Technological Innovation through Knowledge Sharing: Socio-Organizational Perspectives

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Abstract:
The purpose of this research is to propose a study of impact on knowledge sharing framework to manage software projects where employees working in different work locations. To support the arguments made based on review literature, the researcher presents the holistic framework of knowledge sharing in a software development company and also provides a model to solve the problem of knowledge sharing objections. The researcher would then apply the framework to study the existence of knowledge sharing process in a software development company to examine the effectiveness of knowledge sharing. The research would then focus on elucidating how advances in computing and information technology can be used to implement information technology systems for the benefit of individuals, organizations and society. It would also focus on how socio-technical and organizational perspectives are integrated in order to create useful system solutions leading to social change and meaningful development and job creation.

Key words: Project Management, Knowledge management. Human resource management

1. Introduction

Companies across many industries have achieved the kind of revenue growth that stockholders are demanding by off shoring software development. While driving down hourly and projected costs in a significant fashion, off shoring has distributed development teams across the globe.

Distributed development has grown in clear phases. In the first phase, teams were made up of employees of a single company in multiple locations within that company. Those employees could be distributed across two or three buildings on a campus or across several states, provinces, or regions. Distribution became global in the next phase as companies, either through wholly owned subsidiaries or joint partnerships, purchased facilities in other countries and directly employed citizens of those countries. The latest phase has seen more partnerships between vendors who have their own distributed development capabilities.

Due to a changing business environment today, organisations are facing challenges of global competitiveness. Furthermore, organisations are confronted more and more with issues such fast technological changes, product lifecycle shortened, downsizing, and high market volatility. In order to cope with these challenges, organizations need to be able to manage highly distributed diversified knowledge. Challenges rely on the identification of crucial knowledge that improves the business process. Knowledge is central but even more so is the understanding of the knowing process, and the learning and knowledge transfer/sharing process. Companies understanding the need to harness knowledge are aware about the crucial issue of creating a work environment that fosters knowledge sharing mechanisms and learning capabilities within and across organisations. It is well recognized that knowledge-sharing mechanisms are highly complex processes to promote in the organization. Indeed knowledge-sharing hostility is perceived rather as a phenomenon that widely dominates organizational reality.

1.1. Managing Global Software Projects
Software development world over has drastically changed and the rules of the game are being continually rewritten. The typical

changes that can be observed and experienced in the area of managing software projects are vanishing geographical boundaries, shrinking product life cycles; increasing competition, changing business models, commoditization of technology. In order to succeed and cater to this ever-changing scenario, products need to reach the markets faster, with higher quality and harness the global resources. Managing global software projects is about the three dimensions of software project management – people, process and technology – and the interactions between them, particularly when the team is geographically distributed. Project management issues that confront global and distributed teams; a fair balance across the three dimensions – people, process and technology – contributing to the success of geographically distributed teams.

The problems of globally-distributed development teams are lack of Information, Information overload, reinventing the wheel, loss of crucial knowledge due to a key employee leaving the organization and poor sharing of knowledge in the organization.

2. Impact Analaysis of Knowledge Sharing Process in Global Software Projects

In order for knowledge management to be effective, it requires a fundamental change in the way companies run their business. This is particularly significant as the heart of any effective change is the people themselves (Davis, 1998). The knowledge of the people is created and expanded through social interaction between people and their creative activities (Nonaka & Takeuchi, 1995). Changing people's behavior seems to be most difficult especially promoting knowledge sharing among employees. These are appreciation of the importance of knowledge, communication skills, motivation, absorptive capacity, reputation, incompatible personality, disciplinary ethnocentrism and technophobia). In addition, Engstrom (2006) suggests other factors such as career satisfaction, job satisfaction and career prospect also affect knowledge sharing behavior while Ryu et al. (2006) believe individual factors such as attitude, subjective norms and perceived behavior also have significant role. Apparently, there are many other factors that affect knowledge sharing. This is evident when Awad & Ghaziri (2004) suggest factors like personality and attitude; Lin (2007) suggests enjoyment in helping others and self efficacy; and Van den Brink (2003)10 identifies motivations, trust and care that enable knowledge sharing. From the literatures, it is evident there are many individual related factors that influence knowledge sharing practice. This is because many researchers combined many related socio psychological theories to develop a theoretical model to study knowledge sharing in organizations (Samieh & Wahba, 2007). However, since the study on knowledge sharing in public sector is still at scarce (McAdam & Reid, 2000; Syed Ikhsan & Rowland, 2004), to the knowledge of the authors, there is as yet no well-established knowledge sharing model.

Previous studies reveal that people are reluctant to share knowledge though their organizational culture promotes the practice (Lu et al., 2003). According to Riege (2005), there are seventeen potential individual factors that hinder people from sharing knowledge.
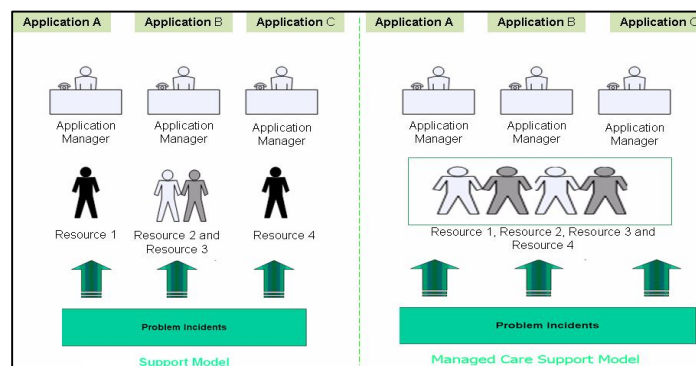

Figure 1: Knowledge Sharing Across Teams

In IT industry general process on each application is supported by one or many resources depending on the complexity of the application. Every resource supports an application as primary or secondary and also gathers knowledge of another application as cross trained backup. This makes sure that the knowledge is shared across applications and helps in case of attrition or prolonged absence of the supporting resources.

The present research aimed at ascertaining the process of knowledge sharing in a global project development and its total effectiveness for the increase in the individual efficiency, organizational efficiency and productivity. The gaps in the literature clearly identified the various elements of knowledge sharing like sharing with internal team members, sharing with project developments with co-located team members and sharing with non team members besides these elements the literature also identified knowledge sharing on general views, specific requirements, process techniques, progress reports, total results and proper communication to onsite or offshore project team members. In this process of knowledge sharing is expected to have its relationship with job security, team reorganization, increasing competence advantage and improving customer focus.
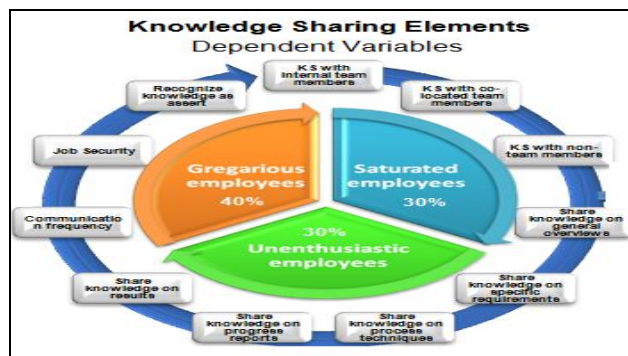
Figure 2: Knowledge Sharing Elements – Dependent Variables

My Research is focused toward analyzing impact of knowledge sharing in IT industry as first stage. The key elements are focus by project management to ensure the project success by knowledge sharing process in IT industry.

Second stage, it is necessary to identify the knowledge sharing elements like knowledge sharing with internal team members, knowledge sharing with co-located team members, knowledge sharing with non-team members, share knowledge on general overviews, share knowledge on specific requirements, share knowledge on process techniques, share knowledge on progress reports, share knowledge on results, communication frequency, job security and recognize knowledge as assert.

Third stage, it is necessary to identify effectiveness of knowledge sharing like, Improving competitive advantage, Improving customer focus, Innovations, Inventory reduction, Employee development, Cost reduction, Revenue growth, Better decision-making, Intellectual property rights, Faster response to key issues, Improving quality and Improving delivery.

Knowledge management requires technology, business strategy and people that transfer knowledge into means of a readily accessible vehicle. We understand that knowledge management is one of the key areas for sustained support, enhanced business and to be on top of the client's competitors. We have practiced the knowledge management processes given in this paper successfully for the past six years and have constantly improved the process based on lessons learnt/feedback from the client and issues faced in previous knowledge management experiences.

The work location place a major role in determining the potentiality of the employees as well as their interest towards organizational development. The employees involvements depends upon their work location as well as a co-relate effects of organizational commitments.

The age is another important factor in determining the potentiality of the employees as well as their interest towards organizational development. The employees involvements depends upon their age group which co-relate effects of organizational commitments. The gender place a major role in determining the potentiality of the employees as well as their interest towards organizational development. The employees involvements depends upon their work location as well as a co-relate effects of organizational commitments

The designation is another important role in determining the capability of the employees as well as their commitments towards organizational development. The employees involvements depends upon their which effects of organizational commitments Finally, The work experience place a major role in determining the knowledge sharing process and effectiveness of knowledge sharing. The employee's involvements depend upon their work experience.

It is often said that it is essential to create a "knowledge sharing culture" as part of a knowledge management initiative. An isolated knowledge management program looked after by a privileged few is a paradox in itself and will not survive for long. Only effective collaboration and communication which spans across the whole company structure will give knowledge management the boost it really needs. In order to enrich a company's current culture the change must start at the individual. Every employee has a sphere of influence along with their own individual knowledge, and this is where he believes a knowledge sharing culture can begin.
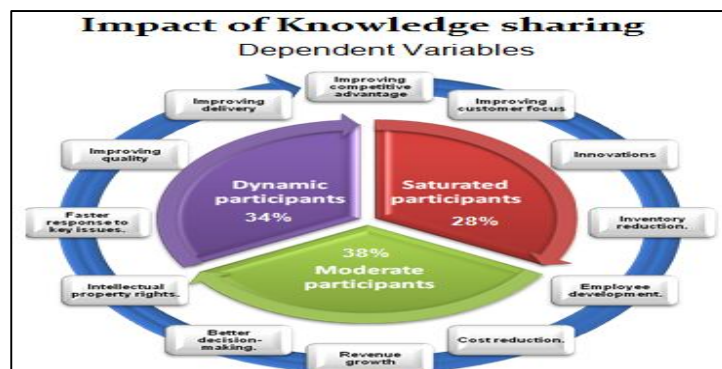

Figure 3: Impact of Knowledge Sharing–Dependent Variables

Knowledge is often seen as a rich form of information. This differentiation however is not terribly helpful. A more useful definition of knowledge is that it is about know-how and know-why. A metaphor is that of a cake. An analysis of its molecular constituents is data – for most purposes not very useful – you may not even be able to tell it were a cake. A list of ingredients is information – more useful – an experienced cook could probably make the cake – the data has been given context. The recipe though would be knowledge – written knowledge - explicit knowledge – it tells you how-to make the cake. An inexperienced cook however, even with the recipe might not make a good cake. A person, though, with relevant knowledge, experience, and skill – knowledge in their heads - not easily written down - tacit knowledge – would almost certainly make an excellent cake from the recipe. It is important to note that to make knowledge productive you need information. Knowing how to make a cake is not sufficient – you need the list of ingredients. And to decide what cake to make - you need information – the tastes of the consumers of the cake. Know-why is also important. If an ingredient of the cake was unavailable – knowing the purpose of that ingredient might help a knowledgeable cook substitute an alternative. In fact know-why is often more important than know-how as it allows you to be creative - to fall back on principles – to re-invent your know-how.

There are many definitions of Knowledge Management. A common definition is 'the collection of processes that govern the creation, dissemination, and leveraging of knowledge to fulfill organizational objectives.' I feel this definition is inadequate, however, as it limits knowledge management to a set of processes. I prefer what I feel is a more useful definition:- "Knowledge Management is a business philosophy. It is an emerging set of principles; processes, organizational structures, and technology applications that help people share and leverage their knowledge to meet their business objectives." This puts focus and responsibility on the individual – the knowledge worker - and on the holistic nature of knowledge management. Also critically it is about meeting business objectives. Knowledge Management is not an end in its self. It is also fundamentally about sharing knowledge and putting that knowledge to use.

3. Technology, Innovation and Social Change

The aim of the research forum would be to develop a model for academicians and practitioners from multiple disciplines to debate and deliberate on social change that is encompassed by innovation and information technology.

Technological expertise plays a significant role in the global economy (Archibugi & Lundvall, 2001). Many agree that combination of technology and innovation could attribute to inclusive growth. Though several technological inventions are produced, the intention of inclusive growth across the globe remains unachieved. There are greater challenges where science, technology and innovation become the key to improve economic performance and social well-being. However, the concept of social well-being is constantly linked to social change. Unless existing social settings, that restrict the participation of some social groups in societal life are not transformed, achieving social wellbeing is going to remain a difficult task. On the other hand, entrepreneurship as a movement produced technologies which are used for achieving significant growth. However, the growth that the business enterprises have brought could not transform the social settings which everyone is part of. As a result, there is always a kind of conflict between business and society whether they both are mutually beneficial or not.

It is observed that globalization has tremendously affected the functioning of poor and deprived, and it is more disastrous in case of developing countries. Globalisation has been always considered as a process of exchanging resources among the nations. Though Globalisation is expected to benefit both developed and developing countries, in reality, it is the developed countries gained a lot through utilizing the cheap resources available in the developing countries. For instance, various multinational corporations have outsourced their business processes at developing countries due to the available cheap resources. We also have to accept that the developing countries have also benefited up to some extent while they imported the technological expertise available in the West. However, globalization has failed to take into account the usefulness of certain local innovative technologies in developing countries. This could be due to because of two reasons - a) local technologies may not be cost effective; b) available cheap technologies from the developed countries. Even though, the local technologies are not cost effective, it might be suitable for the wellbeing of these societies. Moreover, the gap between knowledge availability in the developing countries and the exploitation of the same for the improvement of the wellbeing might be an issue related to technology development process. In addition, there is a section which argues that attaining social wellbeing can be easily achieved provided that steady economic growth is maintained. Also, the reality describes that the growth in economic sense never help the different excluded social groups to attain what they have not been accessed so far. We may not get any better instances than the present Indian context to describe the reality, as more economic growth we attempt the more social disparities we witness.

At this juncture, social entrepreneurship is considered as a new model of developmental discourse that balances both economic and social growth. Social entrepreneurs strive to change social settings so that everyone is given space to enjoy his/her rights to lead a pleasant life. They are considered as pioneers and path breakers in their respective fields. They question the status quo and exploit the resources and opportunities to build societies that guarantee rights to the most excluded. There are two stages involved in the overall usages of technologies - one is production of technologies by the entrepreneurs and the second, usages of the same technologies for the social development by the social sector organisations. Significantly, emergence of social entrepreneurs has resulted in social leaders entering into both manufacturing and using the technologies to promote social development.

Social entrepreneurs have adopted innovative processes to bring social change. In this process, the state also acts as a dominant actor. However, neither the State nor civil society initiations alone can promote social change. There is a greater scope for both these institutions to partner and promote social ventures and social change. Eco system that includes public and private sector institutions such as Government, incubation centers, corporate social responsibility initiatives must demonstrate commitment and active participation to bring about social change.

The research would conclude, in order to reach out to the most excluded, service delivery has to be innovative. It needs to focus on three major areas - a) new technologies, that are capable of producing new products in a cost-effective manner; b) social innovation that ensures distribution of goods and services; c) be adaptive in order to integrate the goods and services to the local settings (Widdus & White, 2004). Hence, technology and innovation should play complimentary roles in the process of social change. Given the significance of this domain, there is a need for discussion and debate on aspects related to the discourse of social change.

4. Conclusion

This descriptive and empirical research revealed the knowledge sharing culture is indispensible among the employees to increase their participants for the organizational development both offshore and onshore employees are duty bound to share their opinion on technical knowledge as well as to distribute their notions towards technical sharing of knowledge. It is concluded that sharing mechanism is conducive in IT industry and create suitable work environment for their employees. The gender wise classifications and other demographic segmentation are crucial in determining the employee's fullest participation in developing their knowledge as well as to motivate them. The culmination of knowledge sharing is ascertained through effective organizational climate and constructive cultural changes. The gorgeous of the employees is highly indispensible for in creational point of knowledge sharing process. The interpersonal relationship and executive developments are the pillars to successfully implement knowledge sharing process in any organizational. The creation of knowledge sharing culture and suitable reward system for the knowledge sharing of the employees are highly suitable for the organization to obtained best of potentialities of the employees. The holistic approach of competency mapping and the performance appraisal system determine the knowledge distribution among (top level, middle and operational level employees). The continuous training process and motivating the employing to overcome the problems help employees to share their views and experience of knowledge with fellow employees.

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