analysis developer go for design phase in which they design all the documents like flowchart, pseudo code, algorithms etc for the problem. After that programmer does coding for the project and then testing and maintenance.

The most popular method of traditional approach is water fall model, after this model there are many more model like V-Model, Spiral Model, etc.

PHASE OF TRADITIONAL METHOD

AGILE DEVELOPMENT METHODS

Agile tends the quality of being agile; readiness, motion, active etc. The agile development is less documents centric and more code oriented. Methods for Agile software development constitute a set of practices for software development that have been created by experienced practitioners.

There are various Agile methods used for software development. In this paper we are describing the most common agile methods.

- **Extreme Programming-** This is based on values of simplicity, communication, feedback and courage. (Beck 1999) XP has evolved from the problems caused by the long development cycles of traditional development models. It works by bringing the whole team together in the presence of simple practices, with enough feedback to enable the team to see where they are.
- **Scrum** - Scrum is a method for managing the system development process by applying ideas on flexibility, adaptability and productivity from industrial process control theory (Schwaber 1995, schwaber and Beedle 2002). Scrum focuses on how a team should work together to produce quality work in a changing environment.

- **Crystal family of methodologies-** The crystal family of methodologies includes a number of different methodologies for selecting the most suitable methodology for each individual project (Cockburn 2002). The different members of the family can be tailored to fit varying circumstances. Each member of the crystal family is marked with a color indicating the "heaviness" of the methodology, i.e. the darker the color the heavier the methodology : clear, yellow, orange, red etc.
- **Feature driven development - FDD** is a short iteration process for software development focusing on the design and building phase instead of covering the entire software development process, but rather focuses on the design and building phases (palmer and Felsing 2002). However, it has been designed to work with the other activities of a software development project and does not require any specific process modes to be used.
- **Dynamic Systems Development Method-** It provides a framework for rapid application development. The fundamental idea behind DSDM is that instead of fixing the amount of functionality in a product, and then adjusting time and resources to reach that functionality (Stapleton 1997). It is preferred to fix time and resources, and then adjust the amount of functionality accordingly.

TRADITIONAL VS AGILE SOFTWARE DEVELOPMENT APPROACH

Although traditional method is very systematic and step wise but one of the biggest drawback of this method is that it requires gathering of all the requirements of the project at the beginning, design is completed next, and finally the master design is implemented into production of quality software. This approach holds that complex system can be built in a single pass, without going back and revisiting requirements or design ideas in light of changing business or technology conditions. But actually this is not possible that any customer can provide requirements accurately in the beginning

of the project. And if the requirement gets changed in between the developmental phase or cycle then either it is impossible to accommodate these changes or will cost a lot more to customer as well as developer. This problem is very well taken care of in Agile Software Developmental approach. Actually, requirement analysis, in this approach, is done at every stage i.e. requirement, design, testing and implementation stage. Because of this, customer's changing requirements can be incorporated at any point of time. This saves a lot of costs for the company and results in quality software developments also.

Traditional development approach is document centric approach and for every small change we need to prepare a new document. Agile methods, on the other hands, are people-oriented than process-oriented. These rely on people's expertise, competency and direct collaboration rather than rigorous, document centric processes to produce high-quality software.

Further, Agile methods are adaptive rather than predictive. With traditional methods, most of the software process is planned in detail for a large time frame. This work well if the application domain and software technologies are well understood by the developer in advance. Whereas, agile methods are developed to adapt and thrive on frequent changes.

LIMITATIONS OF AGILE METHODS

Agile development aims to support early and quick development of working code that meets the changing needs of the customer. Agile supporters claim that code is the only deliverable that matters, whereas, agile opponents found that emphasis on code will lead to memory loss, because the amount of documentation and modeling done is not enough. Agile methodologies are not suitable for green-field engineering and not suitable for maintenance, since there will be not much Documentation for the systems. The second limitation is that agile methodologies depend heavily on the user involvement, and thus, the success of the project will depend on the cooperation and communication of the user. Another limitation is that agile

methodologies concentrate work quality on the skills and behaviors of the developers, as the design of the modules and sub-modules are created mainly by single developer.

To get the advantages of applying agile methodologies in the development, there is a set of assumptions that are assumed to be true. To mention some are: cooperation and face to face relation between the customers and the development team; evolving and changing requirements of the project; developers having good individual skills and experiences; in addition to many more. If these assumptions do not apply to a software development project, then it is better to look for other methodologies to apply for the development process, in order to get better results.

CONCLUSIONS

Software development methodologies have evolved since the 70s. Agile methodologies came into existence after the need for a light way to do software development in order to accommodate changing requirements environment. Agile methodologies provide some practices that facilitate communication between the developer and the customer, and undergo develop-deliver-feedback cycles, to have more specific view of the requirements, and be ready for any change at any time. The main aim of agile methodologies is to deliver what is needed when it is needed. Agile methodologies include a set of software development approaches. They have some variations, but still they share the same basic concepts. The main agile methodologies that are being used include XP, Agile Modeling, and SCRUM. XP is the coding of what the customer specifies, and the testing of that code.

Agile methodologies are not best suited for all projects. When communication between the developer and the customer is difficult, or when the development team includes mainly beginners, agile methodologies will not give the best results.

FUTURE SCOPE

It has been analyzed in this paper that agile software development is the future of software development

methods. However it's too early to conclude that this approach is flawless. There are many areas that need to be researched before coming to a conclusion regarding efficacy of this approach. For example - most of the studies till now have included single customer representative. What if there are more stakeholders who need to be consulted in each iteration. Also we need to have empirical findings to substantiate above mentioned conclusion. In addition this approach needs to be tested on different platforms and different types of software catering to different industries.

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SERVICE MARKETING: ISSUES & CHALLENGES

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ABSTRACT

In each & every industry, the intake of service marketing is increasing day by day. But as well as the service industry is feeling well, there are some of the adverse conditions due to some challenges like Unstable governments, Corruption, E-commerce--doesn't offer complete solutions, etc. also giving hurdles in the path of service marketing in modern era.

Under this research paper, it is tried to make clear understanding of the service marketing, its various characteristics with their implications & the various 'p's of service marketing mix also has been explained to make a clear vision of the service marketing. The various factors responsible for the transformation of the service economy such as Internationalization, Increased services trade, Global customers, Government Regulation also appeared with an emphasis to making the service marketing concept more & more easy. A comparison between Product vs. Service Marketing Challenges with the factor like Tangibility, Relationship and Value also takes place under this research paper.

Last but not least the various challenges for the growing service marketing like Unstable governments, Tariffs and other trade barriers, Corruption-commerce---doesn't offer complete solutions & their suggestive recommendations for facing these challenges also pointed out under this research paper with a great intension of making the service marketing more & more better beneficial to both companies & customers.

INTRODUCTION

Activity or benefit that one party can offer to another that is essentially intangible and does not result in the ownership of anything. Its production may or may not be tied to a physical product. Any act, performance or experience that one party can offer another; one that is essentially intangible, and does not result in the ownership of anything. Its production may or may not be tied to a physical product.

According to Murti Sumarni, "Services Marketing is an activity or an advantage which can be given by a party to another party which is mostly intangible and can not affect ownership, and its production or is not related to any tangible product."

According to A.M.A., "Service marketing means buying & selling of intangibles things with the customer satisfaction such as Tourism Service,

Telecommunications Service, Defense, Postal, Education, Health, Religious Services, Hospitals, Airlines, Hotels, Law Firms, Entertainment, etc.

CONCEPT OF SERVICE MARKETING

It is a sub field of marketing, which can be split into the two main areas of goods marketing (which includes the marketing of fast moving consumer goods (FMCG) and durables) and services marketing.

Service marketing typically refers to both business to consumer (B2C) and business to business (B2B) services, and includes marketing of services like telecommunications services, financial services, all types of hospitality services, car rental services, air travel, health care services and professional services.

The range of approaches and expressions of a marketing idea developed with the hope that it be effective in conveying the ideas to the diverse population of people who receive it.

In other words the concept can also be elaborated as follows:-

- Services are economic activities offered by one party to another. Often time-based, performances bring about desired results to recipients, objects, or other assets for which purchasers have responsibility. In exchange for money, time, and effort, service customers expect value from access to goods, labor, professional skills, facilities, networks, and systems; but they do not normally take ownership of any of the physical elements involved.

OTHER SERVICE CONCEPTS

SERVICE INDUSTRIES AND COMPANIES

Classified within the service sector whose core product is service comes under this category, actually the companies & collection of the no. Of firms in the form of industry represent this type. The various companies engage in business of offering various types of services products can be noted under this category.

SERVICE AS PRODUCTS

Represent the wide range of intangible product offerings that customers value and pay for. Sold by service and non-service companies

CUSTOMER SERVICE

Service provided in support of company's core products (typically not charged for) like any additional services in free of cost. With an intention to promote & make a better customer relationship with the existing & future customers.

HIDDEN SERVICES

Another way of thinking about products and services for making product market more strengthen to cover more market segment as compare to earlier.

Actually the hidden services are decided by the company itself what to deliver a customer & what not.....

CHARACTERISTICS OF A SERVICE

What exactly are the characteristics of a service? How are services different from a product? In fact many organizations do have service elements to the product they sell.

McDonald's sell physical products i.e. burgers but consumers are also concerned about the quality and speed of service, are staff cheerful and welcoming and do they serve with a smile on their face?

There are five characteristics to a service which will be discussed below.

RIGHT OF OWNERSHIP

It means that the service provider reserve the rights of services with his or her even after delivering the service to the customer.

An engineer may service your air-conditioning, but you do not own the service, the engineer or his equipment. You cannot sell it on once it has been consumed, and do not take ownership of it.

INTANGIBILITY

You cannot hold or touch a service unlike a product. In saying that although services are intangible the experience consumers obtain from the service has an impact on how they will perceive it.

Doing travelling by a airways only gives a pleasure of luxurious life. It does not provide any tangible product that may be use even afterward conditions or may be touch.

INSEPARABILITY

Services cannot be separated from the service providers. A product when produced can be taken away from the producer. However a service is produced at or near the point of purchase.

Take visiting a restaurant, you order your meal, the waiting and delivery of the meal, the service provided by the waiter is all a part of the service production process and is inseparable, the staffs in a restaurant are as a part of the process as well as the quality of food provided.

PERISHABILITY

Services last a specific time and cannot be stored like a product for later use. If travelling by train, coach or air the service will only last the duration of the journey. The service is developed and used almost simultaneously. Again because of this time constraint consumers demand more.

HETEROGENEITY

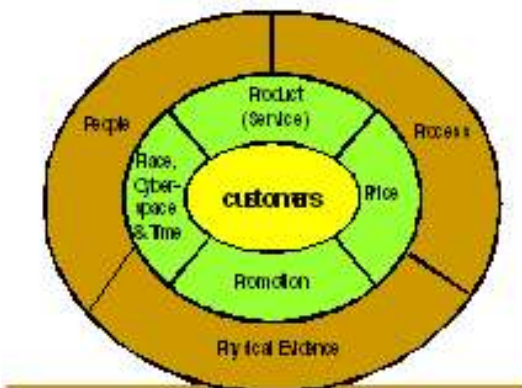
It is very difficult to make each service experience identical. If travelling by plane the service quality may differ from the first time you travelled by that airline to the second, because the airhostess is more or less experienced.

SERVICE MARKETING MIX

The service marketing mix comprises of the following 7 'p's :

- Product
- Price
- Place
- Promotion

An expended marketing mix for services



An expended marketing mix for services

- People
- Process
- Physical Evidence

1.Product:- Under this ,the physical good features of the product, quality level, labeling & packaging, warranties, product line etc. comes.

2. Price: - Various price levels for the services, terms & conditions, offering discounts & allowances, flexibility in pricing comes under this category.

3. Place:- The information about various channels that have to use to deliver the services, information about intermediaries, outlets locations, transportation facilities & the process of managing the channels comes under this category.

4. Promotion: - The salesperson selection for delivering the services & their training program & the decision regarding advertising, types of ad, media, publicity, sales promotion activities, and internet web strategies comes under this.

5. People: - All human actors who play a part in service delivery and thus influence the buyer's perceptions: namely, the firm's personnel, the customer, and other customers in the service environment.

6. Process:-The actual procedures, mechanisms, and flow of activities by which the service is delivered-the service delivery and operating systems.

7. Physical Evidence: - The environment in which the service is delivered and where the firm and customer interact, and any tangible components that facilitate performance or communication of the service.

FACTORS RESPONSIBLE FOR THE TRANSFORMATION OF THE SERVICE

ECONOMY

There are some of the factors which are responsible for the harmonic growth & developments in the reference of increasing the rate of developing of service economy are as follows:-

1. Internationalisation
2. Increased services trade,
3. Government Regulation (e.g. Deregulation/privatisation, new trade agreements in -services).
4. Social Changes (e.g. increased customer expectations, increased affluence and leisure-time, more women in the workforce).
5. Business trends (e.g. Relaxation of professional association standards, Marketing emphasis by non -profit organisations, Outsourcing of non-core services, Services quality -movement, Franchising and service chains).
6. Advances in technology (Convergence of computers and telecommunications, Miniaturisation, Digitalisation, Enhanced software

PRODUCT VS. SERVICE MARKETING CHALLENGES

There are significant differences between marketing products and marketing services.

Companies that are marketing a product face different challenges compared with those that are promoting a service. If you're transitioning from marketing products to services or vice versa, you have to know and understand these differences to effectively promote and sell.

Understanding the different challenges in product and service marketing can help you establish the right approach.

1. Tangibility: - A product is tangible, which means the customer can touch and see the product before deciding to make a purchase. Items such as packaging and presentation may compel a customer to purchase a product. Services, on the other hand, are not tangible, which can make them more difficult to promote and sell than a product.

2. Relationship and Value: - Products tend to fill a customer's need or want, so companies can use this to sell a product. A service is more about selling a relationship and the value of the relationship between the buyer and seller of the service. For example, a car is something a buyer can touch and see as well as use. A service, such as lifestyle coaching, for example, is not tangible.

3. One versus many: - Marketing products tends to involve multiple products that make up the line. For example, cleaning product manufacturers tend to market not just one cleaning product. Instead, they have a line of cleaning products to serve the various needs of their customers. Services, on the other hand, typically have a single option. It can be harder to promote and sell the reputation of one single service over the benefits of many different products.

4. Comparing Quality: - Measuring the quality of a product is easier than measuring that of a service. If a customer buys a cleaning product to clean the kitchen sink and it doesn't do the job, the customer knows the value of the product is zero. On the other hand, it is harder to measure the quality of a service.

5. Return Factor: - If a customer purchases a product and it doesn't work as it is supposed to, the customer can return the product for her money back or at least to receive a store credit.

A service is consumed as it is offered, so it lacks the return factor that a product has. Some service providers overcome this by offering money-back guarantees.

CHALLENGES FACED BY THE SERVICE INDUSTRY

The service industry concept in India & abroad is going to more & more spreading due to various factors like rising standard of living of the people, raising the income & employment status of the people & specially the modern lifestyle tends the companies & customers, from product marketing oriented concept to service marketing concept.

Meanwhile a number of problems in form of challenges have appeared in the way of service industry as follows:-

1. Unstable governments
2. Foreign entry and government bureaucracy
3. Tariffs and other trade barriers
4. Corruption
5. Technological pirating
6. Defining and improving quality
7. Designing and testing new service
8. Motivating and sustaining employee commitment
9. Coordinating marketing, operations, and human resource efforts.

MAJOR DECISIONS TO OVERCOME CHALLENGES OF SERVICE MARKETING

1. Deciding how to enter in new markets in abroad.
2. Establish a memorable and unmistakable brand identity:
3. Develop a Better customer relationship management process.
4. Create new Methods for motivating the employees.
5. Make tougher the rules regarding the e-marketing of services
6. Make a provision of doing the business in a more politically stable country.
7. Make the business more transparent for government orientation.

CONCLUSIONS

Service marketing is going to become a distinguish part of marketing discipline .as comparing simultaneously product marketing concept. But as well as its prosperity in every industrial sector is increasing, the service industry is also facing some barriers in the path of success of mobilization of service marketing concept, in the form of some bitter issues like comparing with product marketing & other challenges like corruption, Unstable governments, Foreign-exchange problems, Foreign entry and government bureaucracy, Tariffs and other trade barriers etc.

So under this research paper it is tried to reveal the various issues, responsible for transforming the service marketing economy & also presented the possible challenges & their recommended solutions.

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ECONOMICS OF STRESS IN ECONOMY AND SUSTAINABLE DEVELOPMENT IN LIGHT OF ENVIRONMENTAL ECONOMICS

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ABSTRACT

Economics as a discipline of learning and practice has been an excellent disposition of an interdisciplinary conglomeration of various ideas, beliefs and practices. It will not be unfair to designate management discipline as the most obedient and versatile son of Economics. It will not be an exaggeration to further nominate it as the best example of interdisciplinary approach towards learning and practice. Interdisciplinary outlook and approach must be viewed with great honour and dignity as it results in consolidating various scattered pieces of knowledge and thus converting it into a useful knowledge package. However it is not an easy task to consolidate various pieces of knowledge into one package. An over enthusiasm and lack of sincere effort may spoil the party. It is quite interesting to note that Economics and Management have drawn various useful ideas from other disciplines but only the synoptic or partial lifting of ideas may severely block further developments in that area. Stress is one such notion which has been picked from Mechanics, a branch of Mechanical Engineering. In Mechanics, the story of stress is incomplete without making a mention of strain. In Mechanics, stress and strain go side by side. The idea of Stress or 'Stress Management' is a dominant crowd puller in management thinking and practice world over. Every second manager on earth seems to be a fan of stress and loves to increase the size of his inventory of Stress management techniques whenever he or she gets an opportunity to do it. Stress and Strain of Mechanics are almost an equal partner in explaining and elaborating various concepts of Mechanics. Management as a discipline of learning has shown keen interest in picking Stress as full time partner and leaving Strain to be mentioned as footnotes. A clear understanding of Stress and Strain relationship can help us apprehend Economics of stress in a better manner. Present paper is an attempt by the author in the same direction. After elaborating in detail about stress and strain in the context of Economics, the paper emphasizes the utility of this understanding in sustainable development. The Paper also attempts to explore the linkages between Environmental Economics and sustainable development. The ideas of author are original and a negligible stress of references has been taken while presenting the ideas. An inbuilt strain will always take care if such stress (if any) creeps in.

RELEVANCE OF ENVIRONMENTAL ECONOMICS AND SUSTAINABLE DEVELOPMENT FOR A DEVELOPING COUNTRY LIKE INDIA

Sustainable development is being debated world over as a means to ensure development with survival. Developmental activities during past around two centuries were perhaps contaminated with certain suspended particles of anti developmental spirit .Today these suspended particles have grown so big in size that entire

developmental process seems to be under their impact and impression. Sustainable development believes in the spirit of equitable distribution of resources both in time and space. In other words equitable development attempts to ensure that well being of future generations does not get compromised for the sake of the well being of present generations. If a development cannot sustain it is better to both mould and orient it towards sustainability or burry it under the grounds before it acquires distortable proportions.

Pollution in the name of sustainable development or unemployment in the name of capital intensive industries growth is nowhere close to the spirit of sustainable development. An interesting equation has emerged between sustainable development and poverty alleviation today particularly in big developing countries with vast population like India. Sustainable development cannot become a reality when major areas on earth today are facing acute poverty conditions. Sustainable development first ensures wellbeing in present times and then aims to take the graph up with positive slope in future. If in present poverty is ruling the scene then cause of sustainable development has a big task in hand because what to talk about future when present is in doldrums.

Labour intensive industries are generally known to be less polluting and more employment generating. A suitable composition of labour and capital intensive industries can provide an answer to many worries to developing countries like India. True demographic dividend can only be attained through proper synchronism between the extent of work force and availability of employment.

MECHANICS OF ENVIRONMENTAL ECONOMICS: STRESS AND STRAIN ON NATURAL RESOURCES

The concept of elasticity as taught in Mechanics defines elasticity as the ratio of stress and strain. It is a constant which depends on the type of stress applied and strain developed as a result and nature of substance etc. Whenever external forces are applied on a body, atomic forces of attraction or repulsion give rise to restoring forces which tend to restore the body to its original form. When forces or couples acting upon a body cause relative displacements of its various parts, a change in length, volume or shape is produced. The body is then said to be strained. This strain is measured by the ratio of change in length to original length (linear strength) or change in volume to the original volume (volume strain). If the restoring forces are

good enough to counter the stress tending to deform a body or in other words strain taken by the body is capable to address the external stress, permanent distortion will not take place. The same idea can be very effectively applied to understand the mechanics of stress and strain in Economics and managerial circumstances. An almost perfect way to manage stress is to develop ways and means of balancing stress with equal amount of restoring force. Stress must not be viewed as a villain in all circumstances. Infact some amount of stress is always required to execute different activities including managerial activities. In Mechanics as soon as force is applied on a body restoring forces come into play. As long as external deforming force is effectively balanced by internal restoring forces, visible distortion (let us exclude infinitesimal distortions if any from our discussion) in the body will not take place. The same is the case with Economics and Management. As long as any activity is self sustainable, it is not harmful. To maintain a proper balance between stress and strain we can attempt either or both of the following option:

- keep the stress within manageable limits
- increase the power of resistance to cope up with stress

It is interesting to point out here that Harvard Physiologist Walter Cannon coined the term fight or flight response to describe our body's automatic response when we perceive threat or danger. When you opt to fight, you are successful in keeping stress within limits or generating an equal resisting force to cope up with it. On the other hand if you decide to fly you have failed to develop enough resistance to cope up with the situation and it is better if you fly from the scene. However as a manager you will never love to fly from a battle field.

The same can be logically applied on Environmental Economics and its linkage with sustainable development. To establish the right balance between environmental protection and use requires the knowledge of stress which natural resources and earth's environment can bear and sustain. Some

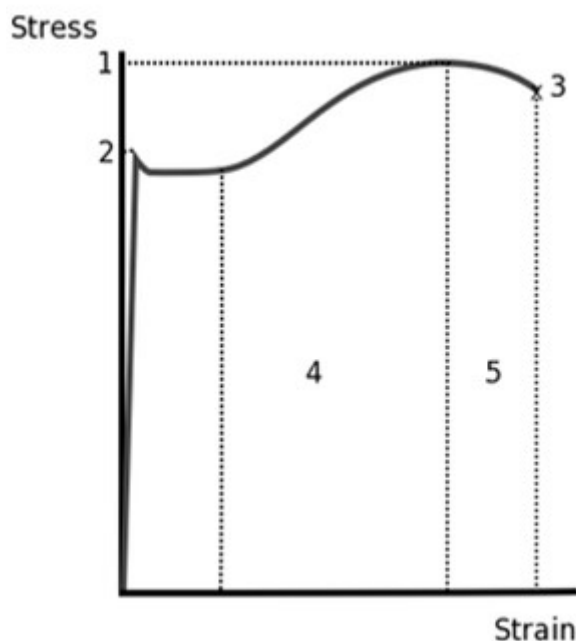
amount of stress is required to effectively exploit natural resources.

ECONOMICS OF STRESS: STRESS - STRAIN TRADE OFF

Economics teaches us how to select best option out of many alternatives available. Selection of one best option or group of options as the case may be is the fundamental instinct on which Economics functions. The growth of Economics as a discipline is a story of deliberations on ways and means to establish equilibrium between fulfillment of wants and desires and means to achieve it. Most of the effort of Economics goes in establishing trade-off these two conflicting issues. Most optimum utilisation of resources is what Economics strives for. It has already been explained above that any attempt to utilize resource will require some amount of stress and if it can be effectively balanced by resistance developed or strain taken, the most optimum utilisation of resources can be achieved.

$$\epsilon = \frac{L - l}{l} = \frac{\Delta l}{l}$$

Stress-Strain Graphs



To more clearly apprehend stress - strain tango following information taken from wiki books is being produced "Stress causes strain. Putting pressure on an object causes it to stretch. Strain is a measure of how much an object is being stretched. The formula for strain is:

Elastic Region

In this region (between the origin and point 2), the ratio between stress and strain (Young's modulus) is constant, meaning that the material is obeying Hooke's law, which states that a material is elastic (it will return to its original shape) if force is directly proportional to extension.

Plastic Region

In this region (between points 2 and 3), the rate at which extension is increasing is going up, and the material has passed the elastic limit. It will no longer return to its original shape. After point 1, the amount of stress decreases due to 'necking', so the cross-sectional area is going down. The material will 'give' and extend more under less force.

Fracture Point

At point 3, the material finally breaks/fractures and the curve ends".

It logically appears from ongoing discussion that if we super impose above graph of stress and strain of material, on stress and strain of Economics, the elastic region where the material returns to its original shape once the deforming force is removed is of vital concern. In other words, we can say that stress within elastic region is bearable. Once it crosses elastic region and enters plastic region it becomes capable of causing permanent distortion. The same can be said about chronic stress which may result in a person when he is persistently subjected to stress for a long period of time. A person may become 'use to' to some level of continual stress but this definitely damages that person. There is a natural tendency among human beings to ignore chronic stress until obvious chronic symptoms come to fore. The concept of stresses when applied to Economics is not just limited to

human beings but extends to all resources at the disposal of an economy. We often read statements like "economy is in stress" in literature related to business. If economy can resist this stress or the strain taken by economy is sufficient enough to counter stress and things remain within elastic region, there is nothing to worry. Once it crosses elastic limit and enters plastic region an alarm is set because stress has assumed distorting capabilities.

ECONOMICS OF STRESS IN ECONOMY AND SUSTAINABLE DEVELOPMENT

As pointed earlier this paper sets an eye on a broader version of stress, i.e stress on resources and its impact on sustainable development. Somewhere down the line the approach seems to be matching with the concept of deductive reasoning where we move from a sum total to something particular. The sum total (or the premises) here happens to be entire earth (or even universe) as sustainable development is holistic in character but its dividends are distributed among all individuals on earth including man, animal and natural resources etc. Author once argued in one of his papers that going to extreme is an invitation to getting in stress so plan your extremes carefully. The same applies to economy be it national or global economy. The resources must be stressed keeping sustainability in mind. " I was told in class eight that silver is a better conductor of electricity than copper. The reason of not using silver wire for carrying electricity from one place to another puzzled me as a child then. Perhaps my view was restricted to scientific and technological angle and was lacking an economist's insight. It is not unfair to call today's business education a brain child of modern Economics which has strong flavour of western thinking and has been contributed immensely by the works of western thinkers and writers. In today's Business Education there is an overemphasis on maximisation of profit. Business teacher guides his/her pupil every now and then to develop a tendency of maximising profit of their concerns. Profit comes after a process which incurs cost and effort. So, another way to express

the same feeling as hidden in "maximise your profit 'is to say " minimise your cost and efforts for same or more output" or in other words " optimise your efforts". The frequent use of words like 'optimum' & 'trade off' etc are clear indication of western business education's repeated plea for optimisation of efforts. Even though western business education has made the importance of optimisation of efforts amply clear by repeatedly pointing towards it but no clear ways are mentioned to achieve it."2 Adopting Madhyam marga (middle path) seems an excellent remedy to address stress including stresses in economy

Two interesting example from business management can be cited to further elaborate on interplay of competing issues and balancing act to find their trade off point :

OPTIMUM CASH BALANCE

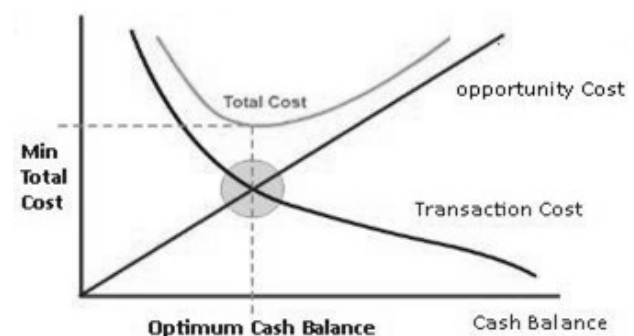


Fig. 2 Optimum Cash Balance

Source of Fig. 2:

Baumol-Tobin Model of the transactions demand for money was developed independently by Willam Baumol (1952) & James Tobin (1956) Baumol, Willam J, (1952), "The transactions demand for cash: An inventory theoretic approach", Quarterly Journal of Economics, Nov, Vol. 66, pp 545-556 Tobin, James (1956), "The interest elasticity of the transactions demand for cash", Review of Economics and Statistics, August, Vol. 38, no. 3, pp 241-247

Optimum cash balance is one at which total cost i.e. opportunity cost and transaction cost is minimum. Let us discuss what is peculiar at extremes when too less or too much cash balance is maintained. In the former case firm weakens its liquidity position but released funds can be invested profitably thus lowering opportunity cost. However, if firm runs out of cash, it may have to arrange for it thus resulting in transaction costs. In other words, if firm maintains low cash balance, transaction cost is more and opportunity cost is less. Let us now elaborate on second extreme, when firm maintains very high cash balance. In this case reverse will happen, transaction cost will go down because of sound liquidity position but opportunity cost will go up due to idle and unproductive cash. This example from business management clearly suggests that extremes are not the right point to work in a business. Obviously, the point where both these costs i.e. opportunity and transaction are in equilibrium is the right choice i.e. the one where cash is neither too stressed nor too less. Let us consider another example

ECONOMIC ORDER QUANTITY

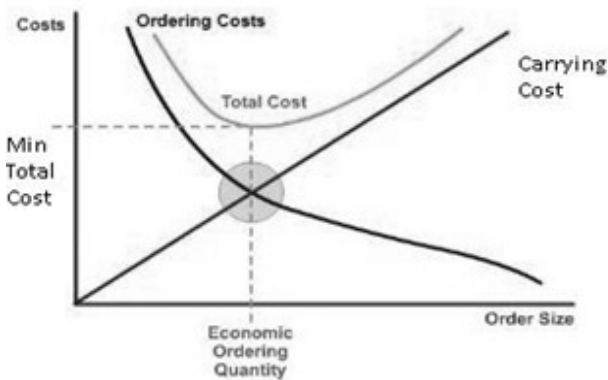


Fig.3 Economic Order Quantity

Source of Fig.3: Ford Whitman Harris first presented the familiar economic order quantity (EOQ) model in a paper published in 1913. Even though Harris's original paper was disseminated widely, it apparently was unnoticed for many years before its rediscovery in 1988. During this period much confusion developed over the origin of the EOQ model. This paper explores the early literature on this model and traces the evolution of the confusion. It also sketches the

remarkable life of Harris, who made contributions as an engineer, inventor, author and patent attorney, even though he received no formal education beyond high school. URL: <http://www.jstor.org/pss/170961>

The term ordering cost is used to describe entire cost of acquiring raw materials and includes activities like requisition, purchase ordering, transporting, receiving, inspecting and storing' It is directly proportional to number of orders placed. On the other hand cost incurred in maintaining a given level of inventory is called carrying cost, which includes taxes, deterioration and obsolescence. Obviously it increases with size of inventory. Whereas inventory cost goes down with increase in inventory (or order size). At high inventory we find that carrying cost is more and ordering cost is less. Reverse happens at low level of inventory. Here, again we find that extremes are either too stressing or too relaxing for competing issues of ordering and carrying cost so again the ideal point to operate at is trade off point between the two.

Above examples of optimum cash and optimum inventory are two out of numerous possibilities where extremes invite stress and wise move is to adopt trade off point. Infact above curves of Fig.2 and Fig.3 give some clue about the relationship between exploitation of natural resources and capitalisation on natural resources.

SUSTAINABLE DEVELOPMENT AND ECONOMIC UTILISATION OF NATURAL RESOURCES

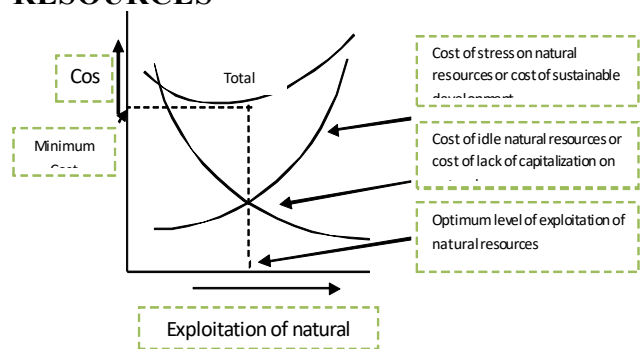


Fig.4 Sustainable Development and Economic Utilization of Natural Resources

Fig.4 tries to explain the relationship between the cost of stress on natural resources or cost of sustainable development and cost of lack of capitalisation on natural resources. Excessive exploitation of natural resources mounts to increasing cost of sustainable development however we may feel complacent though for the time being only

on capitalising on natural resources and adding to economic growth. Lower level of exploitation of natural resources portrays reverse picture. Cost of sustainable development is less but fear of failing to capitalise on natural resources is high. The point where cost of stress on natural resources and cost of idle natural resources balances each other is the most suitable to operate at.

SUSTAINABLE DEVELOPMENT AND ROLE OF STRESS IN ECONOMY DUE TO UNPLANNED EXPLOITATION OF NATURAL RESOURCES

Fig.4 is a disposition of interplay between stress in economy or in other words stress on resources and sustainable development. As pointed out earlier that some amount of stress is good because it is needed to perform various activities, some stress on natural resources within justifiable limits is not harmful. "Sustainable development and debates relating to it all over the world are due to the lacuna in developmental policies all over the globe. Sustainable developments of human beings cannot be seen as a national perspective alone. Infact it has now attained global dimensions. Issues like environmental concerns are global in nature and these issues have great implications on sustainable development of human beings. These issues are of serious concern for very existence of human beings on earth. Environmental concerns cannot be viewed, analysed and interpreted in isolation with globalisation."³ Sustainable Development is more global than globalisation itself. There is lot of hue and cry on globalisation that it has resulted in uneven benefits accruing to various nations on earth.

Globalisation appears heterogeneous when it comes to its impact on various nations. Sustainable development, on the other hand is an issue which is homogeneous and equitable in its outlook and each and every nation on this earth will vanish if sustainable development continues to be perished in the name of industrial development. Stress and strain on resources must remain within elastic region and never be allowed to creep into plastic region. Industrialisation has played both God and Devil on human beings. Harmful outcomes (Devil) seems to be ruling on benefits (God) at present time. Spectacular rise in share of manufacturing sector in the GDP of various nations replacing agriculture which used to be the leading contributor to GDP has been an across the globe phenomenon. In an effort to produce goods in tune with the demands of increasing population, business firms have resorted to rampant manufacturing activities thus resulting in severe burden (or stress) on environment. "During the days of less population on earth, earth's environment had its happiest days but as the number of human beings living on earth increased, it became almost sure that happy days of earth's environment are over. Development Economists in the past least bothered to consider environment as a valuable input in all decision making related to socio - economic development of mankind. In modern times the cost of a product is not merely the cost involved in the production and supervision but also the cost of environmental degradation, it has contributed to. If an unbiased evaluation of world's balance sheet and income statement is carried out then the head of environmental degradation alone will tilt the readings towards irreparable and irreversible losses. Nature has its own tolerance limit and man has already crossed it. The presumption that nature has infinite capacity to zero in the misdeeds of human beings is based on false notions. Even if nature attempts to achieve it, the day may come when population of human beings on earth will become zero"⁴. Falling reliance on agriculture and speeding exploitation of resources to give boost to manufacturing and services sector has put the world

resources to a great test of stress and endurance. The stress on both nature and human beings seems to be going out of tolerance limit for them.

STRESS: ITS PHYSICAL AND SPIRITUAL DIMENSIONS

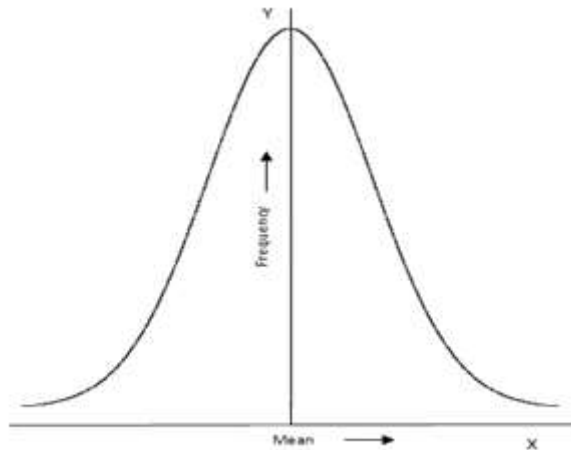


Fig. 5 Normal Distribution

Source of Fig. 5: In a historical note by Karl Pearson in 1924, evidence was presented which shows that Abraham De Moivre (1667-1754) invented the normal curve and the normal probability integral about 1721.

URL: <http://www.nature.com/nature/journal/v132/n3340/abs/132713a0.html>

It was pointed in section 4.0 that extreme is the pass word to open e-mail account of stress. The remedy suggested was to adopt middle path and avoid going to extremes. It is interesting to see that even some mathematical distributions advocate madhyam marga (middle path) approach. Normal distribution is one such distribution. It presents very close explanation of many phenomena of human concern including human characteristics (height, weight and IQ etc.). The physical characteristics of human beings like height and weight follow normal distribution where mean lies at the centre of the distribution and curve is symmetrical around a vertical line passing through mean. The tails extend indefinitely but never touch x-axis (horizontal axis).

If we plot physical measurements of human beings like height and weight, the graph will appear as in

fig 5, we know by observation that most human beings are of normal weight and height and most of the observations will tend to club around this normal (or mean) value. As we start deviating from mean, the number of observations (or frequency) will go down on both sides of the mean. It can be thus safely inferred that physical characteristics of human beings exhibit middle path (Madhyam Marga). Not only physical characteristics but even mental characteristics like IQ level also follow normal distribution. Physical and mental characteristics of human are normally distributed and at extremes there are very few values. Imprints of middle path are

quite pronounced in the making and evolution of a human. The same must reflect in the actions of a human if he wants to beat the stress. "Gautam Buddha deserves credit for gifting the great education of Madhyam Marga to mankind. He used middle path (madhyam marga) as a source to see to it that all other teachings of him get practically implemented... History of Indian subcontinent is full of numerous invasions from other parts of the world but rather than relying on retaliatory actions we resorted to middle path and that kept us going even in worst of times and when many contemporary cultures got vanished, ours is still alive and will remain so."5

ENVIRONMENTAL ECONOMICS, SUSTAINABLE DEVELOPMENT AND NORMAL DISTRIBUTION

Peculiar normal distributions of physical and mental characteristics have a lesson or two for stresses in an economy. Most impartial and unbiased activities of human beings with reference to nature and ecological balance will tend to cluster (mean) around sustainable development and very few will scatter at either ends around this mean thus reflecting a distribution of sustainable development resembling normal distribution. Physical and mental characteristics of human beings like height, weight, IQ etc follow normal distribution where extreme figures are very few. The story of stress is not just

limited to physical or mental dimensions; it has a spiritual side too. "Stress is something which is outcome of a human being's involvement in various activities above or below preset standards fixed by nature and God for those activities."⁶ Whenever any activity goes out of proportion and crosses the standard limits fixed by God and nature for that activity, stress results. The same can be said about the rampant exploitation of natural resources resulting in stress in economy as well as ecology. Man has ventured beyond limits set by nature or god for exploitation of natural resources thus inviting stress in economy.

CONCLUSIONS

Economics of stress in economy has its far reaching impact on sustainable development. Idea of stress first dominated the scene at mechanics where strain was its close ally. Surprisingly stress finds its mention quite often in Management and Economics but strain rarely figures in. Strain is something which counters (or is effect of) stress in mechanics and within elastic limit stress is bearable and not capable of permanently deforming a body but once it enters plastic region it assumes irreparable consequences. Extremes invite stress can be augmented by examples like optimum cash balance & economic order quantity from business management. Further normal distribution of statistics also suggests peculiar distribution of human characteristics like weight, height and IQ level etc. where most values tend to club in the middle or around a mean value.

These human characteristics seem to follow Gautam Budha's dictate of madhyam marga. Middle path approach is an excellent weapon to defeat and overcome stress at all levels ranging from economy to an individual's level. Man must not try to cross the standard limit set by nature and God for performing various activities. An optimum balance between exploitation of resources and economic growth must be attempted. Promotion of use of non conventional energy resources can be a useful bet in this direction.

"Water- Diamond paradox of economics provides an interesting contrast between conventional and non conventional energy resources. Water has high value in use but low value in exchange whereas Diamond has high value in exchange but low value in use. Above interesting contrast between diamond and water if extended to conventional V/s non conventional energy resources yields valuable observations. Oil has high value in exchange in comparison to water and wind which reflects in the huge price differentials between the two. There is an urgent need to harness the abundant natural resources like water, wind and solar energy for productive use which will improve the value in exchange of these resources and narrow down the gap of value in exchange between water, wind, solar energy and coal, oil and natural gas resources. Once this gap narrows the problem of energy crisis and threat to humanity from energy politics will be checked to a great extent. Abundant availability of solar, wind and water energy will make the man wise enough not to fight for these sources which are equally and freely available to humanity."⁷ At the end of this paper author wants to mention one event of his academic life. Author once presented a paper at a national conference on Stress Management organised by Department of Business Administration, Aligarh Muslim University, Aligarh. In his paper he defined stress as "something which is outcome of a human being's involvement in various activities above or below preset standards fixed by nature and god for those activities." At the end of the presentation by the author one professor of Aligarh Muslim University asked a question "Why have you included only nature and god in your definition of stress." Author's reply was, "I can exclude nature even, God is a bigger set ,we all are smaller subsets". In set theory, we know that universal set is the one which consists of all other sets. In other words every set is a subset of universal set. God is just like universal set which embodies in it all that a human mind can imagine and beyond that. Role or set of activities for every creation of universe are well defined.

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INDIAN RETAILERS AND FUTURE TECHNOLOGY: RFID TAGGING

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ABSTRACT

Advancement in Information Technology has changed the way businesses organizations are carrying out their operations. With competition reaching sky high, technology has become an indispensable tool for sustaining competitive advantage. One such technology that has found a wide acceptance amongst retail enterprises of developed world is Radio Frequency Identification (RFID). RFID is a small electronic device which is in the form of small chip, antenna, transceiver and transponder. The small chip is nothing but a tag on items put for sale and is capable of carrying information of less than 2000 bytes. This has come as an alternative technology to the traditional coding technologies like barcodes, magnetic strip etc. RFID tags have found very wide application in retailing enterprises e.g. RFID based tags can be used to track objects in supply chains, can be planted into the animals body, provides tremendous security system and ease in store operations.

This article introduces readers to the concept of RFID, types of RFID, advantages and disadvantages of RFID and a comparative table to analyze the difference between the traditional coding system barcode and RFID.

INTRODUCTION

It was one of the festive offers at Vishal Mega Mart store in Dehradun. A couple was quite happy as they had done a trolley full of shopping containing cereals, cosmetics, apparels, household linen to name a few . Both were especially satisfied for getting so many different items at one store and that too in such a hassle free manner in air conditioned environment with some soothing music in the background. In fact, their shopping till now had been a thoroughly enjoyable experience unlike their past shopping ordeals.

However, all the fun was gone the moment they reached at the billing counter. Firstly, there was a long queue in front of all the billing counters moving at snail's pace. Secondly, the bar code reader had problem in reading price tags properly thus creating a delay which irritated every single customer in the queue to the limit of their patience. In fact, it took almost 35 minutes before the couple crossed the

exit door. In total shopping time of 2 hours, billing process had taken almost 1/4th of the time. What would have been one the most enjoyable shopping experience for the couple had actually turned into a shopping nightmare, quite similar to their other normal shopping days. This was not the only case of customers' frustration and agony on that day. It is very much likely that hundreds of other customer, too, must have gone through something similar. Surprisingly, even today this problem of frustrating delays at billing counter is a common feature of Vishal Mega Mart store at Dehradun.

As a customer, we would never like to be in such a situation and would wonder if there is any solution to avoid such frustrating moments. In today's world of globalization, when organizations are emphasizing on the importance of customer satisfaction & customer retention as critical factors of business success, the incidents of apathy towards customers need exemplified in above case are shocking and call for finding out an immediate

solution for retailers in India. One technological solution to above mentioned problem that has found a wide acceptance amongst retailers from developed world is Radio Frequency Identification (RFID). Radio Frequency Identification (RFID) is a small electronic device which is in the form of small chip, antenna, transceiver and transponder. The small chip is nothing but a tag of items put for sale and is capable of carrying information of less than 2000 bytes. Antenna generates Radio Frequency signals which work for a very short range of 20 to 300 feet. These signals are required to communicate with the transponder of the device called as RFID tags. The antenna of device can be put permanently any where at the store, generally at the entrance and exit points of the store. Whenever RFID tag passes through in the range of antenna it detects the signals from antenna and passes its information to the device. This has become one of the biggest advantages of RFID that items can be traced across the supply chain and can be located in a warehouse within seconds. It is a gift of GOD to those retailers who are seeking an efficient and theft free Supply Chain Management (Prater et al., 2005).

According to power source and range, RFID tags are generally of two types ("Active RFID Market Surging," 2007).

1. Tags with power source - These tags have their own power source i.e. battery; therefore can communicate with a tag which is at long distance. These tags are also called as Active RFID tags. These tags have limited life span approximate 5 to 10 years.
2. Tags without power source- These tags do not need any power source i.e. battery; therefore can communicate for only small distance approximate 10 to 20 feet, but they have unlimited life span. These tags are also called as Passive RFID tags.

Parameters	Active tags	Passive tags
External power source	Require	Not required
Cost	Approximate \$20	Approximate 10 to 16 cents
Distance	20 to 300 feet	10 to 15 feet
Maintenance	High	Low
Size	Big	Small
independent monitoring	Possible	Not possible
Zombie tag or Ghost tags	Less possible	Usually possible

Comparison between Active tags and Passive tags

RFID tags can be used with wide variety of products such as to identify objects in research, animal tracking, machinery; mails etc. In foreign countries owners use RFID tags to make the identifications of their dogs.

REVIEW OF LITERATURE

Claire Swedberg, 2008 has done a live study on the Jewelex India Pvt. Ltd, who is trying to implement RFID technology to improve their inventory tracking and security for their products in the store.

Gareth R.T. White et. al. 2007 has done empirical study on the comparison of RFID and Barcode technologies in the respect of the retail store environment.

Chang E. Koh et. al. 2006 has done empirical study on RFID and its impact on business performance. They have identified many benefits of the RFID like velocity of retail cycle, improved inventory management, increased in the efficiency in the store operation etc. as well as they have identified certain risk also like cost, complexity of technology etc

Ari Juels, 2005 has done survey on the privacy and security related problems. They have analyzed that these tags are very much influenced with the environmental conditions of the store like humid, temperature etc.

Chen, 2004; TIBCO, 2005 Due to the broad scope of RFID application on inventory management, materials handling, manufacturing, shrinkage management, payment facilitation and better customer service, it is bound to revolutionize the way business gets done. According to a study by Leob in 2003, retail organizations can have better store layout, better facilities resulting in better customer services with RFID technology.

Hogan, in a study in 2003 revealed that RFID can help retail businesses track stock more efficiently when prompted by a radio signal from a nearby RFID by beaming out a product identity code, plus the type, size, and color.

Traditional Tagging solution till now

In India, retailer usually picks up the items selected by the customer one by one, notes down the price label from its packet, totals it manually or at the most with calculator and takes payment after giving the bill to customer with his/her purchases. A large number of unorganized retailers follow this system of billing the items. However, few organized retailers are nowadays using bar code tags and magnetic strips to fasten the process of billing.

Barcodes

Barcode is basically an Optical data scanned by the Optical reader. It is small image which consists with vertical lines with some spaces. These codes are used in the items in retail stores, mails, persons as identification codes. This code typically consists with five parts - null character, start character, data character, stop character and again null character. To read these codes a special reader is used called as Barcode reader. It uses laser beam to scan these codes, convert it into digital data and then transfer it to the computer. These tags are used any where

now a days like in retail stores to identify items these codes are used, these code are also used as price tags for products, even in research scientist also used these codes to give the identification number for an object.

Magnetic Strip

These cards are capable of storing data in the form of tiny iron magnetic particles on the magnetic strip. These strips are generally used for security system for credit cards, ATM cards, personal identification cards in companies, loyalty cards, gifts cards, Master cards etc. This technology is basically used with plastic cards. The information in the magnetic strip can be only read by physical contact or swiping the strip at the reader.

RFID as a tool for gaining competitive advantage

Many retail stores and big show rooms of jewelry, garments etc are implementing RFID tags to eliminate shrinkage, speedup billing system, cost in terms of number of employees, inventory tracking problems. Stores can use type these tags according to the type of products like if product is very expensive and high quality then active tags can be used and if product is less expensive then passive tags can be used. Some of the advantages of using RFID tags are as follows:

Less time in Billing

Many times we have seen that whenever we go to any retail store we take minimum time in picking up products of our choice and expend maximum time at the billing counter because of a huge line of customers with lots of items at the counter. The employee who is generating bill used to scan each product individually to check the identity and price because for identification code they have used barcode technology. In case of RFID tags all the items can be scanned for price and identity at once in a bag it self, there is no need to check each item individually therefore, it take less time in billing of products.

Reduce cost in terms of number of employees

Generally in a retail store we have seen number of employees to do several kind of work like, security, customer care, bill generation, in check, out check etc. Store owner has to pay good amount of salary to every employee. But by the implementation of RFID all kind of employees can be reduced because RFID antenna can track items automatically, generate bill very fast, give alerts for tags if they are not scanned etc.

Ease in inventory handling

Usually in traditional coding system items cannot be tracked by the scanners if they are placed at the distance because all the traditional coding system needs line of sight to the code. But if store has implemented RFID tags then items can be tracked at the distance of 20 feet to 300 feet depends on the types of tags whether active or passive.

Shrinkage or theft

The first thing which is very important to know in RFID is that there is no need to put RFID tags on the outer surface of the item, it is usually put inside the item or packet therefore, it cannot be removed easily by anyone. There is a sensing device interrogators are put at the exit door of the store. If anyone tries to take any item with RFID tag out from the store the system triggers an audible alarm.

Less damage possibility

Because the RFID tags are usually place inside the packets or items so it cannot be damaged easily while if we talk about traditional coding system then all these systems are used at the outer surface of the product so it can be removed or damaged easily.

Available in different shapes and size

Tags are available in a great range of types, sizes and materials. So that organization can use appropriate tags for its use.

Reusability

These tags are also reusable, which brings costs down. Additionally the fact that the tags can be rewritten on and can survive a variety of climates

including tough industrial environments, allows companies to use a single tag to track subassemblies, work-in-process components, finished goods, material handling equipment and logistics containers through production and the supply chain.

Traditional Bar code tagging vs. RFID tagging

RFID tags and barcodes both are used for the carry identification and information about products. However, there are important differences between these two technologies:

When we talk about the comparison between the barcode technology and RFID then we find following facts and parameters on which these technologies can be compared.

Parameter	Barcode	RFID
Direct line of sight by th reader	Yes	No
Reading Distance	Approximate 10 feet	Ranges from 20 to 300 feet
Number of tags can be read at a time	One	Approximate 40 or more
Plantation of tag	Outside the product	Inside the product
Security	Not secure can be tear Off or removed	More secure cannot be removed easily.
Ruggedness	Limited	High
Modification	Not possible	Possible according to the design of tag.
Reusability	Limited	High
Cost	Cheap	Expensive
Data storage Capacity	Low approximate 20 to 40 digits	High approximate 2KB of data

THE ROADBLOCKS

There is an old saying- every coin has two faces and RFID technology is no exception to this rule.

There are many issues that need to be taken care of before one finalizes to go ahead with RFID tags for items for sale in the shop. Some of the major issues have been discussed in the forthcoming paragraph.

Prone to environmental conditions

The RFID tags are prone to physical and electrical damage due to environmental conditions of the store. Such as tags that are subjected to space exploration may encounter extreme temperature. If we talk about passive tags then it is found several times that these tags cannot be read near metal or liquid. Water, static discharge or high power magnetic surges (such as from a close lightning strike) may damage the tags.

Reader Signal collision

Some times it has seen that when two readers putted are near by then these suffers with a problem signal collision i.e. signals from two or more reader overlaps it happens due to the Radio Frequency signals. Whenever any RFID system enters the coverage area of other RFID systems this problem arises. This problem can be solved by applying TDMA technology i.e. having the readers programmed to read at fractionally different times.

Signal access problem

As like our cell phones signal access problem can be occur in RFID also. If the antenna is not installed properly or tag is out of the range of antenna or it is a passive tag which is rotated into an orientation that does not align well with the reader. As a result of all the above reader is not able to read tags properly.

RFID standards

RFID has been implemented in different ways by different manufacturers. It still misses presence of global standards. There are certain RFID system which are proprietary of some companies and if any other wants to use those standards then they have to pay extra amount of charges demanded by the proprietary company.

Security due to variable scanning range

As we know that RFID is not a line of sight technology i.e. there is no need to put scanner directly in the tag, tags can be read easily from the distance. A competitor company can put a high gain directional antenna to read all the tags in the truck or vehicle going to the warehouse and come to know about the flow rates of various products.

Ghost tags

In some cases, if multiple tags are read at the same time the reader will sometimes read a tag that does not exist. Therefore, some type of verification process should be implemented in the reading process of the tag.

Tag collision

Because all the items are putted at the same place in the store then it happens many times that tag collision occurs due to many tag energized by the RFID reader simultaneously and reflect their respective signals back to the reader at the same time. This problem can be removed to develop a system that ensures that tags respond one at a time.

High cost

Because this technology is new therefore, components and tags are expensive compared to the traditional technologies like barcodes. In addition, software and support personnel that are needed to install and operate the RFID reading systems may be more costly to employ.

Presence of Zombie tags

An RFID tag cannot tell the difference between one reader and another. RFID scanners are very portable; RFID tags can be read from a distance, from a few inches to a few yards. This allows anyone to see the contents of your purse or pocket as you walk down the street. Some tags can be turned off when the item has left the supply chain; see zombie RFID tags.

RFID tags are difficult to remove

RFID tags are difficult to for consumers to remove;

some are very small (less than a half-millimeter square and as thin as a sheet of paper) - others may be hidden or embedded inside a product where consumers cannot see them. New technologies allow RFID tags to be "printed" right on a product and may not be removable at all.

CONCLUSION

RFID is an advance technology that has revolutionizes retail industry. It has been on the scene for more than fifty years; however it is only now that it has found the commercial application in retailing. For Indian retailers, RFID is just a new tool and its application is at nascent stage. Barring few organized retailers, most rely on bar coding technology for billing the customer purchases. Bar code tags are popular among Indian retailers primarily due to its less cost. However, in order to manage retail outlets more efficiently RFID is the future technology to bank upon. Not only it has advantage of flawless and faster billing but also has the additive features of efficient inventory handling, easy item location, customer friendly layout designing and reducing shrinkage or theft. Therefore, keeping the importance of customer satisfaction in mind RFID can prove to be a tool for creating sustainable competitive advantage.

Just as every coin has two faces, so is the case with RFID, which too has many shortcomings. Some of the common problems encountered in RFID based tagging system are tag collision, high cost, ghost tags, presence of zombie tags and difficulty in removing the tags.

Despite all the previously mentioned limitations, RFID is going to be an indispensable future technology for the retailers due to its ability to add value at various points that outweighs its limitation.

Surely, we need to take care of all possible problems before we implement RFID based tags in retail store. Therefore, retailers in India should start planning proactively to embrace and implement this great innovation to gain sustainable competitive advantage

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MICRO FINANCE: ROLE OF INSTITUTIONS IN RURAL FINANCIAL MANAGEMENT

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ABSTRACT

Commercial banks have largely avoided serving rural areas and informal agents or mechanisms, which offer a narrow range of financial services to limited customers, provide the only financial services available. Microfinance can be a powerful tool for economic development of rural areas in developing countries, but the rules must be clear and the objectives must remain realistic. Due to the banking-based economy of India, almost financial services are providing through banks. Rural banking system embraces all economic activities that affect rural society. The purpose of rural banking is to support the creation of wealth and its distribution. Though rural India continues to depend heavily on agriculture, it is increasingly becoming a diversified market with a strong demand for credit for agricultural and non-agricultural purposes and for savings, insurance and other financial services.

The existing extensive formal banking structure is still not sufficient to meet the growing demand of rural credit. in spite of the success of numerous microfinance institutions (MFI), many problems remain which must be urgently resolved like a large number of the rural households still lack access to financial services, most of the existing MFI are not yet financially sustainable.

The aim of this paper is to explain the role of MFIs in providing financial services in rural areas under various regulatory regimes and it also considers the problems and challenges for MFIs in rural areas.

INTRODUCTION

Indian economy is largely based on agriculture & rural development so these key areas should be taken compulsorily into consideration for designing any development policy. In term of financial services, an appropriate and well-designed rural financial service is an essential component of the enabling environment for rural economic growth. But unfortunately, formal financial institutions (such as commercial banks) have largely avoided serving rural areas and informal agents or mechanisms, which offer a narrow range of financial services to limited customers, provide the only financial services available.

The credit requirement of the poor in India has been estimated by the World Bank to be around Rs.50,000 crore per annum in 2002. Against this requirement, the credit outstanding of the poor with the formal banking sector is stated to be Rs.5000 crore or 10% of the total demand. The poor require finance for both production and consumption purposes.

With the fact that rural poverty accounting 63% of poverty world wide, rural financial markets is important because of financial intermediation facilitates general economic growth and poverty reduction. Government policies and public investment priorities that favor urban areas are pervasive in the developing world, largely because many countries see development as synonymous with rapid industrialization. A financial service requirement is depending on economic activities and in rural area is something different from urban areas. Economic activity in rural areas may relate to the various sectors of crop husbandry, animal husbandry, poultry, fishery, cottage & village industries, handicrafts, transportation, repair shops, and trade & services.

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to depend heavily on agriculture, it is increasingly becoming a diversified market with a strong demand for credit for agricultural and non-agricultural purposes and for savings, insurance and other financial services.

Today, microfinance institutions (MFIs) play a major role in providing financial services in rural areas for development of these areas and poverty. In a context of liberalized financial systems, microfinance allows millions of households, usually excluded from classical financial services, to begin or reinforce their own activities and become microentrepreneurs. Its impact is substantial enough to have warranted acknowledgment by the United Nations who declared 2005 "The international year of microfinance", reminding people that millions worldwide benefit from microfinance activities.

MFIs may be defined as entities that build upon ideas from the informal credit mechanisms, mobilise resources from members, donors, governments and formal sector banks and other financial institutions, and facilitate the provision of such financial services as insurance, mutual funds, training and capacity-building. MFIs, which do not provide financial services and concentrate on credit and resource mobilization can be described as MCIs.

MFIs have generally been developed to reach a population excluded from the classical financial system. MFIs can have the objective of reaching socially excluded populations or the poor, or simply to offer financial services in a region where classical banking systems are absent. The depth of outreach of the MFI can be measured to evaluate its focus on financial services includes different types of services like as equipment, leasing, hire purchases, bill discounting, loan, investment, venture capital, housing finance, factoring, merchant banking and stock broking etc.

GENESIS OF MFIs

In India, microfinance traces its roots to mid 1970s when some prominent Indian NGO like Myrada &

Pradan started using the Self Help Group (SHG) model. The SHG is used as a platform for social mobilization and finance is one of the various services provided to the grassroot community through this model. It was widely replicated across other developmental NGOs.

During the late 90's, the Grameen model promoted by Muhammad Yunus of Grameen Bank and the ASA model promoted by the Association for Social Advancement, both from Bangladesh, found rapid acceptance amongst the newer breed of microfinance institutions in India. These models are less dependent on donor funds and pass the actual service charge to the clients while retaining a margin for its own growth. These models have proven to be robust revenue models. The specialized MFIs or micro-finance movement since the 1990's is a new avenue of reaching the poor for their micro-credit needs. Some of the MFIs are based on the Grameen Model, which entails formation of a Centre comprising eight solidarity groups of five borrowers. Members of each solidarity group mutually guarantee each other loan. Ten Centres form a Cluster and seven clusters form a (bank) branch and several branches together presumably form the Bank.

A new microfinance paradigm is taking shape which referred to as Grameen II since 2000. The Consultative Group to Assist the Poor (CGAP) has also published extensively on the new microfinance. These banks will be able to support their clients' efforts to control family risks as well as capitalize on business opportunities. They will offer savings, insurance, remittance services, and personal and business loans, to help clients grow their assets while increasing their incomes.

The Internal Group on Rural Credit and Micro Finance of RBI (July, 2005), came to the conclusion that parking of funds with MFIs is faced with two sets of exposures, namely, once at the MFI/NGO level and thereafter at the level of SHGs/individual borrower level. Under first model, in addition to the MFIs, CSOs etc., only those Non-Banking

Financial Companies (NBFCs) which are incorporated under Section 25 of the Companies Act, 1956 are permitted to be appointed as 'Business correspondents' (BCs) or as 'Business Facilitators' (BFs). In the former case, the MFIs provide the non-financial services, such as, identification of borrower, processing and submission of applications to banks etc. In the latter case, the MFI provide financial services as "pass through" agents for disbursement of small value credit, recovery of principal, collection of interest or sale of micro insurance & mutual fund products etc.

REGULATORY FRAMEWORK

The Micro Financial Sector (Development & Regulation) Bill was recently introduced in the Parliament. The salient features of the draft Micro Finance Bill (2006) are as follows:

- a) Enactment of the bill will give the NABARD explicit powers to regulate the micro finance and so ensure greater transparency, effective management and better governance. This will facilitate the flow of Micro Finance Services in a more efficient way to the un-banked population.
- b) The Bill defines the Micro Finance services as provision of financial assistance to the eligible clients either directly or through group mechanism for small and tiny enterprise, agriculture, allied activities including consumption, up to an amount not exceeding Rs. 50,000/- in aggregate and upto Rs. 1,50,000/- for housing purpose or such other amounts for the above purpose or such other purposes as specified by the NABARD from time to time.
- c) Micro Finance Organization is defined as an Organization carrying on the business of extending Micro Finance Services and includes Society registered under the Societies Registration Act, 1860 or a Trust created under the Indian Trust Act, 1880 or Public Trust registered under any State enactment or a Cooperative Society engaged in Micro Finance service excluding a Cooperative Bank as

defined under the Banking Regulation Act, 1949.

- d) It differentiates between Organizations accepting thrift and those not accepting thrift. Thrift receiving organizations will be kept under sharp focus. No micro finance Organization would be able to accept thrift unless it obtains a certificate of registration from the NABARD subject to fulfillment of certain conditions. It will require MFOs accepting thrift to create a Reserve Fund.
- e) It provides for the creation of Micro Finance Development Council for advising the NABARD on formulation policies.
- f) It provides to facilitate constitution of a Micro Finance Development and Equity Fund to provide loans, refinance, grant and seed capital to MFOs.
- g) It will provide a redressal mechanism through a Scheme of Micro Finance Ombudsman.
- h) It will provide penalties for violation on the provisions of the Act.
- i) It will authorize the Central government to make rules and authorize the NABARD to formulate regulations with the previous approval of Central Government.

Micro insurance is perceived as a key service in conjunction with micro savings and micro credit could go a long way in keeping the vulnerable segment away from the poverty trap and could be an integral component of financial inclusion. The Insurance Regulatory and Development Authority (IRDA) has notified Micro Insurance Regulations in November, 2005 with focus on the direction, design and delivery of the products including tie up with life and non life insurance players for integration of product to address various risks, Micro Insurance delivery channel (consisting of NGO, SHG and MFIs), enlarging the service activities entrusted to micro insurance agent, issue of policy documents in simple vernacular language etc. The IRDA may continue to give adequate priority to the micro insurance sector with focus on removing the constraints and further developing the sector.

There is lack of expert knowledge to manage the firms engaged in financial services in India. Financial services firms require accommodation at prime and central location, ignoring rural areas. Khan Committee (an internal group of RBI on Rural Credit and Micro-Finance) report dated July 19, 2005 has since been placed on the website of the RBI. The report considers (a) policy options and strategies for deepening and widening of financial services; (b) promotion, development and rating of microfinance institutions and other outreach entities; and (c) regulatory issues and concerns.

PROBLEMS & PROSPECTS

Despite more than 25 years of large financial investments and technical assistance programs, access to financial services in rural markets has not expanded at the massive scale and on the financially sustainable basis that have been expected. Financial services providers are seeking opportunities in big cities and urban areas and ignore rural and backward areas whereas this segment of the country has potential and may be prove better than urban areas. Yet, in spite of the success of numerous microfinance institutions (MFI), many problems remain which must be urgently resolved like a large number of the rural households still lack access to financial services, most of the existing MFI are not yet financially sustainable, while funds from governments and donors are rapidly increasing, financial institutions still need solid foundations to avoid management failures etc.

The most important form of microfinance is credit targeted to poor people who are also talented entrepreneurs. If these people gain access to credit, they will expand their businesses; stimulate local economic growth resulting in fast economic development. While this approach has had significant results in the cities of the developing world, it has failed to reach the majority of poor people, who are rural subsistence farmers with little, farm/non-farm income.

The existing extensive formal banking structure is

still not sufficient to meet the growing demand of rural credit. Lack of sufficient number of retail outlets of formal banking sector has been a big handicap in reaching the poor. Post-offices have been already into the business of collecting small deposits from people and have been providing services of transferring money. Post-office network could very well be considered for increasing the outreach of banking services, especially in remote and rural areas. One of the important principles of micro-finance is to provide door-step and timely delivery of financial service.

The banks, in times of high resilience in credit demand from the industrial, trade, agricultural and retail sectors, may not be able to support the development of MFIs/MCIs, particularly if they find the deposit growth is less than required.

If for some reason, asset prices are not favourable for improving domestic market financing, or if the environment for external financing is not favourable, companies would depend on bank support for their financing needs, thereby reducing the incentive for banks to lend to the micro-finance sector.

CHALLENGES

The MFI model is comparatively costlier in terms of delivery of financial services. It has also been commented that MFIs pass on the higher cost of credit to their clients who are "interest insensitive" for small loans but may not be so as loan sizes increase. It is, therefore, necessary for MFIs to develop strategies for increasing the range and volume of their financial services.

Lack of capital is an important area of concern for MFIs, which are on the growth path, is that they face a paucity of funds. This is a critical constraint in their being able to scale up. Many of the MFIs are socially- oriented institutions and do not have adequate access to financial capital. As a result, they have high debt equity ratios. Presently, there is no reliable mechanism in the country for meeting the

equity requirements of MFIs. The Micro Finance Development Fund (MFDF), set up with NABARD, is expected to play a vital role in meeting the equity needs of MFIs.

In comparison with earlier years, MFIs are now finding it relatively easier to raise loan funds from banks. This change came after 2000, when the RBI allowed banks to lend to MFIs and treat such lending as part of their priority sector-funding obligations. Banks need to be most careful when they feel most optimistic. At a time when they are enthusiastic about MFIs, banks would do well to find the right technologies to assess the risk of funding MFIs.

At present, both Government and the private agencies involved in micro finance have devised their own individual strategies in furtherance of their goals. Absence of comprehensive national level policy has hindered the orderly growth of the sector. There is an urgent need for a concerted effort on the part of the various agencies and the services providers involved in the sector to come together to evolve a coordinated strategy for a faster and smoother growth of the sector

CONCLUSION

It is necessary to recognize that in India financial services should be extended both rural and urban areas for ensuring financial inclusion of all segments of the population, simultaneously; one should avoid the temptation of creating one set of banking and financial institutions to cater to the poor or the unorganized, and another for the rest. In this context, a comprehensive framework required to review the cooperative credit system, revitalize the Regional Rural Banks and reorient commercial banking system to get a high priority while simultaneously enabling and encouraging the growth of rural financial services in India. The private institutions which are involved in financial services like as insurance, mutual fund, credit etc should also take initiative to start all or some of their scheme launch in rural and back ward areas that Indian economy could develop with agriculture and rural areas.

Government should financially support the MFIs by providing subsidy and other facilities.

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INDIAN AGRICULTURAL MARKET: ROLE OF PRICE RISK MANAGEMENT IN AGRICULTURAL MARKET

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ABSTRACT

Most economists are of the idea that commodity price instability should be reduced. Since independence, many marketing structures have been designed to that end, without much success, especially for agricultural commodities. The failure might be a consequence of the fact that most policies have neglected the reason for price fluctuations. These price fluctuations are endogenous, caused by the market equilibrium local dynamic instability. It means that any measure relying on the seller-centric methods is likely to be inoperative. In addition, because, in agriculture, the production function is homogenous and any effective stabilization leads to over production and fixed crop rotation e.g. Paddy-Wheat rotation in Punjab and Haryana. Only production quotas can cope with these difficulties along with contract farming. They may be designed in such a way as to maintain the essential feature of market equilibrium, i.e. marginal cost equating price and contractual pricing.

Key words: market equilibrium, crop rotation, contract farming

INTRODUCTION

Most economists congregate on the idea that commodity price instability should be reduced. Since at least one century a variety of instruments have been designed to that end, without much success, especially for agricultural commodities, the failure might be a consequence of the fact that most policies have neglected the reason for price fluctuations. Commodity price fluctuations are endogenous, caused by the market equilibrium local dynamic instability. It means that any measure relying on the "law of large numbers" is likely to be inoperative. In addition, because, in agriculture, the production function is homogenous, any effective stabilization leads to over production and hence lowering of prices. The procurement of principal crops of India, like paddy and wheat, is largely dependant upon government agencies and private agencies feel inhibitions of minimum support price. Only production quotas can cope with these difficulties. They may be designed in such a way as to maintain the essential feature of market equilibrium, i.e. marginal cost equating price. The liberalisation policies are creating new opportunities,

but also posing new challenges like coping with price volatility. Price volatility creates uncertainty and risks which can threaten agricultural performance and negatively impact the income and welfare of farmers and the rural poor. Indian policy makers have traditionally coped with the uncertainty and risk associated with price volatility by resorting to policy instruments to minimize or eliminate price volatility - controls on private sector activities - extensive market interventions and crop insurance. These instruments, because of their costs are now progressively and selectively being relinquished by the government in an effort to spur agricultural growth. An alternative strategy to manage uncertainty and risks inherent in agricultural markets is introduction of future contracts in agricultural commodities.

Although cost of production has been one of the main considerations in determining the levels of minimum support prices of various crops, in recent years. The costs of production vary widely from region to region, while the CACP recommends MSP for the country as a whole, based on All India weighted average cost. The issue that minimum

support prices, as recommended by the Commission for Agricultural Costs & Prices (CACP), do not cover the costs of production of crops in several regions, cannot be resolved, unless differential MSPs are fixed for different regions. However, in the present context, when the regional economies are getting integrated with national and international economies and efficiency and competitiveness of agricultural production do matter, any attempt to fix region specific MSPs based on cost differentials, may be counter-productive.

It is a matter of the fact that the implementation of minimum support prices is poor in all regions except Punjab, Haryana, and Andhra Pradesh and to some extent Uttar Pradesh and Madhya Pradesh and consequently market prices rule generally much lower than the MSPs. Also, the benefit of MSPs remains confined to mainly paddy and wheat, even though MSPs are fixed for as many as 25 agricultural commodities.

Fundamental Problems of Farmers:

In India, the farmers are hard-working, but not necessarily businessman-like enterprising. The fundamental problems they face are as follows and accordingly, they make their decisions of crop pattern, agronomic practices and marketing:

- In market-oriented agricultural sectors, farmers choose which crops to grow and how best to grow them by considering potential profits and potential risks.
- In general, there is a tradeoff between potential profit and risk.
- Successful farmers will be those that choose high-profit activities who successfully manage associated risk.

But, it is a matter of general observation that the Indian farmers are more traditional in their approach as far as crop pattern is concerned. There is tremendous loss to soil structure due to wheat-paddy rotation in practice, especially in North India.

Financial Support

Government has entrusted the implementation of the policy to the public sector and private sector banks, the regional rural banks (RRBs) and the cooperative banks. Each RRB has a sponsor bank. Another method of delivering farm credit is the cooperative banking system. Unless cooperative banks are healthy and creditworthy, it would not be possible to reach credit to every farmer in need of credit. The Rural Infrastructure Development Fund (RIDF) was established in NABARD in 1994-95. Later on, a decision was taken to close the RIDF and establish, in its place, another fund with slightly different objectives. In Union Budget-2005, it was decided to revive the RIDF.

Crop Diversification

India is self-sufficient in wheat and paddy but deficient in other agricultural produce. The time has come to encourage our farmers to diversify into areas such as horticulture, floriculture and oilseeds. The Anand model has been a great success in milk and milk products. Government has proposed to launch a National Horticulture Mission. The goal is to double horticulture production from the current level of 150 million tonnes to 300 million tonnes by 2011-12. Oilseeds are another critical area. In 2008, India produced 25 million tonnes of oilseeds, but import was worth of US\$ 2.5 billion of edible oil. By promoting superior seed-technology and through an appropriate policy of price support the farmers can be encouraged to diversify into oilseeds.

Sources of Risk in Agriculture

- Common risks of farmers and non Farmers.
 - Property: Damage to buildings and equipment
 - Casualty and health: Loss of life or injury
- Farmers face unique risks
 - Damage to crops from adverse weather or unexpected disease or insect infestations
 - Unexpected declines in price

- Farmers also face new risks
 - BSE, foot and mouth disease, avian flu have led to widespread loss of markets, especially export markets. Result is large price decline.
- Use Insurance
 - Self-insurance: farm assets cover the loss
 - Market insurance: insurance company covers the loss in exchange for an annual pre-paid premium
- First Principle of Insurance:
 - Premiums of the many pay the losses of the few.

Management of Yield Risk

- Diversification of production across space and crops.
 - Don't put all your crops into one area (if possible)
 - Don't plant only one crop
 - Raise both crops and livestock
 - Adopt allied agricultural activities commercially
- Buy crop insurance
Types of Crop Insurance
- Insure each crop separately,
 - Most complete and expensive insurance
- Pool production from multiple crops
 - Reflects actual financial risk
- Insure individual yield,
 - Most complete and expensive insurance
- Or, insure area yield
 - Easier to implement and more cost effective

Management of Price Risk

- Government programs can create a minimum guaranteed price
 - Intervention price
 - Minimum Support Price
- Price risk can be hedged with futures or options on futures

No Government or Futures Markets?

- Alternative
 1. Enterprise diversification.
 - Downside risk from a diversified farm is

much lower than a non-diversified farm.

- Alternative
 2. Forward contract with processor.
 - Many progressive producers doing this
- Processing tomatoes, Ginger, Garlic, Chillies and potatoes etc.
- Specialty grains
- Cattle
- Futures contracts involve the buyer (or seller) of a futures contract agreeing to purchase (or sell) a specified amount of a commodity at a specified price on a specified date. Contract terms (for example, amounts, grades, delivery dates) are standardized, and transactions handled only by organized exchanges. Profits and losses in trades are settled daily through margin funds deposited in the exchange as collateral. Futures contracts are usually settled before or at maturity, and do not generally involve physical delivery of the product.

Use of price risk management instruments provides producers with certainty about the minimum price they will receive for their crop (at the cost of higher revenues forgone), and allows them to make more efficient farm management decisions regarding output mix and input use. Elimination of worst price scenarios can provide incentives for investment in promising sectors (that are often high risk/high return). Reducing market distortions foster diversification to new and more profitable agricultural enterprises. Further, eliminating the primary reason for nonrepayment of loans (an unanticipated decline in commodity prices) can reduce the risk exposure of producers in the eyes of lending facilities, and is likely to result in improved access to (and terms of) credit for small-scale agricultural producers.

As the government has not given the status of industry to agriculture, but industry-like marketing systems definitely exist. The setting of agri-export zones is the latest example. But irony of the fact is that Punjabi farmers are enterprising in production front, but rely heavily upon government run

machinery for marketing. This is primarily because of ignorance and lack of access to knowledge and information. Even the qualified extension workers are not having regular and cheap access to the information about domestic and international markets. In this scenario, the establishment of Call centres will definitely boost the interaction between experts and farmers.

The farmers must explore international export markets through effective market-intelligence networks (which must be established in this zone). They need to identify their potential competitors in the global market and effectively compete with them by creating an efficient market promotion system.

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STRATEGIES OF HUMAN RESOURCES FOR NEW MILLENNIUM: CHALLENGES AND OPPORTUNITIES

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ABSTRACT

Over many centuries India has absorbed managerial ideas and practices from around the world. Early records of trade, from 4500 B.C. to 300 B.C., not only indicate international economic and political links, but also the ideas of social and public administration. The world's first management book, titled 'Arhāshastra', written three millennium before Christ, codified many aspects of human resource practices in Ancient India. This treatise presented notions of the financial administration of the state, guiding principles for trade and commerce, as well as the management of people. These ideas were to be embedded in organisational thinking for centuries (Rangarajan 1992, Sihag 2004). Increasing trade, that included engagement with the Romans, led to widespread and systematic governance methods by 250 A.D. During the next 300 years, the first Indian empire, the Gupta Dynasty, encouraged the establishment of rules and regulations for managerial systems, and later from about 1000 A.D. Islam influenced many areas of trade and commerce. A further powerful effect on the managerial history of India was to be provided by the British system of corporate organization for 200 years. Clearly, the socio-cultural roots of Indian heritage are diverse and have been drawn from multiple sources including ideas brought from other parts of the old world. Interestingly, these ideas were essentially secular even when they originated from religious bases.

INTRODUCTION

In the contemporary context, the Indian management mindscape continues to be influenced by the residual traces of ancient wisdom as it faces the complexities of global realities. One stream of holistic wisdom, identified as the Vedantic philosophy, pervades managerial behaviour at all levels of work organisations. This philosophical tradition has its roots in sacred texts from 2000 B.C. and it holds that human nature has a capacity for self transformation and attaining spiritual high ground while facing realities of day to day challenges (Lannoy 1971). Such cultural based tradition and heritage can have a substantial impact on current managerial mindsets in terms of family bonding and mutuality of obligations. The caste system, which was recorded in the writings of the Greek Ambassador Megasthenes in the third century B.C., is another significant feature of Indian social heritage that for centuries had impacted organisational architecture and managerial practices, and has now become the focus of critical

attention in the social, political and legal agenda of the nation.

One of the most significant areas of values and cultural practices has been the caste system. Traditionally, the caste system maintained social or organisational balance. Brahmins (priests and teachers) were at the apex, Kshatriya (rulers and warriors), Vaishya (merchants and managers) and Shudra (artisans and workers) occupied the lower levels. Those outside the caste hierarchy were called 'untouchables'. Even decades ago, a typical public enterprise department could be dominated by people belonging to a particular caste. Feelings associated with caste affairs influenced managers in areas like recruitment, promotion and work allocation (Venkatraman & Chandra 1996). Indian institutions codified a list of lower castes and tribal communities called 'scheduled castes and scheduled tribes'. A strict quota system called, 'reservation' in achieving affirmative equity of castes, has been the eye of political storm in India in recent years. The central government has decreed 15 per cent of recruitment

is to be reserved for scheduled castes, and a further seven and half per cent for scheduled tribes. In addition, a further 27 per cent has been decreed for other backward castes. However, the liberalisation of markets and global linkages have created transformation of attitudes towards human resource (HR) policies and practices (Khalilzadeh-Shirazi & Zaghera 1994, Gopalan & Rivera 1997). Faced with the challenge of responding to the rationale of Western ideas of organisation in the changing social and economic scenario of Indian organisation, practitioners are increasingly taking a broader and reflective perspective of human resource management (HRM) in India.

This manuscript has three main parts. In the first part is provided an overview of important historical events and activity that has influenced contemporary managerial tenets, the second part of the manuscript describes the emerging contemporary Indian HRM practices and indicates some interesting challenges. Much of the second part is also summarised on four informative Figures. The concluding section, the third part of the manuscript, succinctly integrates the two preceding parts.

VALUE OF CONTEXT OF HRM IN INDIA

The managerial ideologies in Indian dates back at least four centuries. Arthashastra written by the celebrated Indian scholar-practitioner Chanakya had three key areas of exploration, 1) public policy, 2) administration and utilisation of people, and 3) taxation and accounting principles (Chatterjee 2006). Parallel to such pragmatic formulations, a deep rooted value system, drawn from the early Aryan thinking, called vedanta, deeply influenced the societal and institutional values in India. Overall, Indian collective culture had an interesting individualistic core while the civilisational values of duty to family, group and society was always very important while vedantic ideas nurtured an inner private sphere of individualism.

There has been considerable interest in the notion that managerial values are a function of the

behaviours of managers. England, Dhingra and Agarwal (1974) were early scholars who contended that managerial values were critical forces that shape organisational architecture. The relevance of managerial values in shaping modern organisational life is reflected in scholarly literature linking them to corporate culture (Deal & Kennedy 1982), organisational commitment and job satisfaction (O'Reilly, Chatham & Caldwell 1991), as well as institutional governance (Mowday, Porter & Steers 1982). Thus, understanding the source of these values and in particular societal work values (which link the macro-micro relationships and in turn organisational practices) had become a popular line of enquiry, and a great deal of evidence has been presented to support the importance of national culture in shaping managerial values. One of the most widely read formulations of this literature is the seminal work of Hofstede (1980) who popularised the notion of clustering culture in generic dimensions such as power distribution, structuring, social orientation, and time horizons. In turn, these dimensions could be employed to explain relevant work attitudes, job incumbent behaviours and the working arrangements within organisational structures. Two of these dimensions were individualism and collectivism.

The traditional social ethos from the ancient roots, which was developed over centuries, underwent profound transformation during the British rule. Consequently, in the contemporary context multiple layers of values (core traditional values, individual managerial values, and situational values) have emerged (Chatterjee & Pearson 2000). Though the societal values largely remain very much anchored in the ancient traditions they are increasingly reflecting corporate priorities and values of global linkages. But in the arena of globalisation where priorities of consumerism, technological education, mass media, foreign investment and trade union culture predominate, newer tensions are becoming evident. For instance, contemporary Indian multinational companies and global firms in India have started shifting their emphasis to human resources with their knowledge and experience as the central

area of attention in extending new performance boundaries (Khandekar & Sharma 2005). Considerable research evidence attests to this trend with particular relevance to greenfield organisations with little or no historical baggages in their organisational culture (Settt 2004, Roy 2006).

Within Indian traditions the choice of individualistic or collectivistic behaviour depends on a number of culturally defined variables. The dynamics of these variables are underpinned through three key elements guiding Indian managerial mindscapes. These three constructs are Desh (the location), Kaal (the timing), and Patra (the specific personalities involved). Sinha and Kunungo (1997) claim that the interaction of these three variables determines the guidelines for decisional cues. This managing or nurturing of the outer layer of collectivism in an inner private sphere of individualism is expressed in Figure 1 which demonstrates the behavioural anchors in Indian organisational life.

Figure1:- Behavioral Anchors in Indian Organisational Life

DECISIONAL CUES	Desh (place)	Kaal (Timing)	Patra (Actors)
SPIRITUAL ORIENTATION	Sattava guna (Virtue focus)	Tamas guna (Negative focus)	Rajas guna (Action focus)
INTERPERSONAL RELATIONS	Sradha (Upward respect / Loyalty)	Sneha (Downward affection)	Bandhan (Bonding)

Figure 1 also presents another powerful insight of the Indian tradition of the notion of 'Guna' dynamics. According to Sharma (1996), this culture based framework, which has three types of gunas (attraction), is being increasingly used in employee assessment and organisational team building strategies. The contention is that each guna is a separate contribution to the core of human personalities. The Sattava (or truth orientation) is

the sentiment of exalted values in people, organisations or society. Alternatively, the Tamasik guna depicts a negative orientation which can be expressed behaviourally as ignorance, greed or corruption. Those individuals with a Rajasik guna are inherently driven by a desire to make a worthwhile contribution to their surroundings. Collectively, these spiritual orientations, which manifest as Sattava, Tamas or Rajas gunas, articulate as positive or negative HRM functions such as leadership, motivation or other institutional behavioural activity. The third row of Figure 1 highlights the linking of HRM trends to socio cultural roots. The culture of Sradha (upward loyalty) and Sneha (mentoring with affection) outline the behavioural anchors derived from the civilisational roots. The acceptance of 'Sradha' by youngsters and the display of 'Sneha' by the seniors have been the root of sustainability of all types of Indian organisations. This has a striking similarity to the concepts of 'oyabun' and 'kobun' in the Japanese cultural context.

CONTEMPORARY INDIA

In a recent survey of Indian CEO's, it was suggested that Indian managerial leaders were less dependent on their personal charisma, but they emphasised logical and step by step implementation processes. Indian leaders focused on empowerment and accountability in cases of critical turnaround challenges, innovative challenges, innovative technology, product planning and marketing or when other similar challenges were encountered (Spencer, Rajah, Narayan, Mohan & Latiri 2007). These social scientists contend.

Leaders in other countries often tell about why they chose a peculiar person for a certain role per task, detailing the personal characteristics that made that person right for that situation. They may also consider, in detail, how an assignment would help someone grow and develop their abilities. In general, Indian leaders simply did not discuss how they matched particular people to certain roles or tasks, nor did they usually consider in detail how

the personal characteristics of individuals might shape or inform the best way to influence that person. (Spencer, et al 2007:90).

Indian HRM in Transition

One of the noteworthy features of the Indian workplace is demographic uniqueness. It is estimated that both China and India will have a population of 1.45 billion people by 2030, however, India will have a larger workforce than China. Indeed, it is likely India will have 986 million people of working age in 2030, which will probably be about 300 million more than in 2007. And by 2050, it is expected India will have 230 million more workers than China and about 500 million more than the United States of America (U.S.). It may be noted that half of India's current population of 1.1 billion people are under of 25 years of age (Chatterjee 2006). While this fact is a demographic dividend for the economy, it is also a danger sign for the country's ability to create new jobs at an unprecedented rate. As has been pointed out by Meredith (2007).

When India's young demographic bubble begins to reach working age, India will need far more jobs than currently exist to keep living standards from declining. India today doesn't have enough good jobs for its existing workers, much less for millions of new ones. If it cannot better educate its children and create jobs for them once they reach working age, India faces a population time bomb: The nation will grow poorer and not richer, with hundred of millions of people stuck in poverty. (p.133).

With the retirement age being 55 to 58 years of age in most public sector organisations, Indian workplaces are dominated by youth. Increasing the retirement age in critical areas like universities, schools, hospitals, research institutions and public service is a topic of considerable current debate and agenda of political parties.

The divergent view, that each society has an unique set of national nuances, which guide particular

managerial beliefs and actions, is being challenged in Indian society. An emerging dominant perspective is the influence of globalisation on technological advancements, business management, education and communication infrastructures is leading to a converging effect on managerial mindsets and business behaviours. And when India embraced liberalisation and economic reform in the early 1990s, dramatic changes were set in motion in terms of corporate mindsets and HRM practices as a result of global imperatives and accompanying changes in societal priorities. Indeed, the onset of a burgeoning competitive service sector compelled a demographic shift in worker educational status and heightened the demand for job relevant skills as well as regional diversity. Expectedly, there has been a marked shift towards valuing human resources (HR) in Indian organisations as they become increasingly strategy driven as opposed to the culture of the status quo. Accordingly, competitive advantage in industries like software services, pharmaceuticals, and biotechnology (where India is seeking to assert global dominance), the significance of HRs is being emphasised. These relativities were demonstrated in a recent study of three global Indian companies with (235 managers) when evidence was presented that positively linked the HRM practices with organisational performance (Khandekar & Sharma 2005). In spite of this trend of convergence, a deep sense of locality exists creating more robust 'cross vergence' in the conceptual as well as practical domain.

Figure 2
Drivers of Contemporary Indian HRM Trends

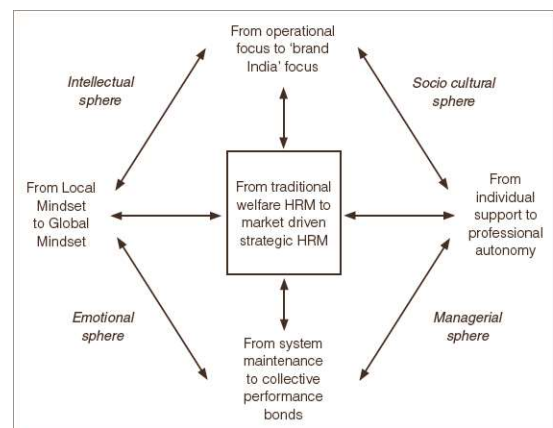


Figure 2 presents the key drivers for contemporary Indian HRM trends. In Figure 2 there are four external spheres of intervention for HRM professionals and these spheres are integrated in a complex array within organisational settings. The intellectual sphere, which emphasises the mindset transaction in work organisations, has been significantly impacted by the forces of globalisation. Indeed, Chatterjee and Pearson (2000) argued, with supporting empirical evidence from 421 senior level Indian managers, that many of the traditional Indian values (respect for seniority, status and group affiliation) have been complemented by newer areas of attention that are more usually linked to globalisation, such as work quality, customer service and innovation. The most important work related attribute of the study was the opportunity to learn new things at work. Such cross verging trends need to be understood more widely as practitioners face a new reality of human resource development of post industrial economic organisations.

The other three spheres, of Figure 2, namely the emotional, the socio cultural and the managerial domains are undergoing, similar profound changes. For instance, the socio cultural sphere confronts the dialects of the national macro level reform agenda as well as the challenge of innovating by addressing the hygiene and motivational features of the work place. Consequently, this sphere, which is underpinned by the anchors of Sradha and Sneha, has the opportunity to leverage work setting creativity in dimensions of autonomy, empowerment, multiskilling and various types of job design. And the emotional sphere, which focuses on creativity and innovation to encapsulate the notions of workplace commitment and collaboration as well as favourable teamwork, brings desirable behavioural elements of transparency and integrity into organisational procedures and practices. The managerial sphere provides the mechanisms for shifting mindsets, for in Indian organisations HRM is viewed to be closely aligned with managerial technical competency. Thus, understanding of the relativity of HRM to strategic intended organisational performance is less well articulated in Indian firms. The current

emphasis of reconfiguring cadres (voluntary and nonvoluntary redundancy schemes), downsizing, delayering and similar arrangements will become less relevant as holistic perspectives gain ground. A hallmark of future Indian workplaces is likely to be a dominant emphasis on managerial training, structural redesign and reframing of institutional architectures to achieve enterprise excellence. Thus, a primary role of Indian managers will be to forge new employment and industrial relationships through purposeful HRM policies and practices. In Figure 3 is presented a variety of HRM practices that are being employed in Indian organisations.

Figure 3 Key HRM Practices in Indian Organisations

HRM Practice	Observable Features
Job Description	Percentage of employees with formally defined work roles is very high in the public sector.
Recruitment	Strong dependence on formal labour market. Direct recruitment from institutions of higher learning is very common amongst management, engineering and similar professional cadres. Amongst other vehicles, placement agencies, internet and print media are the most popular medium for recruitment.
Compensation	Strong emphasis on security and lifetime employment in public sector including a range of facilities like, healthcare, housing and schooling for children.
Training and Development	Poorly institutionalised in Indian organisations. Popularity of training programmes and their effect in skill and value development undeveloped.

Performance Appraisal	A very low coverage of employees under formal performance appraisal and rewards or organisational goals
Promotion and Reward	Moderately variable across industries. Seniority systems still dominate the public sector enterprises. Use of merit and performance limited mostly to globally orientated industries.
Career Planning	Limited in scope. The seniority based escalator system in the public sector provides stability and progression in career. Widespread use of voluntary retirement scheme in public sector by high performing staff. Cross functional career paths uncommon.
Gender Equity	Driven by proactive court rulings, ILO guidelines and legislature provisions. Lack of strategic and inclusion vision spread.
Reservation System	The central government has fixed 15 per cent reservations for scheduled castes, 7.5 per cent for scheduled tribes and 27 per cent for backward communities. States vary in their reservation systems.

IR Challenge

The Indian IR system has two main features. First, is the absence of the provision to recognise a union as a representative or agent for collective bargaining. Second, is the total dominance of government in regulating the industrial relations (IR) domain. Though it is relatively easy for members of a work organisation to be registered as a union under the law, it does not lead to the legal recognition by the employer in dispute resolution or bargaining process. This contention was made by Kuruvilla (1996) over a decade ago.

In terms of collective bargaining, industry wide bargaining occurs in certain industries where the employers are organized, but bargaining otherwise is decentralised to enterprise level. Although there are no restrictions on the subjects of bargaining, the Industrial Disputes Act of 1947 restricts the ability of employers to lay off or retrench employees or to close business. (p.635).

Indian industrial relations have evolved from political roots and labour market demands. An unique feature of Indian IR has been the dominance of political parties sponsoring unions. Union membership has been the most popular breeding ground for politicians, and political leaders have enjoyed the use of union platforms. Such politicisation has generated conflicts and rivalry creating mayhem and the hurting of labour interest. Nevertheless, in spite of wage determination by central government boards, and ad hoc industrial awards, enterprise level bargaining has yielded positive outcomes. Interestingly, during the 1970s in a period of the highest number of strikes, the registered number of unions grew fivefold. But a decade later profound economic and political reform movement saw a new direction in the trade union movement. A section of scholarly trade union leaders began to incorporate new global thinking in the union outlook.

Since the 1980s, the Indian industrial relations culture has been considerably impacted by the intensification of globalised markets. During this time and beyond, there has been a clear departure from traditional personnel management. The shift has not only been in the general tone, but in the substantive visions. Adjustment to the global imperatives of an emerging service sector, sunrise industries, and demographic shifts in competencies has given rise to new thinking. In spite of most of the Indian labour laws being entrenched in a world view that is very different to the current realities, and the obvious urgency for them to be updated to incorporate more flexible, competitive work systems, the built in rigidities are still proving a formidable obstacle.

The most alarming issue in the HR and IR context is the lack of job opportunities outside urban areas where more than 70 per cent of the population lives. As has been pointed out by Meredith (2007).

While Indian university graduates line up for jobs that can propel them into newly vibrant middle class, per India's rural and urban poor, change has been interminably delayed. Expectations, like incomes, are rising across India, and not just for those working in call centres. Even as the New India cohort thrives, much of the rest of India is making much slower gains or even being left behind, creating social and political tensions that cloud India's impressive strides forward. The lowest paid workers in the off shoring industry those working in the call centres earn median wages of \$275 a month. But most Indians still earn less than \$60 a month or just \$2 a day. (p.125).

Technical Services Recruitment and Retention

There has been a dramatic shift in the expectations of employees in the organised and globally linked sectors of the economy. An unprecedented rise in the disposable income coupled with a declining dependency ratio, has led to young professionals becoming extremely mobile. The problem is critically evident in the off shoring industry where the average retention period of an employee is considered to be around six to eight months. And the retention of senior level executives is an additional challenge. The attrition rates are highest in information technology (IT) (30-35%), business process outsourcing (BPO) (35-40%), insurance (35-40%), retail and fast moving consumer goods (FMCG) (20-30%), and manufacturing and engineering (10-15%) (Chatterjee 2006).

Over the past decade, there has been a sea change in the area of Indian technical services and the associated HRM practices of recruitment and retention. While the higher education system in the country has remained overwhelming poor in infrastructure and weak in becoming revitalised to grapple with the global imperatives, there has been a mushrooming of private educational institutions. The recruitment problem is further deepened by the

emergence of a new culture of 'job hopping' amongst employers who can demonstrate their world class competencies. This phenomenon of turnover has seen a chain reaction in entry level salaries, and an increase in graduates has created significant social and economic disruption to the Indian labour market. A likely scenario from this rampant activity is that the Indian HR scene will be negatively impacted in the next decade unless the deregulation and autonomy of the higher education sectors is initiated somewhat immediately. An example of this widening gap between the university system and market need has become a serious impediment in several new industries in India. For an example, it has been reported in the popular press (Time 2007), "...out of 13 million people who applied to work at IT company Infosys last year, just 2% were qualified indicating a sign of stress in the university system that graduates 2.5 million a year." (p.33).

One of the most concerning issues for HR managers in India is the high staff turnover. In industries like call centres, staff attrition is the single biggest issue. The industry has grown from zero employment to an employer of quarter of a million young English speaking, well educated and ambitious people. The point is well made by Slater (2007), who wrote.

Attrition is highest in traditional customer service jobs, where young people find themselves having to spend all night on the phone, often with irate callers. In other areas such as claims processing or accounting, the turnover rate is much lower. More worrying for many companies is the 'merry go round' in supervising and management jobs, as new centers are only too willing to pay higher salaries to hijack experienced staff. (p.34).

The issue of retention is much more critical in the high value adding BPO sector such as R&D activities. This \$40 billion industry has one of the highest attrition rates of around 20 to 25 per cent. The service laden BPO and Hord industry have the highest attrition rates. Many companies are developing innovative incentive packages in

countering this job hopping phenomenon. Figure 4 illustrates some of these initiatives by leading companies in India.

A dramatic shift in recruitment practices has been taking place as globally pretend Indian companies as well as global technical services rivals have made India a battlefield of recruitment for the best workers. For example, IBM's workforce in India has more than doubled in two years to a cadre of 53,000. This outcome has come with the elimination of 20,000 jobs in high cost markets like the U.S., Europe and Japan. The R&D centre of IBM is staffed by 3,000 world class engineers and is being recognised for its ability to innovate on all areas from simple processes, softwares, semiconductors

as well as supercomputers. It is interesting to note that IBM has dominated the recruitment market in technical services in India during 2006. This leading company recruited 10,000 employees out of a total of 25,000 people who were recruited to the technical services industry. The prominence of IBM as an employer of technically qualified personnel has been acknowledged in the popular press (Business Week 2007).

In Pune, a rapidly developing IT centre near Mumbai, the company has been dispatching vans with signs saying, 'IBM is hiring', to the gates of the rivals at lunch time. Their hit rate is pretty good laments a manager at a tech firm that has lost employees to IBM.

Figure 4 Examples of Retention Strategies for young Professionals in India's BPO and Services Sectors

Name of the Company	Retention Strategy	Impact
Tata Consulting Services(TCS)	<ul style="list-style-type: none"> • A choice of working in over 170 offices across 40 countries in a variety of areas. • Paternity leave for adoption of a girl child • Discounts on group parties 	<ul style="list-style-type: none"> • Significant impact on job hopping achieved
ICICI Bank	<ul style="list-style-type: none"> • Identification of potential talented staff • Alternative stock options • Quicker promotion 	<ul style="list-style-type: none"> • Have been able to achieve higher retention rate
WIPRO	<ul style="list-style-type: none"> • 'Wings Within' programme where existing employees get a chance to quit their current job role and join a different firm within WIPRO 	<ul style="list-style-type: none"> • Has led to a higher retention rate
INFOSYS	<ul style="list-style-type: none"> • Fostering a sense of belongingness, creative artistic and social activities for the employees and their families. • Initiating one of the best 'corporate universities' in the world 	<ul style="list-style-type: none"> • Moderate Retentions rate increase achieved
Microsoft-India	<ul style="list-style-type: none"> • Excellent sporting and wellness facilities • Employees allowed to choose flexible working schedule • Moving people across functions and sections in assisting employees find their area of interest 	<ul style="list-style-type: none"> • Struggling to minimise job hopping
Mahindra & Co	<ul style="list-style-type: none"> • Culture change valuing innovation and talent over age and experience • Institutionalising a practice called 'reverse mentoring' where young people are given opportunities of mentoring their seniors 	<ul style="list-style-type: none"> • Stabilised job hopping significantly

CONCLUSION

The World Competitiveness Report rated India's human resource capabilities as being comparatively weaker than most Asian nations. The recognition of world class human resource capability as being pivotal to global success has changed Indian HRM cultures in recent years. While the historical and traditional roots remain deeply embedded in the subjective world of managers, emphasis on objective global concepts and practices are becoming more common. Three very different perspectives in HRM are evident. Firstly, Indian firms with a global outlook; secondly, global firms seeking to adapt to the Indian context; and thirdly, the HRM practice in public sectors undertakings (PSV'S). As the Indian economy becomes more globally linked, all three perspectives will move increasingly towards a cross verging strengthening. Interestingly, within the national context, India itself is not a homogenous entity. Regional variations in terms of industry size, provincial business culture, and political issues play very relevant roles. The nature of hierarchy, status, authority, responsibility and similar other concepts vary widely across the nations synerging system maintenance. Indeed, organisational performance and personal success are critical in the new era.

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FUNCTIONS AND ACHIEVEMENT OF GOVT. SUPPORT AGENCIES IN THE DEVELOPMENT OF WOMEN ENTREPRENEURE IN INDIA

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INTRODUCTION

Women Entrepreneurs may be defined as the women or a group of women who initiate, organize and operate a business enterprise. Government of India has defined women entrepreneurs as an enterprise owned and controlled by a woman having a minimum financial interest of 51% of the capital and giving at least 51% of employment generated in the enterprise to women. Like a male entrepreneur a women entrepreneurs has many functions. They should explore the prospects of starting new enterprise; undertake risks, introduction of new innovations, coordination administration and control of business and providing effective leadership in all aspects of business.

It is an accepted fact that women have the potential to be successful in all walks of life. Like men, they too have the aspiration to excel, the determination to succeed and the capacity to work hard. They are making their mark in the world of business without abdicating their familial responsibilities.

Women in business are a recent phenomenon in India. By and large they had confided themselves to petty business and tiny cottage industries. Women entrepreneurs engaged in business due to push and pull factors. Which encourage women to have an independent occupation and stands on they're on legs? A sense towards independent decision-making on their life and career is the motivational factor behind this urge. Saddled with household chores and domestic responsibilities women want to get independence under the influence of these factors the women entrepreneurs choose a profession as a challenge and as an urge to do some thing new. Such situation is described as pull factors. While in push factors women engaged in business activities

due to family compulsion and the responsibility is thrust upon them.

Problem of women entrepreneurs in India

Women in India are faced many problems to get ahead their life in business. A few problems can be detailed as;

1. The greatest deterrent to women entrepreneurs is that they are women. A kind of patriarchal - male dominant social order is the building block to them in their way towards business success. Male members think it a big risk financing the ventures run by women.
2. The financial institutions are sceptical about the entrepreneurial abilities of women. The bankers consider women loonies as higher risk than men loonies. The bankers put unrealistic and unreasonable securities to get loan to women entrepreneurs. According to a report by the United Nations Industrial Development Organisation (UNIDO), "despite evidence that woman's loan repayment rates are higher than men's, women still face more difficulties in obtaining credit," often due to discriminatory attitudes of banks and informal lending groups (UNIDO, 1995b).
3. Entrepreneurs usually require financial assistance of some kind to launch their ventures - be it a formal bank loan or money from a saving account. Women in developing nations have little access to funds, due to the fact that they are concentrated in poor rural communities with few opportunities to borrow money (Starcher, 1996; UNIDO, 1995b). The women entrepreneurs are suffering from inadequate

financial resources and working capital. The women entrepreneurs lack access to external funds due to their inability to prove tangible security. Very few women have the tangible property in hand.

4. Women's Family obligations also bar them from becoming successful entrepreneurs in both developed and developing Nations. "Having primary responsibility for children, home and older dependent family members, few women can devote all their time and energies to their business" (Starcher, 1996, p). The financial institutions discourage women entrepreneurs on the belief that they can at any time leave their business and become housewives again. The result is that they are forced to rely on their own savings, and loan from relatives and family friends.
5. Indian women give more emphasis to family ties and relationships. Married women have to make a fine balance between business and home. More over the business success is depends on the support the family members extended to women in the business process and management. The interest of the family members is a determinant factor in the realization of women folk business aspirations.
6. Another argument is that women entrepreneurs have low-level management skills. They have to depend on office staffs and intermediaries, to get things done, especially, the marketing and sales side of business. Here there is more probability for business fallacies like the intermediaries take major part of the surplus or profit. Marketing means mobility and confidence in dealing with the external world, both of which women have been discouraged from developing by social conditioning. Even when they are otherwise in control of an enterprise, they often depend on males of the family in this area.
7. The male - female competition is another factor, which develop hurdles to women entrepreneurs in the business management process. Despite the fact that women entrepreneurs are good in keeping their service prompt and delivery in time, due to lack of organisational skills compared to male entrepreneurs women have to face constraints from competition. The confidence to travel across day and night and even different regions and states are less found in women compared to male entrepreneurs. This shows the low level freedom of expression and freedom of mobility of the women entrepreneurs.
8. Knowledge of alternative source of raw materials availability and high negotiation skills are the basic requirement to run a business. Getting the raw materials from different source with discount prices is the factor that determines the profit margin. Lack of knowledge of availability of the raw materials and low-level negotiation and bargaining skills are the factors, which affect women entrepreneur's business adventures.
9. Knowledge of latest technological changes, know how, and education level of the person are significant factor that affect business. The literacy rate of women in India is found at low level compared to male population. Many women in developing nations lack the education needed to spur successful entrepreneurship. They are ignorant of new technologies or unskilled in their use, and often unable to do research and gain the necessary training (UNIDO, 1995b, p.1). Although great advances are being made in technology, many women's illiteracy, structural difficulties, and lack of access to technical training prevent the technology from being beneficial or even available to females ("Women Entrepreneurs in Poorest Countries," 2001). According to The Economist, this lack of knowledge and the continuing treatment of women as second-class citizens keep them in a pervasive cycle

of poverty ("The Female Poverty Trap," 2001). The studies indicate that uneducated women don't have the knowledge of measurement and basic accounting.

10. Low-level risk taking attitude is another factor affecting women folk decision to get into business. Low-level education provides low-level self-confidence and self-reliance to the women folk to engage in business, which is continuous risk taking and strategic cession making profession. Investing money, maintaining the operations and ploughing back money for surplus generation requires high risk taking attitude, courage and confidence. Though the risk tolerance ability of the women folk in day-to-day life is high compared to male members, while in business it is found opposite to that.
11. Achievement motivation of the women folk found less compared to male members. The low level of education and confidence leads to low level achievement and advancement motivation among women folk to engage in business operations and running a business concern.
12. Finally high production cost of some business operations adversely affects the development of women entrepreneurs. The installation of new machineries during expansion of the productive capacity and like similar factors dissuades the women entrepreneurs from venturing into new areas.

Schemes for the development and promotion of women entrepreneurs

According to the Third All India Census of Small Scale Industries conducted in 2001-02 and subsequent estimates made, only 10.11% of the Micro and Small Enterprises in India are owned by women while 9.46% of the MSE enterprises are managed by women. Currently (2006-07) their estimated number is 12.99 lakh women managed enterprise and 12.15 lakh women managed

enterprise. In order to encourage more and more women enterprises in the MSE sector, several schemes have been formulated by this Ministry and some more are in the process of being finalized, targeted only at the development of women enterprises in India.

1. TRADE RELATED ENTREPRENEURSHIP ASSISTANCE AND DEVELOPMENT SCHEME FOR WOMEN (TREAD)

With a view to encourage women in setting up their own ventures, government implements a Scheme, namely, "Trade Related Entrepreneurship Assistance and Development (TREAD) during the 11th Plan. The scheme envisages economic empowerment of women through the development of their entrepreneurial skills in non-farm activities. There are three major components of the scheme;

(i) GOI grant up to 30% of the total project cost to the Non-Government Organizations (NGOs) for promoting entrepreneurship among women. The remaining 70% of the project cost is financed by the lending agency as loan for undertaking activities as envisaged in the project.

1. GOI grant up to Rs.1 lakh per programme to training institutions / NGOs for imparting training to the women entrepreneurs, subject to these institutions/NGOs bring their share to the extent of minimum 25% of GOI grant and 10% in case of NER.

2. Need-based GoI grants upto Rs.5 lakh to National Entrepreneurship Development Institutions and any other institutions of repute for undertaking field surveys, research studies, evaluation studies, designing of training modules etc.

Operationalisation of the Scheme

The scheme envisages that Women Associations/ NGOs/SHGs should prepare composite bankable

proposals for a group of women entrepreneurs, and submit to the office of the DC (MSME) for forwarding to the Banks for their appraisal. Bank examines the proposal and issues approval. 30% of the loan amount is sanctioned as grant and made available to the bank by office of DC (MSME) for further disbursement to NGOs.

2. MICRO & SMALL ENTERPRISES CLUSTER DEVELOPMENT PROGRAMME (MSE-CDP)

a) Existing Clusters:

A cluster is defined as a group of enterprises, ideally having 100 members, producing same/similar products/services. While 100 members could be the minimum per cluster, depending on the density of population and other factors, even 200-300 could be a good target group for undertaking Diagnostic Study and the subsequent Soft Interventions in a cluster. However, in difficult and backward regions the target numbers could come down to 50 or less but it should not be too small as a lot of Government expenditure is made per cluster. The Cluster Development Programme (CDP) being implemented envisages diagnostic study of identified clusters of traditional skill-based MSEs to identify appropriate technologies and their providers and to facilitate adoption of available technology meeting the specific needs of the end users. The Cluster Development aims at enhanced competitiveness, technology improvement, adoption of best manufacturing practices, marketing of products, employment generation etc. The scheme provides assistance for capacity building, common facilities, marketing etc. the delivery, assimilation and diffusion of the identified technology from its producers to the recipient user/cluster of small enterprises.

Type of interventions

I) Soft Interventions - capacity building activities in the cluster where no fixed assets is

acquired or formed. Soft interventions, inter alia, include

- i. Diagnostic study
- ii. Forming association-Trust building & Developing Identity
- iii. Capacity building,
- iv. Organising workshops, seminars,
- v. Training & Exposure visits,
- vi. Market development,
- vii. Launch of Website,
- viii. Common procurement,
- ix. Common/complementary sales and branding;

In the past depending upon the type of cluster, assistance available for soft interventions has varied in the range of Rs.25 - 35 lakh per cluster. Currently we have an internal ceiling of Rs.10 lakh for soft intervention under this Scheme.

II) Hard Interventions - Hard interventions, inter alia, include

- i. Setting up of Common Facility Centre (CFCs),
- ii. Mini Tool Room
- iii. Design Centre,
- iv. Testing Facilities
- v. Training Centre,
- vi. R&D Centre
- vii. Common Raw Material Bank/Sales depot, etc.
- viii. Display / Exhibition Centre

In case of the hard intervention the contribution from the M/o MSME varies between 30-80% of the total project cost, but in the case of clusters owned and managed by women entrepreneurs, contribution of the M/o MSME could be up to 90% of the project cost.

b) Creation of physical infrastructure:

This Ministry implemented the IID Scheme to provide developed sites with infrastructural facilities like power distribution network, water, telecommunications, drainage and pollution control facilities, roads, exhibition/display centres, raw

materials, storage and marketing outlets, common service facilities and technological back-up services, etc. This scheme has been subsumed in the MSME-Cluster Development

Programme. All the features of IID Scheme have been retained.

To create physical infrastructure exclusively for women enterprises central grant of 40% of the project cost subject to a maximum of Rs.2 crore is available. The Ministry of MSME is making efforts to enhance the quantum of grant to 80% in a project of Rs.10 crore.

Operationalisation of the Scheme

- i) A Cluster Development Executive (CDE) is required for executing and monitoring all soft interventions in a cluster. Normally, a CDE can be a DIC Officer/MSME-DI officer/retired expert or even hired person from Non-Government Sector.'
- ii) The hard interventions in a cluster and creation of physical infrastructure require to set up a users body/special purpose vehicle which could be society/trust/company to be formed by the cluster beneficiaries.

3. CREDIT GUARANTEE FUND SCHEME FOR MICRO AND SMALL ENTERPRISES

The Scheme was launched in August 2000 to ensure better flow of credit to micro and small enterprises by minimizing the risk perception of financial institutions and banks in lending without collateral security. Under the scheme, guarantee cover is provided to collateral free credit facility extended by member lending institutions (MLIs) to the new as well as existing micro and small enterprises on loans up to Rs.50 lakh. The guarantee cover available is up to 75% of the loans extended. The extent of guarantee cover is 80% for (i) micro enterprises for loans up to Rs.5 lakh; (ii) MSEs operated and/or owned by women; and (iii) all loans

in the North-East Region. The lending institutions availing guarantee from the Trust have to pay one time guarantee fee of 1.5% and service charges of 0.75% per annum of the credit facility sanctioned. For loans up to Rs.5 lakh, the one time guarantee fee is 1% and service charges are 0.5% per annum of the credit facility sanctioned.

3. SUPPORT FOR ENTREPRENEURIAL AND MANAGERIAL DEVELOPMENT

MSME-DIs regularly organize a number of Entrepreneurship Skill Development Programme (ESDPs)/ Entrepreneurship Development Programme (EDPs)/Management Development Programmes (MDPs) to train the potential entrepreneurs in improving their techno/managerial knowledge and skill with a view to facilitating them to start MSEs in various fields.

Many of the programmes are tailor made for the target group for SC, ST, OBC Women, Minorities and other weaker sections and exclusively for women also. These programmes are also called "Out-reach Programmes" as they are conducted in rural / less developed areas.

22.5% of total target of ESDPs/EDPs are conducted exclusively for SC,ST, Women and Physically Challenged persons with a stipend of Rs. 500/- pre month per candidate under the Promotional Packages for MSEs. No fees is charged from SC / ST, women and Physically Handicapped.

No fee is charged from SC and ST and 50 % fee from Women and PH candidates who attend the ESDP /EDP /MDP courses conducted for general candidates.

4. EXHIBITIONS FOR WOMEN UNDER PROMOTIONAL PACKAGE FOR MICRO & SMALL ENTERPRISES APPROVED BY CCEA UNDER MARKETING SUPPORT

DC (MSME) has formulated a scheme for women

entrepreneurs to encourage Small & Micro manufacturing units owned by women and register in DI/DIC in their efforts at tapping and developing overseas markets, to increase participation of representatives of small/micro manufacturing enterprises under MSME stall at International Trade Fairs/Exhibitions, to enhance export from such units. Under this scheme, participation of women entrepreneurs in 25 international exhibitions is envisaged during the 11th Plan (2007-2012).

With a view to encourage women entrepreneurs to participate in the International Exhibitions under MDA scheme it has been decided to:

- i) Provide rent free space (6/9 Sq Mts) in the exhibitions
- ii) Reimburse 100% economy class air fare for one representative

The overall ceiling shall however be Rs. 1.25 lac. During the period April 2008 to September 2008, Office of DC (MSME) participated in the following exhibitions with 36 women out of total 74 participants.

Name of Fair	Date & Duration	Number of Women Participants	Total Participants
Fujian, China	May 18 - 22 2008	7	17
Imported Goods Fair, Seoul, S.Korea	May 2008	11	13
Exporiva, Garda, Italy	June 14 - 17 2008	2	7
SAARC Fair, Colombo, Sri Lanka	August 28-31, 2008	4	7

Budapest International Trade Fair, Budapest, Hungary	September 10-14, 2008	3	16
5th China Small & Medium Enterprises Fair, Guangzhou, China	September 22-25, 2008	9	15

Office of DC (MSME) is participating in the following International Exhibitions / Fairs during September 2008 to March 2009.

Name of Fair	Date & Duration	Name of specific Product	Tentative space rent per Sq. M.
INDEE, Kualalampur, Malyasia	Sept. 25 - 27 2008	Engineering Items	Rs. 17,978/- with Service Tax
8th Tehran Int. Industry Fair (TIIF), Iran	October 6 - 9 2008	Engineering Items	Rs. 7,000/- + 12.36% Service Tax
AF'L Artigiano in Fiera,- International Craft Selling Fair, Milan, Italy	October 6 - 9 2008	Handi craft giftware and related products	Rs. 21,000/- + 12.36% Service Tax
Intermoda- International Apparel & Textile Fair, Guadalajara, Mexico	January 13-16 2009	All wear items & accessories	Rs. 11,000/- + 12.36% Service Tax

Asian Pharma Expo Dhaka, Bangla Desh	January 2009	Pharmaceutical Items & Machinery	To be decided
Cairo International Fair, Egypt	March 15-25, 2009	Multi Product	Rs. 7,000/- + Service Tax
F - Asia Pacific Leather Fair, Hong Kong	March 31 - April 2, 2009	Leather goods and Accessories	Rs. 22,000/- + Service Tax

Note: 100% subsidy on space rent & airfare is also available to SC/ST Entrepreneurs and Entrepreneurs of NE region (50% space rent & 75% air fare to General category of entrepreneurs).

How to Develop Women Entrepreneurs?

Right efforts on from all areas are required in the development of women entrepreneurs and their greater participation in the entrepreneurial activities. Following efforts can be taken into account for effective development of women entrepreneurs.

1. Consider women as specific target group for all developmental programmes.
2. Better educational facilities and schemes should be extended to women folk from government part.
3. Adequate training programme on management skills to be provided to women community.
4. Encourage women's participation in decision-making.
5. Vocational training to be extended to women community that enables them to understand the production process and production management.

6. Skill development to be done in women's polytechnics and industrial training institutes. Skills are put to work in training-cum-production workshops.

7. Training on professional competence and leadership skill to be extended to women entrepreneurs.

8. Training and counselling on a large scale of existing women entrepreneurs to remove psychological causes like lack of self-confidence and fear of success.

9. Counselling through the aid of committed NGOs, psychologists, managerial experts and technical personnel should be provided to existing and emerging women entrepreneurs.

10. Continuous monitoring and improvement of training programmes.

11. Activities in which women are trained should focus on their marketability and profitability.

12. Making provision of marketing and sales assistance from government part.

13. To encourage more passive women entrepreneurs the Women training programme should be organised that taught to recognize her own psychological needs and express them.

14. State finance corporations and financing institutions should permit by statute to extend purely trade related finance to women entrepreneurs.

15. Women's development corporations have to gain access to open-ended financing.

16. The financial institutions should provide more working capital assistance both for small scale venture and large scale ventures.

17. Making provision of micro credit system and enterprise credit system to the women entrepreneurs

at local level.

18. Repeated gender sensitisation programmes should be held to train financiers to treat women with dignity and respect as persons in their own right.

19. Infrastructure, in the form of industrial plots and sheds, to set up industries is to be provided by state run agencies.

20. Industrial estates could also provide marketing outlets for the display and sale of products made by women.

21. A Women Entrepreneur's Guidance Cell set up to handle the various problems of women entrepreneurs all over the state.

22. District Industries Centres and Single Window Agencies should make use of assisting women in their trade and business guidance.

23. Programmes for encouraging entrepreneurship among women are to be extended at local level.

24. Training in entrepreneurial attitudes should start at the high school level through well-designed courses, which build confidence through behavioural games.

25. More governmental schemes to motivate women entrepreneurs to engage in small scale and large-scale business ventures.

26. Involvement of Non Governmental Organisations in women entrepreneurial training programmes and counselling.

Conclusion

Independence brought promise of equality of opportunity in all sphere to the Indian women and laws guaranteeing for their equal rights of participation in political process and equal opportunities and rights in education and employment were enacted. But unfortunately, the government sponsored development activities have benefited only a small section of women. The large majority of them are still unaffected by change and development activities have benefited only a small section of women i.e. the urban middle class women. The large majority of them are still unaffected by change and development. The reasons are well sighted in the discussion part of this article. It is hoped that the suggestions forwarded in the article will help the entrepreneurs in particular and policy-planners in general to look into this problem and develop better schemes, developmental programmes and opportunities to the women folk to enter into more entrepreneurial ventures. This article here tries to recollect some of the successful women entrepreneurs like Ekta Kapoor, Creative Director, Balaji Telefilms, Kiran Mazumdar Shaw, CEO, Biocon, Shahnaz Husain and Vimalben M Pawale, Ex President, Sri Mahila Griha Udyog Lijjat Papad (SMGULP).

A STUDY ON THE APPLICATION OF HOLISTIC MARKETING IN RURAL AREA

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ABSTRACT

Holistic marketing is a relatively new marketing concept based on the development, design and implementation of marketing programs, processes and activities that recognizes breadth and interdependence. Everything matters! Why is this important? In a mature capital economy, product and service offerings have multiplied exponentially along with competition. Information is available instantly. The new marketing paradigm has shifted the emphasis from product and production, to selling, then integrated marketing within the holistic marketing concept. Holistic Marketing grew from the basic marketing principles of business; each action by a company should contribute to the business goals. By approaching marketing, not as an isolated entity but as a synergic member of the company, marketing initiatives are more efficient and cost effective allowing for the highest return on investment. The size and potential market of the rural sector can be measured in terms of the rural population, increase in competition, saturated urban markets, more and more new products demanding more customers made the companies to think about new markets. Thus, Indian rural markets have caught the attention of many companies, advertisers and MNCs. Holistic Marketing is a great tool for any business whether you are a therapist, practitioner, consultant, or any other type of business one wishes to market effectively.

INTRODUCTION

Holistic Marketing is a term used to describe a strategy that enables you to look at your marketing efforts as a 'whole', which in turn helps you develop an overall or 'holistic marketing' plan. Most small businesses look at their marketing and select marketing formats to action that they are comfortable with, and therefore, omit to undertake or incorporate marketing actions that are less comfortable for them. The holistic marketing concept is based on development, design, and implementation of marketing programs, processes, and activities that recognize their breadth and interdependencies. Holistic marketing recognize that "everything matters" with marketing and that a broad, integrated perspective is often necessary. Four components of holistic marketing are: relationship marketing - integrated marketing - internal marketing - and socially responsible marketing.

Holistic marketing incorporates social responsibility marketing. This involves broader concerns of the society at large, like social, legal, ethical & environmental in the context of marketing activities. Companies operate in a society and so do their customers and hence they should never forget its contribution to the company. It requires that marketers carefully consider the role they are playing in terms of social welfare. Companies need to evaluate whether they are truly practicing ethical & socially responsible marketing. Several factors are driving the companies to practice higher level of corporate social responsibility, such as:

1. Rising customers' expectations,
2. Changing employees' expectations,
3. Government Legislation & pressure,
4. Investor interest in social criteria,
5. Changing business procurement criteria.

Business success and continually satisfying the customers & other stakeholders are closely linked

to adoption & implementation of high standard of business & marketing conduct. The most admired companies in the world adhere to a code of serving people's interests, and not only their own. The following are the most important factors of socially responsible marketing:

1. **Legal Behaviour:** Companies operate within the law of the land, and they must impart the employees with adequate knowledge of law & how to practice them. We have Govt. laws, Society laws, and the organizations must ensure the employees know & observe relevant law, and restrain themselves from practicing illegal, antisocial, corruptive, anticompetitive practices.

2. **Ethical Behaviour:** Companies must evolve & adopt a properly written code of conduct based on the social & cultural ethics, decency, tradition & legal practices, and ensure that all concerned are responsible in observing these guidelines. Today customers are well aware of the social, cultural, ecological & environmental affairs in their day-to-day lives.

3. **Social Responsibility Behaviour:** As said above, the customers also want to know what the firm's contribution to the society is, or what the company's social conscience is while dealing with customers & the stakeholders.

4. **Cause Related Marketing:** Contribution to the society can be enormous, and hence companies choose a particular area of society for a particular cause. The examples are:

a. Health awareness - Heart Diseases, AIDS, Cancer, Diabetic, Obesity, Old age, etc.

b. Running children's home, old age home, rehabilitation centre, women's home, etc.

c. Infrastructure - rural housing, hospitals, preserving archaeological places, maintaining roads & parks, homes for endangered species;

d. Educational scholarship for the poor & needy, higher education facility, Institutes;

e. Treatment for destitute, food for the starving;

f. Information legal & technical help during the hour of need;

g. Volunteerism & Philanthropy.

The list can be endless. Reputed companies even have their own charitable trusts, and also have special cause related marketing plans. Cause-related marketing is the concept where the specific cause is directly or indirectly linked to the particular revenue transaction. The company has at least one non-economic social objective and uses the revenue generated from the designated sales. This concept is also known as Corporate Societal Marketing (CSM). The CSM can include other activities like traditional & strategic philanthropy & volunteerism.

5. **Social Marketing:** Some marketing is conducted to directly address a social problem or cause. Social marketing is done mainly by NGOs, Non-Profit or Govt. organizations to further a cause, such as "No smoking", "Say NO to Drugs", etc

**THE HOLISTIC MARKETING MATRIX
HOLISTIC MARKETING**

INTEGRATED MARKETING	INTERNAL MARKETING	RELATIONSHIP MARKETING	SOCIAL RESPONSIBILITY MARKETING
Products & Services	Top Management	Customers	Community
Communications	Marketing Department	Partners	Legal, Ethics
Channels	Other Department	Channels	Environment

Holistic marketing approach in rural area

The rural market has changed drastically in the past one decade. A decade ago, the rural market was more unstructured and was not a prioritized target location for corporates. Very few companies, mainly the agro-based ones, were concentrating in these markets. There were no innovative strategies and promotional campaigns. A distribution system did exist, but was feeble. Illiteracy and lack of technology were the other factors leading to the poor reach of products and lower level of awareness amongst villagers.

Gradually, corporates realized that there was saturation, stiff competition and clutter in the urban market, and a demand was building up in rural areas. Seeing the vast potential of 75 per cent Indians living in rural areas, they started focusing on these unexplored, high-potential areas. Companies came up with special rural products, like Chic Shampoo sachets @ Re 1, Parle G Tikki Packs @ Rs 2, customized TVs by LG, Shanti Amla oil by Marico. All these brought positive results for them. Also, campaigns like Project Bharat by Hind Lever, where trials were generated across India in 1999, saw 30 per cent of its total personal products growing to contribute 50 per cent five years down the line. In the first phase, they covered 11.5 million rural households and increased awareness by 41 per cent. Project Jagruti in the second phase by Colgate Palmolive India was a village consumer contact programme in 2001. It increased penetration of Colgate Dental Cream by doubling the villages from 33,000 to 55,000, reaching to a million houses. Such projects lead to increased penetration of products in rural areas. As a result, retail outlets have sprung up in practically all the villages that store products of various brands and categories. Also, high congregation areas, like fairs, haats, markets etc. are proving to be an important marketing tool since clusters of target audience can be tapped at the same time and place. Location plays a big role in marketing. Therefore, if a product is for kids, anganwadis and schools are good places to tap them and their mothers. Similarly, mandis and villages. In late 2002, CCI made an additional investment of Rs 7 million (Rs 5 million from the

company and Rs 2 million from the company's bottlers) to meet rural demand. By March 2003, the company had added 25 production lines and doubled its glass and PET bottle capacity. Influencers act as a catalyst in pushing a brand/product. In the current era of information technology ITC e-Choupal is the best example in this context.

Holistic Marketing - Benefits for the companies for the rural areas

- 1) Helping achieve focus & direction.
- 2) Keeping customers happy & satisfied.
- 3) Attracting new business.
- 4) Professional company literature.
- 5) Professional image.
- 6) Differentiating from competitors.
- 7) Growing awareness of your business.
- 8) Creating the right environment for success.
- 9) Motivational support.

The Future of Marketing

The top management is slowly recognizing that the marketing in the older method is getting wasteful and is demanding more accountability. There are a number of imperatives (must do) to achieve marketing excellence, as presented below: Marketers must be "Holistic" and not in bits & parts, i.e., not sectional or departmental. To achieve larger influence in the company if they are to be the main architect of business strategies continuously create new ideas if the company is to prosper in a hyper-competitive economy. Strive for customer insight & treat customers differently, but appropriately build their brands through performance, more than through promotion.

In these ways, modern marketing will continue to evolve & confront new challenges & opportunities. To become truly holistic in marketing & achieve these changes, what the marketers need are a new set of skills, competencies in the following areas of expertise.

- Customer Relationship management
- Partner Relationship management
- Database Marketing & Data-mining
- Contact Centre Marketing & Telemarketing
- Public Relation Marketing including Event & Sponsorship Marketing
- Brand-building & Brand-asset Management
- Integrated Marketing Communications
- Profitability Analysis by Segment, Customer, Channel
- Experiential Marketing

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A VERIFIABLE RESEARCH STUDY ON CONTEXT OF CONSUMER STRATEGY FOR LAUNCHING LOW-COST FOUR-WHEELER AND ENVIRONMENTAL AWARENESS IN MATHURA

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ABSTRACT

Tata's entrepreneurial innovation resulted in creating Nano-World's cheapest car (Prahalad C.R., 2008). It augmented a race among automobile manufacturers to create low cost four wheelers for attracting a new segment of consumers. According to a CRISIL report, Nano may bring 65 percent more families into the range of those who can afford a car. Environmentalists have raised their objections on the movement of auto manufacturers for promoting four wheelers in a mass market. Considering the impact of global warming in world economy, some have suggested to promote public transport in spite of four wheelers. Some are for bringing more eco friendly technology. But nowadays global warming is not a corporate social responsibility issue. Business leaders need to approach it in the same hardheaded manner as any other strategic threat or opportunity (Porter M.E. and Reinhardt F.L., 2007).

This paper aims to have more insight about the level of consumer awareness regarding environmental threats caused by mass marketing of four wheelers. It also tries to judge the impact of environmental issues on their purchasing behavior of buying a four wheeler. We focus on empirical study on lower and middle income group consumers of Mathura. The paper has examined the extent of democratization of consumer opinion towards environment and decision to purchase a four wheeler in the context of environmental issues via large sample Z test.

The researchers plan to interview a good number corporate strategist and experts of strategic management to discuss about the newly found consumer opinion on environmental issues and to provide a few generic strategies to Indian automobile Industry.

INTRODUCTION

Nano's launch is undoubtedly one of the significant launches in the history of automobile industry. The self imposed constraints of delivering a car of Rs. 1 lac price range, have created a huge innovation platform in Nano's value chain. Tata Motors, with the leadership of Ratan Tata, has introduced a whole new consumer segment to global auto industry, which may be the fuel for future growth of automobile industry (Prahalad C. K., 2008).

Joseph Schumpeter is probably the first scholar to develop the theories of Entrepreneurship. In his earlier contributions, Schumpeter argued the innovations come from entrepreneurs. But in his later contribution, Schumpeter stressed the role of large companies as main driver of Innovation

(Hagedoom J., 1996). When we study the endeavor of Ratan Tata and Tata Motors in creating Nano, the world's cheapest four wheeler, we find the relevance of Schumpeter's argument on innovation and entrepreneurs.

ENVIRONMENTAL ISSUES

Maintaining natural environment and taking care of it is a major challenge for the industry. Greenhouse gas emissions will be increasingly analyzed, regulated and priced.

Periodically, major new forces dramatically reshape the world of business as the globalization and the information technology revolution have been doing for the past few decades. Global warming and

climate change, in its complexity and potential impact, may exceed the impact of two earlier forces—globalization and I.T. revolution (Porter M.E. & Reinhardt F. 2007). Naturally, in the context of launching Nano, which may bring 65 percent more families into the range of those who can afford a car (CRISIL Report, 2008), environmentalists have raised their voice and they are advocating for public transport. Tata Motor has argued that the car conforms the environmental protection and it has lower emissions in comparison to motorcycles manufactured in India.

STRATEGIC RESPONSES TO CLIMATE CHANGE IN GLOBAL AUTOMOBILE INDUSTRY

The formulation of strategy is generally seen as a rational process of matching capabilities of the corporation to market demands. But it does not fit well for the heterogeneity observed in corporate strategies toward complex environmental issues like climate change (Levy & Rothenberg, 2002).

Globally, automobile companies show considerable variations in their strategic response to climate change. US Companies responded relatively early to this issue in comparison to their European or Asian counterparts. The Research Divisions at Ford and GM had been aware of the issue since the late 1970s. But the US automobile companies paid much more attention to the national media and political events in Washington D.C. than to the development of scientific concern to solve the issues of green house gases (Edward and Lahsen). Helen Petrauskas, a Ford Vice President, concurred, "Climate did not require a step function change in strategy". American Companies shifted very slowly their technological strategies towards carbon reduction due to their fragmented regulatory system paying very less attention to CO₂ release.

Though European companies became aware later, but their responses were far more strategic. European Companies concern about resource depletion and

congestion instead of focus on local air quality like their US counterparts. Policies like high fuel prices and investment in public transportation reduced fuel consumption and vehicle use in Europe. Innovation efforts were, therefore, already more directed towards fuel efficiency. Companies were more aware of potential challenges of private automobile in broader transportation system.

Tata Motors, innovator of Nano, introduced cleaner engines and it is the first Indian company to introduce vehicles with Euro norms all ahead of the mandated dates. Tata Motors' joint venture with Cummins Engine Company, U.S.A., in 1992, was a pioneering effort to introduce emission control technology for India. Tata Motor also set as advanced emission testing laboratory. It is also working towards developing alternative fuel for automobiles. Apart from little sporadic information from different corporations' website, there are few studies on Indian Corporations' response toward climate change issue. There are also less no. of academic researches on developing a strategic path for Indian entrepreneurs and companies for managing the climate change issues.

Our research aims to bridge this gap.

CORPORATE PERSPECTIVES ON CLIMATE CHANGE: THEORETICAL BACKGROUND

Institutional theory argues that corporate perspectives on climate change are likely to be premised upon views of climate science, expectations of regulatory responses and the market potentials for mitigation technologies. These perspectives are mediated by the institutional environment including competitors, industry associations, consumers, NGOs, regulatory agencies and the media (DiMaggio 1988; Powel & DiMaggio 1991; Scott & Meyer 1994) Oliver (1997) argues that uncertainty increases the influence of the institutional environment and reduces the impact of economic and competitive factors. Given the high level of uncertainty

concerning climate change and policy responses, car makers can not easily make a rational decision to optimize their economic interests.

Few authors argued the need for conceptualizing heterogeneity among organizational players. According to Oliver (1996), "Firm heterogeneity is explained, at least in part, by variation in the degree of connectedness between firms and their institutional environment". There are few specific arguments which are developed to account for heterogeneous and strategic responses to climate change. Firstly, each company interprets the institutional environment through a unique vision, which is constituted by its history, organizational culture and market positioning. Secondly, organizations often operate with multiple overlapping institutional fields which create heterogeneity. Ford, for example, until the end of 1999 was a member of the Global Climate Coalition (GCC), the leading industry association opposed to mandatory curbs on emissions of green house gases. General Motors was also a member of GCC, but joined an initiative of the World Resources Institute called "Safe Climate, Sound Business". Thus GM has developed a heterogeneous response on climate change issue than Ford.

Michael E. Porter and Forest Reinhardt (2007) argue a new strategic approach to climate named as 'Inside out & Outside in'. To set a firm's approach to climate change and assess the strategic opportunity, business leaders require to look "inside out" to understand the impact of the firm's activities on the climate and "outside in" at how changing climate (in both its physical and its regulatory manifestations) may affect the business environment in which the firm competes.

To understand the inside out impact, managers need to study the firm's value chain. Any value chain activities - inbound logistics, operations, outbound logistics, market sales, and after sales service - can generate emissions. The simple ratio of profits to total emissions in the value chain can be a

quantitative measurement of potential climate impact.

There were many studies on working managers' perception on climate change. Earlier study showed US managers perceived climate change as an economic threat. These perceptions did not help the managers to work the climate change issues by considering the whole range of strategic options (Di. Maggio & Powell, 1983). But a recent study in Mckinsey Quarterly (2008) finds that 60 percent of global executives view climate change as important to consider within their companies' overall strategy and 61 percent of executives view the issues associated with climate change has a positive effect on profits if managed well. All the companies considered that the consumer acceptance was the single biggest factor to innovation efforts for managing climate change. Marina Whitman, GM's former Chief Economist, expressed the widely held view that consumer sovereignty world eventually triumph in the market place.

But there are very few empirical studies on consumers' perception on climate change issues. So, there is a need of empirical studies to know consumers' perception on climate change and how it affects the purchase behavioral patterns of the consumers.

OBJECTIVES OF THE STUDY

1. The paper aims to have more insights about the consumer awareness regarding environmental threats like climate change in the context of mass marketing of four wheelers.
2. It also tries to judge the impact of environmental issues on their purchasing behavior of buying a four wheeler.
3. To provide few generic strategies to automobile industry with this newly found consumer insights and by interviewing few strategic management experts and strategic managers from automobile industry.

RESEARCH DESIGN

Sampling Design: We selected 435 people from Mathura through snow ball sampling method.

Statistical Design: Extent of democratization of consumers' opinions will be examined via large sample Z test, where Z statistic is $(p^*-p)/\{p(1-p)/n\}^{0.5}$, where p* stands for sample proportion, p=0.5 and n=sample size. Critical value (1.6449) of the corresponding right tail test at 5% level of significance has been compared with the calculated Z statistic.

After getting the consumer insight from empirical study, few strategic management experts and industry leaders are to be interviewed to provide few strategies for automobile industry in the era of climate change.

PRIMARY HYPOTHESIS

H₀: Consumers are not environment sensitive.

H_a: Consumers are environment sensitive.

SUB HYPOTHESES

H₀₁: 50% consumers are aware of climate change and global warming issues.

H₀₂: 50% consumers have affirmative opinion about low cost four wheelers contribution towards global warming.

H₀₃: 50% consumers are willing to buy Nano.

H₀₄: 50% have affirmative opinion about buying more environment friendly low cost four wheelers with 25% more prices.

OBSERVATIONS

1. 78% of the respondents are aware of environmental threats which lead to global warming & climate change.

2. 63% of the respondents believe these low cost cars like Nano will create more environmental problem and pollution.
3. 54% of the respondents like to purchase Nano in spite of the pollution issue.
4. 64% of the respondents would like to purchase the more environmental friendly car with 25% more price as compared to Nano's price.

Hypothesis	P* value	P value	Z Calculated Value	Z Tabulated value at 5% level of significance
H ₀₁	0.78	0.5	11.72	1.6449
H ₀₂	0.62	0.5	5.44	1.6449
H ₀₃	0.54	0.5	1.67	1.6449
H ₀₄	0.6	0.5	5.86	1.6449

ANALYSIS

Hypothesis	Result	Decision
H ₀₁	Z cal > Z tab	Rejecting H ₀₁
H ₀₂	Z cal > Z tab	Rejecting H ₀₂
H ₀₃	Z cal > Z tab	Rejecting H ₀₃
H ₀₄	Z cal > Z tab	Rejecting H ₀₄

FINDINGS

1. More than 50% consumers are aware of climate change and global warming issues.
2. More than 50% consumers have affirmative opinion about low cost four wheeler's contribution towards global warming.
3. More than 50% consumers are willing to buy Nano.
4. More than 50% consumers have affirmative opinion about buying more environment

friendly low cost four wheelers with 25% more prices.

With this newly found consumer insights, we would like to form few generic strategies for four wheeler makers through focus group interviews (Malhotra, 2007). We interviewed 12 strategic management experts after informing them our findings on consumer opinion toward global warming and Nano. Their suggestions to automobile industry are as follows:

1. Though in short run, automobile industry may focus on low cost cars to capture new market segment, but in long run auto industry should focus on eco friendly cars as environment issues have been emerging as a very important factor. Our findings have shown consumers are also willing to pay more (at least 25%) to have eco friendly cars.
2. All Industry experts and academicians have advised automobile industry to produce vehicles for public transport as an alternative growth strategy. Our empirical studies on consumers have found that consumers are aware of climate change issues.

CONCLUSION

Nano's introduction to Indian market challenged the age old wisdom of the industry drastically. Nano has proved that self imposed constraints (Manufacturing a car of Rs. 100,000) may be used as levers for breakthrough thinking and innovation (C. K. Prahalad, 2008) termed this process of constrained innovation as working with in the innovation sand box.

We suggest the same process of entrepreneurial innovation and leadership are required to form more eco friendly cars and automobiles for public transport to redefine the growth of automobile industry, manage consumer expectation and to save the planet.

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"ACCULTURATION OF VALUES AND ETHOS IN SOFT SKILLS WITH HOLISTIC CULTURAL"

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ABSTRACT

"Soft skills play a vital role for professional success & help to excel in the workplace as success mantra for survival. Spiritual Vedanta teachings can also help to be better employees or more successful entrepreneurs. People spend most of their lives at workplace and it is must to make full use of this time for material and spiritual betterment. Work can become a spiritual practice too. One can convert negative energies of conflict into positive energy of inspiration- anger, fear, worry, and stress into creativity, ambition, forgiveness and joy, the negative energy of stagnation into the positive energy of accomplishment- boredom, discouragement, failure and depression into generosity, contentment, calmness and relaxation. The paper would share some Vedanta and allied principles in a conceptual and empirical framework from the perspective of vedantic ethical vision coupled with essential soft skills for exponential personal as well as development of organizations".

INTRODUCTION

No matter how brilliant managers may be in spotting problems and coming up with great ideas on what needs to be done to make their organization a success, very little will happen if they can't get those work which they want to accomplish and work hard to make it happen. Managing others is a difficult task. Managing people effectively can make organization a profitable and fun place to work as so for smooth working environment managers should interact with employees in a positive and productive way. Managers need a number of competencies to be effective. The first is technical competence, or expertise in the operation of their business. The second competence is emotional intelligence, or the capability of getting along well in the world. But even if people are both technically competent and emotionally mature, without interpersonal skills and the ability to work effectively with people, managers will not succeed. Effective managers create and sustain work climates marked by both high productivity and high morale through their words, actions and decisions

Skills required in Managers are:

- High Personal energy and enthusiasm.
- Personal integrity.

- Positive work ethic.
- Persuasion and motivation skills
- Critical thinking skills.
- Communication skills with employees and customers.
- Effectiveness in dealing with conflict.
- Mentoring relationship
- Skills for Leading change.
- Negotiating interpersonal challenges to create win-win relationships.

Skills for employees

While many jobs require a unique set of skills, there is a pretty standard set of qualities that most employers want in an employee. Employers look for a variety of strengths, although it varies considerably from industry to industry, and from job to job. Core skills which employers seek include:

- Ability to apply discipline knowledge and concepts
- Information gathering, evaluation and synthesis
- Balanced lifestyle and capacity to manage stress levels
- Personal attributes such as ambition, self-awareness and an inquiring mind.

- Adaptability.

What Employers don't want?

- Poor attitude/lack of work ethic/poor approach to work
- Lack of interpersonal and communication skills (written, oral, listening); lack of leadership skills
- Lack of drive, motivation, enthusiasm and initiative
- Arrogance/selfishness/aggression/dominating
- Lack of commitment/high absenteeism/lack of loyalty
- Inflexibility/inability to accept direction, challenges or change
- Poor or inappropriate academic qualifications or results
- Poor teamwork skills
- Lack of emotional intelligence, self-awareness or self-confidence

For any management to be successful and free from problems, it has to be systematic and scientific. For it to be scientific it must conform to the theories of modern science. For anything to be in conformity with all the theories of all the disciplines of modern science, it must be Vedic, which means it must be in full accord with Natural Law. For management to be Vedic it has to be handled by Vedic Consciousness. This is the absolute requirement for every management to remain out of the range of mismanagement.

Spirituality at work place: Can we, be spiritual at our work-place?

These questions constantly engage minds, but Vedic, Buddhist, Christianity or Judaism leads us to answer these root questions, and leads us to be a better, honest, truthful, good persons exhibiting positive energy around us. Our spiritual lives determine the kind of person we really are clear thinkers, persons of generosity, good character, and content and in control of ourselves. Our spiritual life is our deepest and most comprehensive life, and

engulfs all our activities wherever we are. Our spirituality dictates our character, the part of us, which carries our values, ethics and convictions. A strong character will help us become more effective leaders at our work-place too. One of the key tools in our spiritual life is meditation. Meditation helps in developing the positive energy within ourselves, and helps to know ourselves more deeply. One can meditate outside home or temples too- in between meetings, in transit, on the way to and from work or office or client meetings. Pick a mantra or a prayer and chant whenever one get a minute or two, take fifteen minutes during lunch break and stop working. Slow down when feel stressed, walk at a slower pace, while typing one can touch keys more softly. Is something really worrying people at their work-place? Put the worry into a question, and meditate with the question. One will find the answer or the worry will solve itself. Meditation does not necessarily require a special posture or a long time. One can meditate in the office, in the car, in the subway compartment, or anywhere.

So, the answer to the first question is clear: we can be spiritual at our work-place. Lewis Richmond in his book 'Work as a Spiritual Practice' has successfully demonstrated how we can maintain a spiritual life at work. "We should not compartmentalize our lives, and leave behind our spiritual practice at our homes, or Puja rooms or at the Mandirs or Ashrams or at Churches. I believe that we should visualize our work-place as a sacred place too & perform our actions accordingly. It is clear in the Gita that the path of a 'Karma-yogi' in the material world is also a recognized, though probably, more difficult path towards attaining 'Moksh'.¹

According to our scriptures, our life is divided into four stages:

1. Brahmacharya (Student Life)
2. Grihastha Ashram (Family Life)
3. Vanaprastha (Retirement) and
4. Sanyasa (Preparation for salvation)

Our family values touch all the four stages of life: How to raise children during the Brahmacharya stage, How to fulfill one's duty towards family, society and adopted nation in the Grihstha stage, How to fulfill one's duty towards parents and parent-in-laws as they enter the Vanaprastha stage, and How to prepare the family for the Sanyasa stage of our lives.

Vedic Management spontaneously draws upon the infinite creativity of organizing power of holistic value of natural Law, depicted lively in Rig Veda, Sama Veda, Yajur-Veda, and Atharva Veda, and, at the same time, spontaneously draws upon the enormous creativity of the specific Laws of Nature that constitute the 36 values of the Vedic Literature -- $4 + 36 = 40$. These forty values of intelligence, displayed in the forty values of the Vedic Literature with their divisions and subdivisions, constitute the forty qualities of intelligence. These benefits have been documented in more than 600 scientific research studies, conducted at 210 universities and research institutes in 33 countries.

Developing Vedic consciousness

The means to improve concentration is to develop the Vedic Consciousness, which are achievable by methods:

1. By practicing Transcendental Meditation
2. Exercising Yoga & reading the Vedic Text
3. To live and work in buildings built according to Vastu -- Sthapatya Veda -- the Vedic Science and Technology of building according to Natural Law; and
4. To avoid problems through Graha Shanti, this inspires the benevolent and harmonizing influences and filters out any negative influences from the Cosmic Counterparts of the individual -- the planets, stars, galaxies, etc.

These are simple, natural, effortless procedure practiced for 15-20 minutes in the morning and evening while sitting comfortably with the eyes

closed. During this technique, the individual's awareness settles down and experiences a unique state of restful alertness.

Role and importance of Meditation:

Transcendental Meditation gives much needed peace of mind, helps professionally by increasing concentration levels and finally, gives the bottom line satisfaction at the end of a long workday. The practical day-to-day benefits include more alertness, increased levels of tolerance, patience and understanding.

"Transcendental Meditation technique is scientific, requiring neither specific beliefs nor adoption of a specific lifestyle. The practice does not involve any effort or concentration. It is easy to learn and does not require any special ability. During the past 40 years more than four million people have learned the technique, and it has been implemented in hundreds of companies world-wide."¹

"During Transcendental Meditation we experience our inner nature -- which is cool, calm, and refreshing. This daily experience of deep inner silence results in more energy and alertness during the day, making our activity more successful and enjoyable. And feel also it's very Indian; it is something that comes naturally to the people of India. This will give an edge in the global environment, where one has to compete with people from all over the world." ²

A statistical meta-analysis conducted at Stanford University of all available studies -- 146 independent outcomes -- found that the Transcendental Vedic Meditation program was substantially more effective in reducing anxiety, the most common sign of psychological stress, than all other meditation and relaxation techniques, including muscle relaxation. These have been shown to significantly reduce risk factors for heart disease, including hypertension, high cholesterol, anxiety, hostility, and smoking. Study examined the

effect of the Vedanta techniques on the 'biological age' of a person -- how old a person is physiologically in contrast to chronologically. Participants were physiologically 5 years younger than their chronological age.

Stress Reduction

Self-discipline and concentration comes from practicing yoga and meditation. These are now valued as key leadership traits. In conclusion, hopefully, this is a beginning of a new trend as the world becomes more global. The integration of Vedic studies with modern management techniques will be essential to manage in this global market. Leaders of these corporations can draw significantly from the Vedas to lead in this new world, and contribute towards a more balanced world.

Work place Creativity

Transcendental Meditation increases the integrity of the functioning of the whole brain physiology. It is very useful for relieving the tension of the mind and in developing creativity. Having a method to restore tranquility of the mind is in great demand these days.

Team Management

There is a growing emphasis on teamwork in the workplace. Employers are looking for right now the people that are team players, driven or ambitious, easy to get along with, so easygoing and then (have) good communication, good verbal communication.

Problem Solving Management

There are many approaches to problem solving, depending on the nature of the problem and the people involved in the problem. The more traditional and rational the approach is it typically involves clarifying the description of the problem, analyzing causes, identifying alternatives, assessing each alternative, choosing one, implementing it, and

evaluating whether the problem was solved or not. The same is possible by concentration of mind with Vedic practices & soft skills.

Attitude Management

Attitudes and skills are integral to soft skills Each one influences and complements the other. These soft skills are enormously valued in business organizations. As employment conditions become tougher, potential recruiters look for personal attributes like attitude and values. Honing soft skills involves two parts. One is developing attitudes and attributes, and the other part involves fine-tuning communication skills to express attitudes, ideas, and thoughts in the best possible manner.

Corporate Social Responsibility

There is a common proverb that 'there are wheels within wheels', and the gearbox of management has to be so organized that each wheel contributes to the smooth running of every other wheel. C K. Prahalad, Vijay Govindrajana are names of some of the most influential and well- respected business strategists and consultants. Social Responsibility: Some of the leading thoughts and business practices can be directly linked to the Vedas. Corporate Social Responsibility (CSR) is a concept whereby organizations consider the interests of society by taking responsibility for the impact of their activities on customers, employees, shareholders, communities and the environment in all aspects of their operations.

Emotional Intelligence

Indian scriptures often talk about 'swa dharma' or self ethics or 'values' or 'quality' -- are all now being rolled into Six Sigma or other quality driven programs. Our scriptures describe 16 dimensions of quality. Lord Rama had attained 14 dimensions (14 Kala Sampurna). Rig-veda explains that cosmic order (physical as well as moral laws) govern the entire universe and that no transgression of these

laws is allowed. Vedic scriptures strongly stress the need of three types of self-discipline to be strictly observed by 'shrestha purush' or 'leader with high moral ethics - Atma-glani, Ishwar-vhaya and Lok-lajja or self-guilt, fear of God and Fear of society. Vijay Govindrajan of Dartmouth says that his work is inspired by the concept of karma, where every action has a reaction. . In some Californian schools, yoga and meditation techniques are being taught to students, which has increased discipline amongst the students, improved school performance and also raised the self-esteem and confidence of the pupils. Using a holistic approach to rehabilitation brought about reform in the infamous 'Tihar Jail' in Delhi. Meditation and yoga are widely practiced by the inmates of the jail. The Director General of Tihar opines that in western jails persons are incarcerated physically, but there is no or little effect on his or her mental state. Meditation helps improve the mental state of the prisoners, and live more peacefully in the jail, and become better citizens when they go back to live in the society.

Techniques and principles for meditation:

Meditation is the greatest tool for contemplation and self-knowledge. Concentration is the first step on the path of meditation. We start with the concentration techniques, which involve focusing on an object such as a flower, a lamp (deepak), a sound (Aum), a mantra or the breath (pranayama). *"Relax the body from toes to your head, one by one; and release the tension. Breathe slowly. If one has a Guru, chant the mantra spoken in ear by one's Guru. Over time, the number of random thoughts diminishes. As a result, we become relaxed, become increasingly aware of ourselves, and have greater clarity and ultimately a sense of peace. Become happier, and our face and actions reflect that. Need less sleep and become more energetic".*

Meditation is a spiritual activity practiced in all religions. It is not a religious ritual, and its practice is not just limited to Buddhism, Jainism or Sanatana Dharma. Meditation is different from relaxation,

thinking, concentration and self-hypnosis. Relaxation is an outcome of meditation. One can relax by other means too (like praying, resting, reading etc.) Relaxation usually focuses more on the physical body. Meditation is good for the body, mind and soul. Thinking tires our mind. Meditation controls thinking and channels it in the right direction. Meditation begins with concentration. After an initial period of concentration, thought activity decreases and the need to have an object for concentration decreases. Self-hypnosis brings to a semi-conscious state. Meditation allows remaining conscious.

Meditation is an art, can perfect through regular practice. It should be performed everyday at the same time. Early morning is usually the best time. It should be done before a meal. One should find a quiet spot, preferably around home-temple or altar if the person has. One. should sit with the straight spine, and preferably vertically. In the beginning phases, meditative music (for example, Indian classical music) may be in the background. Many times, usually in the beginning phases, persons will experience itching, aches and pains while trying to release tension and relax. This happens since r mind is clearing, calmer and one begins to notice smaller sensations in body. Slowly, these sensations will go away. But, one must ensure that posture is comfortable.

Vedanta in management:

"Vedanta is basically the quintessence of the Vedas. The origin of the word Veda is also traced to "Vid" which being knowledge. Vedanta can be looked upon as being related to knowledge. It ultimately leads to the spiritual side of knowledge." 1

"Vedanta literally means the end of knowledge. It is a systematic knowledge which explains the relation between man and God, a knowledge that is founded on its own authority. Vedanta trains to think for oneself. To analyze, investigate and realize the essence of life. Not to rely on outside forces to

do one's thinking, not to submit oneself to blind faith, superstitious beliefs and mechanical rituals" 2

Knowledge of course covers a wide spectrum. Vedanta represents knowledge of a spiritual nature. At the same time our current economy where the world has become a global village is also known as a knowledge economy. Management of both commercial and non-profit that management relates to the temporal and physical world, we can also have at the look at the relationship between the matters temporal and spiritual. There was perhaps a time as human organizations in the knowledge economy would need knowledge. But the question is: "Is the knowledge as represented by the Vedanta needed? Before we explore the connections between Vedanta, taking for the moment that its represents the spiritual knowledge and realizing the fact civilization evolved, everything in the world around us was looked upon as being imbued with a spirit. At a very crude level, in the early stages of development, there were animists who think that every object around us got a spirit. Many traditional tribal societies and aborigines believe in Shamanism or witchcraft, which basically accept that there is a spirit"

"Any student of Management who has seen the trends in the last 40 years will find that from time to time there seems to have been an intersection of management concepts with spiritual or non-material concepts" Thus, basic lesson of the Vedanta is to look beyond our existence and try to find a meaning in our existence. One lesson of the Vedanta has been summarized as *aatmanam mokshartham jagat hitayacha*. For an individual, one should try to reach *moksha* and so far as the rest of the world is concerned.

The Vedas call upon one to speak the truth and follow the righteous path of *dharma* (righteousness). One shall speak the truth. (*Satyam Vada - Taittiriya Upanishad i-11*)

One shall follow the path of righteousness. (Dharmam cara - Taittiriya Upanishadi-11)

One shall do what he speaks and what he thinks. (Taittiriya Aranyaka i-90)

One shall not sin against his neighbor or a foreigner. (Rig Veda Samhita v-85-7)

One who does not work is a social evil. (Rig Veda Samhita x-22-8)

Wealth has to be won by deeds of glory. (Rig Veda Samhita vi-19-10)

One shall be led by the fair path to riches. (Vajasaneya Samhita v-36)

One should tread the sinless path and gather wealth. (Vajasaneya Samhita iv-9)

A man shall strive to win wealth by the righteous path. (Rig Veda Samhita x-31-2)

One who helps others wins wealth. (Rig Veda Samhita iv-50-9)

One who gets up early morning gets the treasure. (Rig Veda Samhita i-125-1)

One shall not be selfish and consume all by himself. (Rig Veda Sam x-117-6)

Wealth accumulated through 100 hands should be distributed to 1000 hands. (Atharva Veda Samhita iii-24-5)

One who eats alone is a sinner. (Rig Veda Samhita x-117-6)

The leader is the distributor of wondrous wealth. (Vajasaneya Samhita xxx-4)

Let the rich satisfy the poor with a broader vision. (Rig Veda Samhita x-117-5)

One shall produce fair wealth for today and tomorrow. (Rig Veda Samhita vi-71-6)

Try to do well to the world. A manager therefore can think in terms of his own development on the spiritual side and at the same time ensure that his own organization is beneficial to the society. The ultimate purpose of existence as *moksha* has the advantage for helping every manager to realize that beyond the day to day hassles, success and failures etc. which all lead to stress, there is a more permanent and a more long lasting purpose or object in life.

Advantage of a Vedanta orientation may be to share some of the ideals of the Stithapragna as described by Lord Krishna in the Second Chapter of Bhagavad Gita and take the world as it comes. Vihaya kamanyaha sarvaan pumaamscharati nispruhaha nirmamo nirahankara sashantim adhigachathi.

"A person who is rooted in Vedanta is bound to be mentally detached and at the same time have a peace, which gives him strength."

Lord Krishna can also be a contrarian thinker. In these days of highly competitive environment, probably a capacity to swim against the current may be one method of generating new ideas.

"Ya nisha sarva bhuthanam tasyam jagriti samyami tasyam jagriti bhutani sanisha prashyate munehe."

According to Lord Krishna in the Second Chapter "When others are sleeping the Stithapragna is awake and when others are awake, he is sleeping. So the creativity can be another strength that comes from an orientation rooted in Vedanta."

Soft skills orientation can help business managers to look beyond the immediate present and take a long-term view. It is true as the Keynes pointed out, in the long run, all of us are dead. But many a time in a competitive environment, that too which is time based competition, losing the long term perspective can be counter productive. The ultimate lesson of Vedanta is a continuous quest for improvement. It is almost like the concept of moving towards perfection. As the Upanishad says,

Om purnamada puranamidam purnat purnamudachyate purnasya purnamadaya puranmevavashishyate.

The concept of perfection as given in the Brihadaranyakopanishad talks about moving towards perfection. Once we reach perfection every part is also perfection. Today all the discussions

about total quality management or ISO 9000 point out that we cannot have quality in our products unless it is part of the whole process. It is already true that some organisations like the Centre for Human Values in IIM Calcutta or the Symbiosis Institute in Pune are introducing such courses. Perhaps having such institutionalised arrangement in management programme may be one method of ensuring that the Indian managers are able to fully benefit from our heritage.

Ultimately we can all make progress only by following the standard advice of the Taitreya Upanishad. "Let us come together, let us enjoy together, let our intellectual strengths come together, let there be brightness of knowledge, let there be no poison of misunderstanding or hatred". That is the way probably we will be able to make the best out of Vedanta for achieving managerial success and satisfying performance as managers.

"Sahanavavatu sahanaubhunaktu sahaviryam kara va vahai Tejasvinam aditamastu ma vid visha vahai, om shanti shanti shanty"

By Vedic approach, we can control Terrorism also, as proclaimed in Holy Gita:

People live under this illusion that anger can be completely neutralised and that any spiritual aspirant who gets angry has fallen from grace - "Hey, you read so much of Vedanta and still you're getting angry?!" they exclaim. To expect a sadhaka to transform himself/herself into a vegetating, humble, toothless cow or tree is quite a ridiculous fancy. The Bhagavad Gita refers to Krodha (Terrorism) in several verses:

"When a man broods over objects of the senses, he develops attachment to them. Attachment gives rise to intense desire which leads to anger when frustrated. Anger leads to delusion; delusion leads to loss of memory. Discrimination weakens with loss of memory and the loss of discrimination drives man to total ruin".¹ In response to Arjuna's question

as to what compels man to commit sin, Krishna replies, "Desire and Anger born of Rajas. Know this to be the all-devouring enemy and the cause of all sin." 2

Krodha is described as one of the three gateways to hell: "Three are the gateways of this hell leading to the ruin of the Self - lust, anger and greed. Therefore, let man renounce these three"³ Let us see what practical hints we can gather from Vedanta teachings to overcome or resolve this potent and destructive force.

Benefits of Soft skills with cultural ethos & Vedic consciousness:

- Increased creativity
- Improved job performance
- Increased sales and profits
- Improved teamwork and communication
- Reduced stress
- Improved employee health
- Reduced absenteeism and sick days
- Reduced need for health care
- Reduced job accidents and injuries
- Improved productivity
- Improved efficiency
- Increased alertness
- Fewer mistakes, improved work safety
- Improved job performance with less stress
- Reduced job worry and tension
- Reduced fatigue
- Better mental and physical health
- Better work relationships
- Increased happiness and job satisfaction
- Political sensitivity.
- Business and commercial awareness.
- Strategic awareness.
- Understanding funding streams and mechanisms.
- Information management.
- Organization and control.
- Team building.

Vedanta practices in corporate:

Application of soft techniques is widely practiced by the industrial and governmental leaders of India. Recently the same has been introduced to the

multinational giants of India, Tata Tea Ltd. and Tata Chemicals. Other renowned companies enjoying the benefits of this unique programme include: Associated Cement, Indian Aluminium, Reckitt & Colman, Oriental Bank of Commerce, SRF, Eveready, Tata Unisys, BHEL, Jindal Polyester, Indian Petro Chemicals Ltd., Anand Group, DCM Shriram, Finolex, Hewlett Packard India, DCM Financial Services, Indian Sugar and General Engineering Corporation, SWIL, Williamson Magor and Co., and Kribhco.

Vedic techniques are practiced during working hours twenty minutes twice a day. Apart from improving performance, this has helped the progress of the company. Workers now work only 7 hours but produce 10 hours worth of output. The study was published in the international scientific journal Anxiety, Stress, and Coping. Researchers reported that, compared to controls, the group that learned the technique had significantly had following effects:

- " Less anxiety, job tension, insomnia, and fatigue
- " Reduced cigarette and hard liquor use
- " Improved health and fewer health complaints
- " Enhanced effectiveness, job satisfaction, and work/personal relationships.

More than 10,000 business people in Japan have learned the Vedic soft skills. Over 2,000 of them are top executives of leading Japanese companies including Sumitomo Heavy Industries, Toyota Motor Company, Kyocera (Yashika), and One world supermarkets. Over 100 Japanese companies have introduced the TM program to their managers and employees. Soft Skill management demands full alertness, full creativity, and full support of nature. It is widely recognized that creativity and innovation are key success factors in today's competitive business environment.

A statistical meta-analysis on Transcendental Meditation program produced a significantly larger reduction in tobacco, alcohol, and illicit drug use than standard substance abuse treatments and

prevention programs. The absolute formula for perfect management is to open our awareness to the infinite organizing power of Natural Law. When our awareness is open to this level of intelligence within our self then the organizing power is spontaneously awake in our intellect, mind, senses, and behavior, and all our thought, speech, and action spontaneously flow in the evolutionary direction.

Conclusion

Vedanta skills have proven to improve mental abilities (creativity, memory, reaction time etc.), improve physical health (due to reduced stress and anxiety), and also improve social behavior (work-life, family-life and social-life). Studies have revealed that Vedic management & application of soft skills in business can lower blood pressure. Scientists at the Medical College of Georgia say that meditation keeps blood vessels open, thus lowering the pressure. It seems that over 500 studies have been completed on the physiological, psychological and sociological effects of Vedic meditation in 210 different institutions in 27 countries. The human element is diverse and complex, but when attempting to keep an upbeat and positive work environment it is almost impossible without effective assimilation of soft skills. With these, organization is more likely to have employee satisfaction and positive production,

which ultimately leads to achieving bottom line objectives. Like the old saying goes, "you get what you give." So why not create an environment of effective communication in the work place. Vedanta teachings & related soft skills deal with universal and timeless truths and are open to one and all, irrespective of caste, religion, sex, age or any other barriers

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GSM SECURITY TOOL: CRYPTOGRAPHY

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ABSTRACT

Security plays a more important part in wireless communication systems than in systems that use wired communication. This is mainly because of the ubiquitous nature of the wireless medium that makes it more susceptible to security attacks than wired communications. In the wireless medium, anyone can listen to whatever is being sent over the network.

The Global System for Mobile Communications (GSM) is the most widely used cellular technology in the world. Approximately 800 million people around the world are using GSM for different purposes especially for voice communication and SMS. For GSM, like other widely used systems, security is crucial. The security involves mechanisms used to protect the different shareholders, like subscribers and service providers. The important aspects of the system that need protection are described, along with the implementation of mechanisms used for the protection.

This paper explains the various security attacks for GSM security with their impacts. It also explains how cryptography may be used as tool of protection. With the help of different analysis and observation, this paper also tries to forecast some future aspects of GSM security.

INTRODUCTION

Security plays a more important part in wireless communication systems than in systems that use wired communication. This is mainly because of the ubiquitous nature of the wireless medium that makes it more susceptible to security attacks than wired communications. In the wireless medium, anyone can listen to whatever is being sent over the network.

The Global System for Mobile Communications (GSM) is the most widely used cellular technology in the world. Approximately 800 million people around the world are using GSM for different purposes especially for voice communication and SMS. For GSM, like other widely used systems, security is crucial. The security involves mechanisms used to protect the different shareholders, like subscribers and service providers. The important aspects of the system that need protection are described, along with the implementation of mechanisms used for the protection.

It appears that many of the very valuable aspects

of GSM can be attacked. The anonymity of a GSM user is compromised resulting in the attacker being able to observe the time, rate, length, sources or destinations of e.g. calls. Even tracking a subscriber's movements becomes possible. However, a passive attack is not sufficient to perform these attacks. The attacker needs to mount an active attack using equipment offering base station functionality. Authentication is a crucial aspect of a wireless communication system due to the nature of the medium used, i.e. the radio link that is available to every one and not only the legitimate entities. Even the authentication mechanisms are attacked. It is possible to clone a subscription either by having physical access to the smart card or over the air interface. Cloning a subscription over the air requires base station functionality.

The most obvious threat against communication systems is eavesdropping on conversations. The privacy of GSM, the most obvious threat against communication systems is eavesdropping on conversations. The privacy of GSM conversations is protected using some version of the A5 algorithm. There are several impressive cryptanalytical attacks against these algorithms that break the encryption

and make it possible to eavesdrop in real-time. Most of these algorithms require, however, extensive computation power and unrealistic quantities of known plaintext, which make it difficult to use them in practice. Difficulties using cryptanalytical attacks to break the confidentiality of GSM calls do not mean that conversations are well protected. Loopholes in the protocols used in GSM make it possible for an outsider, with access to sufficient equipment, to eavesdrop on conversations in real-time. In the presence of these threats and vulnerabilities it is justified to wonder whether GSM provides sufficient security for users with very valuable information to communicate. These users may be military organisations, senior management personnel in large companies etc. GSM's current security model does not provide sufficient protection for these entities. An additional layer of security should be added to the current security model.

SECURITY ATTACKS

Attacks on GSM security, which include recent cryptanalytical attacks on the cryptographic algorithms protecting the confidentiality of GSM user traffic as well as other types of attacks, especially those making use of weaknesses in the GSM protocols, and examining the resources needed in order to mount these attacks successfully. Attacks on the security of computer systems and networks are best characterized by viewing the function of the computer system or network to be providing information. The attacker is an entity trying to disturb the normal flow of information. Attacks can be categorised as follows:

- **Interruption:** An asset of a system is either destroyed or it becomes unavailable or unusable. This is an attack on availability. The attacker may e.g. cut a communication line or use jamming to interrupt wireless communications.
- **Interception:** An unauthorised party gains access to an asset. This is an attack on confidentiality. The unauthorised party could be a person or a computer process. Examples include

wiretapping/eavesdropping to capture data in a network.

- **Modification:** An unauthorised party not only gains access to but also tampers with an asset. This is an attack on integrity. Examples include changing values in a data file, altering a program so that it performs differently, and modifying the content of messages being transmitted between communicating entities.
- **Fabrication:** An unauthorised party inserts counterfeit objects into the system, or claims to be some other party (Figure 5). This is an attack on authenticity. Examples include the insertion of spurious messages (e.g. signalling messages in the GSM) in a network and the addition of records to a file

CRYPTOGRAPHIC PROTECTION METHODS

In traditional cryptography, a message in its original form is known as plaintext or clear text. The encrypted information is known as ciphertext and the process of producing this ciphertext is known as encryption or enciphering. These two terms will be used interchangeably in this report and will refer to the same process. The reverse process of encryption is called decryption or deciphering. Cryptographic systems tend to involve an algorithm and a secret value. The secret value is known as the key. The reason for having a key in addition to an algorithm is that it is difficult to keep devising new algorithms that will allow reversible scrambling of information.

There are three types of cryptographic paradigms:

SECRET KEY CRYPTOGRAPHY - Secret key cryptography involves the use of a single key that is shared by the communicating parties. This is the method used in GSM for providing confidentiality. Given a message (plaintext), encryption produces the ciphertext, which is of the same length as the plaintext. Decryption retrieves the plaintext, using the same key used for encryption. This kind of

encryption is also called conventional or symmetric cryptography. Secret key systems also provide strong authentication functionality. This implies that someone can prove knowledge of a secret without revealing it, a functionality that is essential for wireless systems.

Authentication can be implemented using a Challenge-Response mechanism. For example, suppose A and B wish to communicate with each other and they decide upon a key K_{AB} to verify each other's identity. Each of them picks a random number, which is known as a challenge and send it to each other. The value of the random number, say x , encrypted with the key K_{AB} , using a common algorithm, is known as the Response to the challenge x .

Thus, if A and B complete this exchange, they have proved to each other that they know K_{AB} without revealing it to an impostor or an eavesdropper. Of course this is also accomplished if A, who sends the challenge to B, computes the correct response to the challenge and compares it to the response from B. If the responses are equal B has proved its identity. This kind of Challenge-Response mechanism is used in GSM for authenticating a mobile user. One apparent flaw in these kind of systems is that an eavesdropper can form Challenge-Response pairs, since he/she can pose a challenge to either A or B and store the responses. To avoid this situation it is essential that the challenges be chosen from a large enough space, say values, so that there is no significant chance of using the same challenge twice. Another scenario is an attacker intercepting a challenge and its response and later challenging A with the captured challenge. This is called a replay attack. The attack can be avoided by attaching a timestamp to the challenge. A receiver of a replayed challenge can easily discover the attack by realising that the timestamp is outdated. Further it should be noticed that the key K_{AB} can also represent an

algorithm AAB, that uses the random number x and produces an encrypted value. This means that the security of the system not only relies on the secrecy of the key, which should be the case, but also the algorithm. This has been the case in GSM, and is called security by obscurity, an approach to security that has been widely criticised due to the fact that it has been shown that secret algorithms tend to be cryptanalysed which jeopardises the security of the system. Secret key cryptography can further be divided in two categories:

- **Block Ciphers** - As the name suggests, block ciphers encrypt or decrypt data in blocks or groups of bits. The most popular block cipher historically, and a widely used one, has been Data Encryption Standard (DES). DES uses a 56-bit key and processes data 15 in 64-bit blocks, producing 64-bits of encrypted data for 64-bits of input, and vice-versa. Block algorithms are further characterised by their mode of operation, such as electronic code book (ECB), cipher block chaining (CBC), and cipher feedback (CFB). CBC and CFB are examples of modes of operation where the encryption of successive blocks is dependent on the output of one or more previous encryptions. These modes are desirable because they break up the one to one correspondence between ciphertext blocks and plaintext blocks (as in ECB mode). Block ciphers may even be implemented as a component of a stream cipher.
- **Stream Ciphers** - Stream ciphers operate on a bit-by-bit basis, producing a single encrypted bit for a single plaintext bit. Stream ciphers are commonly implemented as the exclusiveor (XOR) of the data stream with the keystream. The security of a stream cipher is determined by the properties of the keystream. A completely random keystream would effectively implement an unbreakable one-time pad encryption, and a deterministic keystream with a short period would provide very little security. Linear Feedback Shift Registers

(LFSRs) are a key component of many stream ciphers. LFSRs are implemented as a shift register where the vacant bit created by the shifting is a function of the previous state. With the correct choice of feedback taps, LFSRs can function as pseudo-random number generators. The statistical properties of LFSRs make them useful for other applications such as pseudonoise (PN) sequence generators in direct sequence spread spectrum communications, and for distance measurement in systems such as the Global Positioning System (GPS). LFSRs have the additional advantage of being easily implemented in hardware. [27] The maximal length sequence (also called period) is equal to $2^n - 1$ where n is the degree of the shift register. An example of a maximal length LFSR is shown in Figure 8 below. This LFSR will generate the periodic sequence (also called msequence) consisting of the following states (1111, 0111, 1011, 0101, 1010, 1101, 0110, 0011, 1001, 0100, 0010, 0001, 1000, 1100, 1110). In order to form an m-sequence, the feedback taps of an LFSR must correspond to a primitive polynomial modulo 2 of degree n . A number of stream cipher designs consist of multiple LFSRs with various interconnections and clocking schemes. The GSM A5 algorithm, used to encrypt voice and signalling data in GSM, is a stream cipher based on three clock-controlled LFSRs.

PUBLIC KEY CRYPTOGRAPHY - Public key cryptography is not used in the current GSM security model. It is still an important technology to present in this report due to the many proposals for increased security in GSM that make use of public key protocols. In public key cryptography, the keys are not shared. Instead, each individual user has two keys: a Private Key (that is not revealed to anyone) and a Public Key (that is open to the public). This kind of cryptography is also commonly called Asymmetric Cryptography and was invented by Diffie and Hellman in 1975. In these systems, encryption is done using the public key and

decryption is done using the private key (Figure 9). An example of public key cryptography is described in the following paragraph. Consider two people A and B wishing to communicate over an insecure channel (say, a wireless channel). Suppose that A's <public key, private key> pair is < e_A ; d_A > and B's pair is < e_B ; d_B >. Moreover assume that the public keys are known to both A and B (and the public). Figure 10 explains the procedure to be followed by A and B for communication. It is clear that each person encrypts the data using the other person's public key, which can be decrypted by the other person using his/her own private key. This kind of encryption/decryption is not much different from secret key systems, but the biggest benefit of public key systems over secret key systems comes from the authentication mechanism. In the case of authentication in secret key systems, if A and B want to communicate with each other, they have to share a secret (key K_{AB} or algorithm A_{AB}) among themselves. If one wants to communicate with many entities he/she must remember many secret keys each corresponding to every entity he/she wishes to communicate. Public key cryptography avoids this problem by the use of public keys. In this case, the entities wishing to communicate with each other have to remember only their private key. To communicate with another entity, they have to look up the public key of the other entity and use it to encrypt the messages to be communicated to this entity. For example, suppose A wants to verify (authenticate) B's identity. A chooses a random number r , encrypts it using B's public key e_B and sends the result to B. Now, B can prove his/her identity by decrypting the encrypted message (the Challenge) using his/her private key and sending the decrypted random number r (the Response) back to A. Though public key systems provide a highly efficient authentication mechanism, they are orders of magnitude slower than secret key systems. In the case of communication networks, these public key systems require excessive computations and

transfer of large numbers of bits along power/bandwidth limited channels. Thus, these systems were not initially recommended for wireless/mobile communications where bandwidth and power are at a premium. This is one of the main reasons that the 2nd Generation GSM systems are primarily secret key systems. However, since higher capacities have been introduced with the introduction of 3rd generation systems, public key systems will begin to play an important role in providing confidentiality and authentication mechanisms. Public key cryptography also facilitates digital signatures, whereby a person can sign plaintext using his/her private key and anyone can verify the person's identity by using the public key of that person. Further, others cannot forge the signature of the person since it involves the use of his/her private key. An illustration of digital signatures is presented in Figure 12. [1]

HASH ALGORITHMS/FUNCTIONS

Hash Algorithms are also called message-digests or one-way transformations. The hash function h takes as input a message of arbitrary length and produces as output a message digest of fixed length. Certain properties should be satisfied:

- Given a message m , the message digest $h(m)$ can be calculated very quickly.
- Given a message digest y , it is computationally infeasible to find an m with $h(m) = y$ (in other words, h is a one-way, or pre-image resistant, function).
- It is computationally infeasible to find messages m_1 and m_2 with $h(m_1) = h(m_2)$. This condition is requiring h to be strongly collision-free.

A typical example of message-digesting is password authentication in personal computer systems. For security reasons, the system does not store the actual (unencrypted) password, but a hashed or digested value of it. When a password is supplied, the system computes the hashed or digested value of the supplied password and compares it the stored hash value. If the hash values match, then the supplied

password is deemed correct. Hashing can also be used for other functions such as message fingerprinting, digital signatures, message integrity checking etc. The algorithm A3/8 used in GSM for authentication and session key generation is another example of a hash function.

ATTACKING THE CRYPTOGRAPHIC PROTECTION

The security of cryptographic algorithms is a difficult property to measure. As mentioned earlier, most algorithms employ keys, and hence the security of the algorithm is strongly related to how difficult it is for an attacker to determine the key. The process of attempting to discover the plaintext or the key is known as cryptanalysis. The strategy used by the cryptanalyst depends on the nature of the encryption scheme and the information available. The most obvious approach to acquiring the key is to try every possible key and see which ones yield meaningful decryptions. Such attacks are called brute force attacks or exhaustive key search. In a brute force attack the length of the key is directly related to how long it will take to search the entire keyspace. With the increasing amount of computing power available at lower and lower costs, today's cryptosystems must be able to withstand brute-force attacks that would have been unthinkable in the relatively recent past. However, long keys are not guaranteed to make an adversary's task difficult. The algorithm itself plays a critical role. Some algorithms might be able to be attacked by means other than brute force, and some algorithms just don't make very efficient use of their key's bits. Cryptanalysts often exploit the fact that traces of structure or pattern in the plaintext may survive encryption and be discernible in the ciphertext. This weakness can make it possible to discover the plaintext or even the key. [24] COMP1285 has this weakness, which makes it possible to find the secret key of a GSM subscriber.

ATTACKS BASED ON PROTOCOL WEAKNESSES

Not having the resources needed to mount a

cryptanalytical attack on GSM is however no guarantee of security. There exist several "flaws" in the GSM protocols and other vulnerabilities in GSM architecture that enable attackers with relatively modest resources to break the protection of valuable assets of GSM. The following section will summarise these attacks.

Anonymity

It is obviously possible to build a device that is able to track a specific MS and extract its IMSI [15]. All that is needed is to buy the device and choose a location. Having access to a number of IMSIs doesn't necessarily mean that the owners are damaged in any way. The damage is done when the attacker can associate an IMSI with its owner and the TMSI it is assigned by the network, because the attacker is then able to locate the subscriber, track the subscriber's movements, know the sort of services he/she requests from the network etc. This however can not be done by passively listening to the radio signals (given that the attacker lacks decryption capabilities). Therefore the conclusion is that passive attacks do not form a real threat against the anonymity of GSM users. In order to mount more serious attacks against the anonymity of GSM users the attacker needs to mount active attacks. Having access to a modified base station in conjunction with a modified MS makes active attacks possible. The intruder is able to interrogate users, using flaws in the protocol design and get their IMSI, TMSI and their IMEI, among other parameters. This way traffic analysis can be performed very easily and the conclusion is that many of the requirements in Section 2.1, concerning user anonymity, are not met in today's GSM, given that the attacker is able to mount active attacks. To be able to mount active attacks the attacker needs a device hosting base station and MS functionality. The specifications for how this sort of equipment works is available and used base station are not that expensive to buy.

Authentication

The lack of subscriber anonymity in GSM does not, directly, form a monetary threat to the operator (the

users of the system could though be damaged in many different ways because of the lost anonymity). What could seriously threaten the billing security is an attacker cloning a SIM and making business of selling it. Cloning a SIM, which is using COMP128 for authentication and session key generation, is quite easy if the attacker has physical access to it. All that is needed is a cheap off-the-shelf device and the SIM to be cloned. The most popular attack against COMP128 requires that the SIM is challenged about 150 000 times and takes about 8 hours to complete. Another attack is a partitioning attack requiring only 8 challenges in the best case, and about 1000 challenges in the worst case. This means that a SIM could be cloned in a few minutes or even seconds using this method. It requires however equipment that is only available in university laboratories - at least for the moment. This is however a serious threat; not only because it is very fast, but also because it does not attack a certain algorithm that can easily be exchanged with another stronger algorithm, but the smartcard itself. Cloning using the physical SIMs is quite easy. It does not however form a serious threat to the security of GSM, since the attacker has to physically have the SIM to begin with. If the attacker gets hold of a couple of SIMs a month and clones them, that does not form a big threat to the credibility of a GSM service provider, because only the subscriber whose SIM has been cloned is concerned. This is, somewhat, similar to the fact that it is easy to clone a SIM used to decode digital TV signals, but people still buy them from the legitimate service provider. The situation could be different if the attacker is able to clone SIMs by using the radio interface (see Section 6.3.2) without having physical access to the card. The attacker is then able to clone a considerably larger number of SIMs and make a hack of that, at the expense of the legitimate subscriber to begin with and later on the credibility of the service provider (operator), seriously harming its reputation, in addition to the costs for the services provided to users with cloned SIMs that the operator will not get paid for. In these times of hard competition between different operators, such incidents could easily make subscribers opt for a

different operator. Cloning over the air consists of two steps. Firstly the attacker needs to get the RAND-SRES-pairs needed in the cryptanalysing step. This is done by interrogating a MS for the information. This step takes about 13 hours to complete and could be done in parts. As many SIMs can be cloned as there are channels available. The second step consists of processing the data and is the same operation as in the case of cloning when the SIM to be cloned is available. The resources needed to mount an over the air attack exceed greatly those needed when the attacker has physical access to the SIM, but the damage (and profit for the attacker) is greater. The attacker needs the equipment needed to mount an active attack, that is a modified base station, or a device implementing the functionality needed which is a subset of the functionality of a legitimate base station. Since the implementation of COMP128 is available and there already exist devices that can extract the key, it should be possible to do the processing step work on a PC. Hard disks are cheap, and the attacker needs not more than approximately 24 MB of space on the hard disk for each SIM to be cloned ($150' \text{ challenges} \times 128 \text{ bits} + 150' \times 32 \text{ bits}$). The conclusion here is that the requirement of Section 2.3 is absolutely not fulfilled 100 percent. Being able to challenge MSs using the radio link suddenly gives the attacker access to many cloned SIMs, that can be sold to people who want to call more cheaply or want to be anonymous to authorities. Since the attacker uses the radio link the fraud cannot be traced and the "customers" are totally anonymous. It is possible for the operator to track a specific MS but it is unrealistic to believe that a buyer (or the person doing the cloning) of a cloned SIM can be caught. The attacker makes initially a big investment acquiring the equipment needed, but is able to produce large quantities of cloned SIMs. But how big is the investment? [14] gives a hint that it is possible to mount an active attack on a MS. Providing a stronger signal to a MS than the legitimate BTS that is serving a cell makes the MS think that it has entered a new cell and that way the attacker is able to communicate with the MS. For this to be successful the device mentioned in [15]

does not suffice. Some of the protocols and channels that are needed in order to do the challenging, specified and publicly available by ETSI, have to be implemented. To get an estimate on the effort needed to engineer or buy a device that can be used to make an attack on GSM, the company that develops the device mentioned in [15] was asked about the cost and delivery conditions. The device is a passive system, not able to communicate with the MS and therefore active attacks are not possible using it, but it provides some of the needed functionality. The answer was that the device can only be sold to law enforcement, government agencies or persons/organisations that have government approval. The device 95 costs approximately US\$180.000 and delivery can be made within eight weeks from the ordering date. This sounds like an enormous investment and probably not too many "hackers" can afford it. It is even questionable whether such an investment will be profitable. It would be very interesting to see how much it costs to build a device with the minimum functionality needed to act like a (limited) base station. Probably the cost would be much lower than the sum mentioned above. A trustworthy guess is US\$10.000 [37].

Confidentiality

The ETSI specifications reveal that a MS has to have support for different encryption algorithms to support roaming. Many western countries use the "strong" encryption algorithm A5/1, while other countries are "forced" to rely on the much weaker A5/2. A MS which in default mode encrypts using A5/1 is forced to use A5/2 if it is communicating with another MS that only supports A5/2. This fact can be used in a man-in-the-middle attack to eavesdrop on the users' conversations. The attacker asks the calling MS to start encrypting using A5/2, and extract the session key, and then the conversation can be decrypted in real time by the attacker. Such an attack requires that the attacker is able to intercept and actively communicate with the MS and the legitimate BTS. This means that the attacker needs the equipment hosting the functionality of a modified BTS and a modified MS

enabling the attacker to mount a man-in-the-middle attack. Another requirement is that the plaintext needed to cryptanalyse A5/2 to find the session key is available. This is one of many attack scenarios that can brake the confidentiality protection of GSM (see Section 6.4.3). Other attacks do not even require cryptanalysing the encryption algorithm. An attacker that wants to get hold of a specific person's (or organisation's) secret business plans etc can mount one of the attacks mentioned in Section 6.4.3. The difference between attacks on the confidentiality aspect and those in the cloning case is that the attacker needs to know the identity of the SIM of the person that is to be eavesdropped on. For cloning it suffices to challenge any MS, for meaningful eavesdropping the attacker is supposed to know the IMSI of the interesting SIM. When the IMSI is known the next step is to locate the target MS and place the intercepting equipment near the target. Since no operator informs the subscriber about the type of encryption that is used for each call (this can be done according to the ETSI specifications) the subscriber does not suspect anything. Being eavesdropped on is of course not acceptable for most of us, whether using mobile communications or not. However if a "normal" conversation is eavesdropped, the participants often do not lose anything but some privacy and probably nobody is ready to invest many thousands in buying equipment for intercepting and decrypting my private mobile calls (the reward does not motivate the investment), but certainly there are people/organisations who could be seriously damaged (e.g. financially) by being eavesdropped. Users of mobile communications that want to exchange very sensitive and valuable information should be careful using the system, and at least be aware that the second generation GSM does not provide perfect confidentiality. There are some easy ways to considerably increase the security of the GSM system. The most obvious way is to start using the full length of the session key Kc instead of setting the last 10 bits to zeros. A second "solution" that should not be too complicated to implement is to force the BTS (network) to authenticate itself to the MS when an authentication session is conducted.

Even message-origin authentication and message integrity protection would be large steps in the right direction. That way an attacker would find it considerably harder to mount the man-in-the-middle attack meaning that many of the attacks are warded off. Another action in the right direction would be to inform users about what sort of protection they are using in real-time. It should not be too hard to indicate for a calling customer whether A5/1; A5/2 or A5/0 is being used to protect the conversation.

Conclusion

Given the strong belief in the security community that only protocols that can be tested should be trusted (that security should depend on the secrecy of keys and not of algorithms), some believe that it was inevitable that GSM would be attacked for its dependency on the proprietary authentication and confidentiality algorithms. These algorithms are viewed as cryptographically weak by many security analysts and this is proved by the increasing number of propositions for how to break these algorithms. It is a fact that COMP128, the algorithm used for authentication and session key generation, only required a couple of hours to crack (Wagner and Goldberg) and it has been broken for a couple of years, making the process of cloning SIMs using COMP128 trivial and cheap. Another fact is that it only took a couple of hours for the same team to crack A5/2. Their attack only requires a few cycles to crack the algorithm. There are propositions on how to break the algorithms protecting the privacy of GSM conversations as well. Many of these propositions demand however unrealistic portions of known plaintext and/or huge amounts of computation power (especially for the one time pre-computation part of the attacks). The latest cryptographic attack on A5/1 is however a ciphertext-only attack requiring only a small number of encrypted frames in order to find the session key in real-time. This attack requires however very large amounts of computation power both in the pre-computation stage and in the real-time part of the attack. Looking at the history of the cryptographic protection of GSM the picture becomes clear. Although it is obvious that secret

algorithms make it harder to break the protection in the short run, it often fails in the long run. Designers of security reason that before cryptanalyzing the algorithm the potential attacker has to know the algorithm, which will make the task much harder. This kind of reasoning fails; history shows that COMP128, A5/1 and A5/2 was reverseengineered and cracked in a short period of time by individual researchers, for some reasons. Firstly, the public crypto community is not given a chance to examine the algorithm to find eventual flaws. Secondly, some entities may have interest in deliberately build in flaws in the algorithms to make it easy for them to crack when they need to. Limiting the key bits to 54 instead of 64 may be an indicator of this. This reasons will make the device in [15] possible to build even in the future, meaning that authorities and other entities that can buy and use the device will be able to perform illegal tracking, eavesdropping etc, violating the personal integrity of the concerned users of the system. Note that law enforcement agencies are able to perform this actions in a legal way asking for permission to perform tracking and/or eavesdropping. Not having access to the resources required to break the cryptographic algorithms protecting GSM does not however mean that GSM is secure. Certain flaws in the protocols that are used to manage the system make it possible for people with relatively modest resources to listen to GSM conversations in real-time without breaking the encryption algorithms. An attacker with access to a modified base station (easy to buy a used one) can mount active attacks on the system enabling the attacker to break the anonymity and confidentiality aspects of GSM and even clone SIMs using the radio link. This means that the security provided by GSM is quite weak and users with very high demands on communication security should be more careful when the phone rings. However, both cryptanalytical attacks and attacks against protocols are considered nontrivial, except in the case of operator abuse.

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The author of this report has presented some attacks

on the second generation GSM that are believed to be possible in presence of the needed resources. However, the presentation has omitted the details of how things are done and the attacks have not been verified through practical experiments . A future work could go deeper into:

- examining which functionality needs to be implemented in a base station in order to be able to mount an active attack on a MS, e g to be able to mount a man-in-the-middle attack. Of course an estimation of how much a device that can act like a (limited) base station costs may be interesting knowledge. Of course it is essential to examine also whether such a device can operate according to the outlined attacks without making operators and authorities suspicious.
- performing practical experiments using equipment hosting base station functionality in conjunction with mobile station functionality to examine to what extent theory hold in practice.
- look into what work is needed to make the attacks presented in this report impossible or at least harder to mount. What is the situation in the UMTS systems?
- investigating the security situation for one of the large GSM operators in Sweden. This would take the form of a qualitative study consisting of interviews with security personnel in charge of the operators security implementation. Interesting questions to answer could be: o To what extent is COMP128 used? What version of COMP128 is used in newly issued subscriptions? Is cloning considered as a problem?
- The authentication process is of essential significance within the GSM security model. Not only it ensures that only legitimate users get access to services, it also generates a fresh session key to be used in the subsequent encryption of signalling and data transmission. ETSI specifications recommend that users should be authenticated before service is granted. This means that a subscriber could be authenticated several times every day. Is this how it works in practice or is the authentication process performed rarely? How often does the network initiate an authentication process

without a user requesting a service?

- Is it common that signalling and user data are transferred in the clear? Which cases result in the network deciding on "no ciphering"-mode? Does the network always decide on "no ciphering" when incompatibilities arise in the ciphering capabilities of the entities taking part in the communication session.
- To what extent are unencrypted wireless links used in the network behind the BTSs? Are satellite link used? To what extent?

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49. ETSI ETR 332, Security Techniques Advisory Group; Security requirements capture, <http://www.etsi.org> På svenska Detta dokument hålls tillgängligt på Internet - eller dess framtida ersättare - under en längre tid från publiceringsdatum under förutsättning att inga extra-ordinära omständigheter uppstår. Tillgång till dokumentet innebär tillstånd för var och en att läsa, ladda ner, skriva ut enstaka kopior för enskilt bruk och att använda det oförändrat för ickekommersiell forskning och för undervisning. Överföring av upphovsrätten vid en senare tidpunkt kan inte upphäva detta tillstånd. All annan användning av dokumentet kräver upphovsmannens medgivande. För att garantera äktheten, säkerheten och tillgängligheten finns det lösningar av teknisk och administrativ art. Upphovsmannens ideella rätt innefattar rätt att bli nämnd som upphovsman i den omfattning som god sed kräver vid användning av dokumentet på ovan beskrivna sätt samt skydd mot att dokumentet ändras eller presenteras i sådan form eller i sådant sammanhang som är kränkande för upphovsmannens litterära eller konstnärliga anseende eller egenart. För ytterligare information om Linköping University Electronic Press se förlagets hemsida <http://www.ep.liu.se/> In English The publishers will keep this document online on the Internet - or its possible replacement - for a considerable time from the date of publication barring exceptional circumstances. The online availability of the document implies a permanent permission for anyone to read, to download, to print out single copies for your own use and to use it unchanged for any noncommercial research and educational purpose. Subsequent transfers of copyright cannot revoke this permission. All other uses of the document are conditional on the consent of the copyright owner. The publisher has taken technical and administrative measures to assure authenticity, security and accessibility. According to intellectual property law the author has the right to be mentioned when his/her work is accessed as described above and to be protected against infringement. For additional information about the Linköping University Electronic Press and its procedures for publication and for assurance of document integrity, please refer to its WWW home page: <http://www.ep.liu.se/>

THE ECONOMIC CRISIS: CHALLENGING LEADERSHIP

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Recession is very widely discussed topic today, and plenty of predictions too are pouring in, but one thing is clear that today recession is not a myth but hundred percent it's a real. And one of the major causes of recession is lack or absence of values and ethics in the business. Market has gone down, everywhere we see lay-offs. Those who are able to secure their jobs are no longer successful in getting either bonus or increments, etc. So what is the recession? According to Wikipedia 'In economics, a recession is a general slowdown in economic activity in a country over a sustained period of time, or a business cycle contraction. During recessions, many macroeconomic indicators vary in a similar way. Production as measured by Gross Domestic Product (GDP), employment, investment spending, capacity utilization, household incomes and business profits all fall during recessions.'

Our Economists and Financial gurus say " it is a state of economic decline; a widespread decline in the GDP, employment and trade lasting from six months to a year ". To make it more understandable, it is when hundreds of people get laid off from their jobs, prices of commodities are shooting up, and everybody is short on cash.

One of the leading Financial News Paper recently said, "Recession is primarily caused by the actions taken to control the money supply in the economy. The Government is responsible for maintaining an ideal balance between money supply, interest rates, and inflation. When the Government loses balance in this equation, the economy can spiral out of control, forcing it to correct itself."

The rediff says, 'A recession is a decline in a country's gross domestic product (GDP) growth for two or more consecutive quarters of a year. A recession is also preceded by several quarters of slowing down.' So, the recession is the economy

shrinking for two consecutive quarters (=6 months) with a decrease in the GDP (Gross Domestic Product). GDP is Value of all the reported goods and services produced by the people operating in the country. GDP is a good indicator of economy. If GDP is growing, then market is growing due to increased demand. A recession normally take place when investors spend less as they fear stocks value are artificial and may fall, thus stock markets fall on negative sentiment.

Trouble started with the sub-prime crisis in the US, lending against homes. This set off a chain reaction. Next comes the consumers then, they lose confidence in the growth of economy and spend less. This leads to a decreased demand for goods and services, which in turn leads to a decrease in production, it lead to lay-offs and a sharp rise in unemployment. So it is like a chain.

Today, there is no place in the world is safe. Entire world, everyone's life has been shaken by the harsh truth that now there is no money in the banking system... The fourth largest investment bank, Lehman Brothers, in the US, has become bankrupt. Other big companies, which are being brought by US Government, are facing big job cuts. Last year in the US the unemployment rate has risen to 5.1 percent, highest in 15 years.

We were living in the global world, where all business, growth is interdependent. One industry can hit many other industries when the confidence level of millions of consumers & producers drastically comes down, thus nation's recession is controlled by the actions of everybody living in that country.

In globalization, not only a particular country grows but entire world grows. That is what has been the gist of all age old scriptures. These scriptures do mention that the world should grow on the principle

of discipline, spirituality, ethics and values. Somewhere, being in the rat race, none of these been followed and the result is what we are facing today.

In this race we forgot to respect us, forgot to respect each other and forgot to respect the human beings. We went at the extent that in the organizations, we termed our employees as resource. Like machines, like tools humans/employees too became resources for the financial growth of the company. We focused only on the financial growth of the company, whereas, focus also should have been on the growth of values and ethics of the company. But since we termed our human employees as resource, the result is that, like feeling less machines and tools, they too became less sensitive, armed with almost no values and ethics. It has harmed not only their professional life but also their personal life.

The next step was to "sweat the employees" as you sweat the other assets in the organization. And it leads to unrealistic expectations and sets the reward system accordingly. Which translated into expectations of top notch productivity, super intelligence and supernatural intuitions, team player (perfect coach), a good leadership with ability to inspire, motivate groups of people with diverse interests, and the same time remain calm and composed even in the most trying circumstances. But this leaves individuals stressful, emotionally weak, impatient and discontented. The result is instead of helping them to do whatever they were doing more happily with limited resources, today they are suffering from chronic diseases. Blood pressure, diabetes have become a part of progress and prosperity.

We have seen that during this business boom time the soft skills area has come into existence with leadership programs, team building workshops, emotional intelligence, interpersonal relationships, etc. They have not left a single aspect of human behavior untouched. But I have seen that employees rather take it as a short break from their routine work. One cannot have a team work unless the

person has some strong human values which he respects. In organizations all employees are human and they works/interacts with humans. If they have some core values and ethics with which they adhere themselves, then I believe that today the picture of business would have been different. Recession could not have shown up its face.

Human being came on earth for harmonious growth by respecting the environment and everyone around him for the benefit of all. But today he experiences chaos everywhere - home, office everywhere. Organizations struggle with employee performance management strategies. An article written By Prof. Varun Arya, Director, Aravali Institute of Management, has mentioned "ethics & values" among the main reasons of recession, - "Erosion of the Core Values: - If you look at the topmost successful organizations globally then there is one commonality which signifies all of them - the existence of core values. The core values form the non-negotiable conditions for the operations of these organizations and employment of the manpower. The typical core values are ethics, safety, environmental preservation, merit, quality and respect for the people. When the organizations compromise such core values then begins the down fall of the organizations. Enron, Anderson, Satyam, et al happened because their managers undermined the core values for reasons of their individual and organizational petty short-term interests.

Ashubh-Labh: - Traditionally since time immemorial, homes and businesses in India had Shubh-Labh written prominently outside their buildings and also in their books. Shubh-Labh meant that the profit earned should be good (shubh) profit and not bad (ashubh) profit. Good profit meant for the benefit of the society at large. Bad profit meant at the cost of and/or by undermining the society at large. Over the last few decades, the corporate in India have resorted to the maximization of self-serving profits, at the cost of other stakeholders and the society at large. Sooner than later this gets not only exposed but also makes the organization hollow and hence unsustainable in the

long-run.

Misplaced

Education: - Management in the ultimate analysis is human resource management. You can use and manage money, materials and machines the way you like since these are inanimate and therefore, do not react. However, you cannot use and manage manpower the way you like since they are animate and hence they react. People ultimately make the organization and the leadership of the organization makes all the difference to the organization. "If the person who is sitting at the helm possessed ethics and values, he can enrich his employees with the same. If employees, stakeholders, shareholders, customers, etc knows that the person on the helm is enriched with values and ethics, they listen to him, they accept his decision wholeheartedly, so, there cannot be anything go wrong in such organization. As we hold the the parents of ill-behaved children responsible for inappropriate child rearing practices , similarly this can be applied in the organizations also, where the people sitting at the helm can be held responsible for lacunae in their value/sprituality based leadership. When I say spirituality in leadership, I mean the leader should possessed Satvik gunas. Satvic character denotes the wise, connotes, transparent, purity, altruism, poise, sincerity, forbearance, straight-forwardness, compassion, soft, serene, meditative, detached and unpossessive nature and qualities, clarity in thoughts, can visualize problems as one see through transparent clear glass, can understand the situation or problem objectively in their true perspective, self-illuminated and detached, non-reactive. Satvic character person will be samayami (one with the highest degree of control on oneself and one's emotions), satvic personalities would focus on the higher values, satvic guna listen without interruption - and may learn something of real value. Have satvic gunas, he should be like a yogi, who believes in karma and do not think to take credit for its fruit. I have this firm believe that even today there are leaders who owns such gunas. To name a few I will like to mention the names of executives of present time, Mr. Azim Premji, Wipro, Mr. Narayan Murthy founder of Infosys, Mr. Sunil Saxena, MD

of American MNC, Mr. Rajeev Dubey, VP of Mahindra & Mahindra, Mrs. Shobhana Vyas, Director CMIE, ITC, Marico, Mr. Ratan Tata of Taj group, TCS, SAIL, Bank Of Baroda, Mr. J Sood, Energy Economist, Bureau Of Energy Efficiency, Govt. of India, Ministry of Power, Mr. Aditya Jain Joint Executive VP, HCC Ltd, etc. Marico has grown at around 20% quarter to quarter for last so many years. TCS has the lowest attrition in the industry- these are end results of a value based leadership and management philosophy.

The sad part is that still we are not looking at the main part of any business i.e. its soul. And its soul is the values and ethics of the human/employees. During this period when the economy has fallen down drastically all over the globe, still we can bring out something good out of it which can guard us from the repetition. Recession not only hit the business but also the personal life of people, badly. So, first thing this recession teaches us is about spending wisely, saving for the future. The situation right now has made everybody wiser than before. Now people are not spending lot of money like they used to. Secondly, recession really made us appreciate what we have. Now no one crib if they have a small house, or an old car, or not able to go for luxurious vacations, etc. Thirdly, recession has accelerated the adaption of situation in people. They have become more adaptive towards change. For example, change in their personal life regarding change of their economic condition. Whenever any bad situation occurs, some opportunities always lie there and we should tap them. In summary since the soul and the conscience keeper of our organizations is our values, if values erode so will we. Gita beautifully summarizes this by saying "as you think you will become". It is wisely said that 'as you sow, so you reap.'

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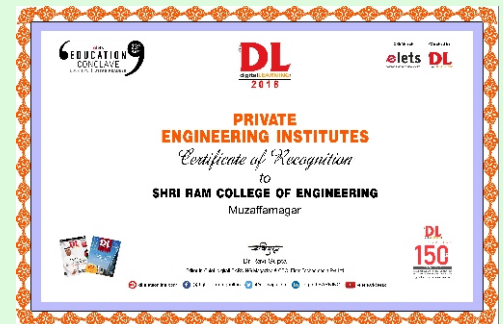
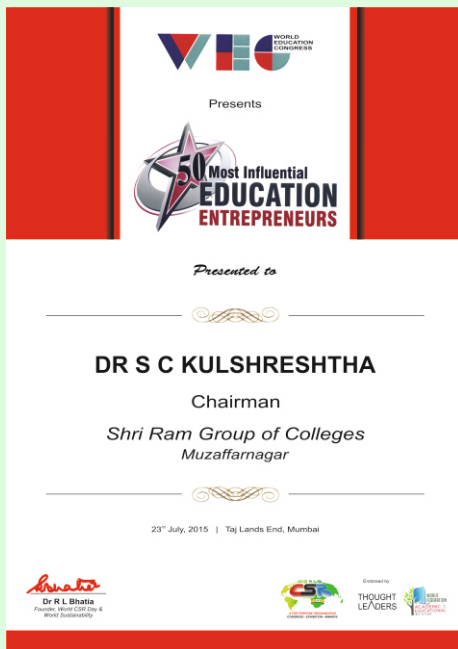
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