

# 15356 Project Performance Improvement

*The Importance of Knowledge Sharing in a Project Based Environment as a Means for Performance Improvement – Case Study: HT's 3G Trial Network Project in Country P*

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## Abstract

This paper highlights the limitations imposed by an organization's organizational structure on knowledge sharing among individuals and teams working on similar roles but in different projects that are isolated from each other. It takes as an example a small scale project of novel nature that a specific team was required to deliver having little to no technical expertise of the technology the project was meant to deliver. Some of the key issues that affected the project are discussed in detail along with the presentation of arguments how knowledge sharing between this projects' team and another project team that had delivered a similar project could have benefitted the project in achieving an improved outcome.

The ever present pressure of delivering the project at the earliest also acts as a barrier to providing such teams a common platform to share relevant knowledge and experiences to enhance their skills and abilities and be better prepared for the unforeseen situations and obstacles. Moreover, quite often developing and maintaining knowledge gained from existing projects is overshadowed by the haste of delivering new projects.

This paper aims at emphasizing the opportunities that are missed due to such barriers, opportunities that promise learning and improvement for individuals, teams and organizations through knowledge sharing.

Key Words: Organizational Structure, Knowledge Sharing, Learning, Improvement

## Introduction

Projects are carried out to bring beneficial change over a course of time. The benefit could be tangible such as a product or a process or intangible such as higher customer satisfaction or a combination of both. Maximizing the realization of these benefits has alluded project management researchers and practitioners alike to make the projects a success. A major part of research in project management domain has focused on identifying Critical Success Factors (CSFs) for the last two decades or so, to help practitioners improve project success but a significant number of studies still reveal that a large number of projects still fall short of meeting their objectives. The 2013 CHAOS report by The Standish Group stated that only 39% of the projects were successful on the merits of time, budget and other functional objectives and 43% were challenged being over budget, over schedule or lack of quality of the deliverables (The-Standish-Group, 2013). There can only be two explanations for this. One, due to the ever increasing complexities of projects and their types, the challenge for researchers has grown on the similar scale to identify a consolidated list of CSFs for most projects to adhere to, to achieve success. Second, there exists a gap between whatever factors research has identified as critical for project success and the way projects are being managed and delivered in practical situations.

Where literature has focused on identification of CSFs, projects success criteria and the reasons why projects fail, another area that has gained attention over the last couple of decades or so is that of the *improvement* that we as individuals and teams can bring about ourselves through learning. Improving project performance from literature in fact seems even a bigger challenge in comparison to improving the same based on organizations' past experiences of delivering similar projects. The reason for it is that the rush to deliver new projects takes precedence over documenting the knowledge gained from previous projects (Algeo, 2012) and even when the knowledge is there, it is overlooked in haste to deliver the project at hand.

With these accepted realities, we need to adopt other ways of bringing improvement in project performance that would not only complement the research and its findings and limitations discussed above, but are also more practical, more involving and yet more effective in terms of benefitting the project, the organization as well as the people involved, both as teams and as individuals. One such way to bring about improvement is knowledge sharing among individuals and teams within an organization. The sources of learning are many, some are illustrated in Fig. 1. What is important though is that the learning is utilized effectively to get the work done in a better way than it was done before. That is how learning brings improvement. The scope of this paper however, has been limited to knowledge sharing as a mean of learning and improving performance at workplace within an organization.

Knowledge transfer has always been a challenge for organizations (Gilbert, 1998), even more challenging is the conversion of the tacit knowledge seasoned professionals and experts have into explicit knowledge that entry level professionals could benefit from. This also applies for project based organizations in which individuals gain most of their expertise through experience and interaction. As will be highlighted later in this paper, lack of knowledge transfer affects the projects that are intended to benefit the organization itself.

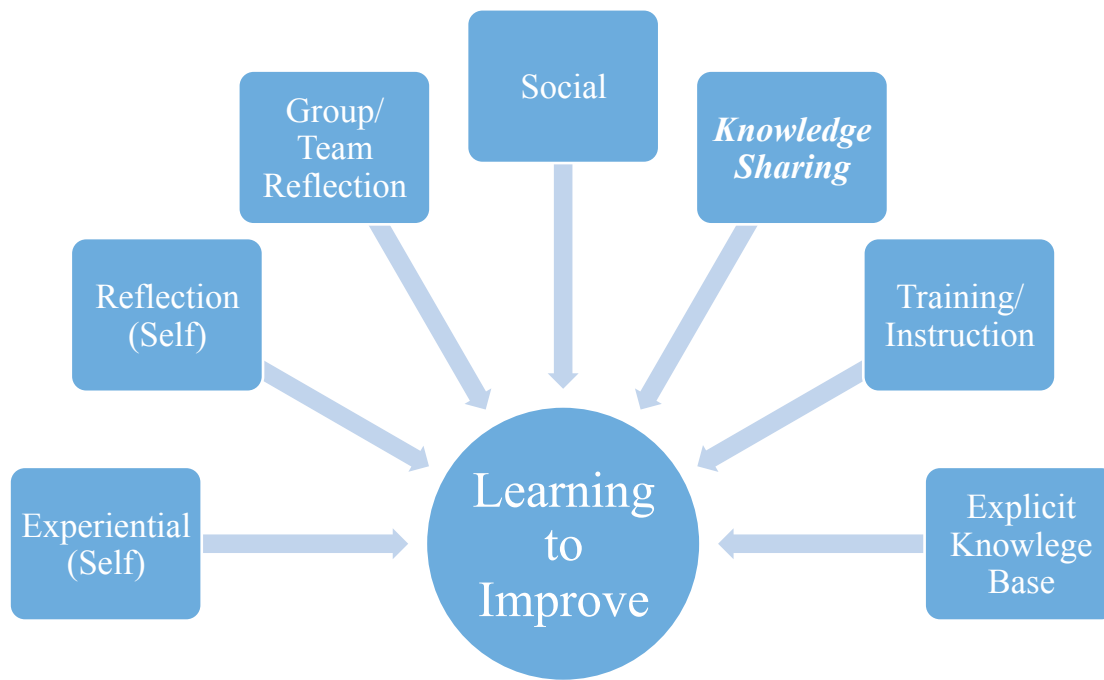


Fig. 1 – Sources of Learning for Individuals and Teams

## The Organization and the Project

The author himself was the Technical Lead of the project chosen for this paper. He was working in one of the world's leading Information and Communication Technologies (ICT) organizations, HT at its head office in country P. The overall objective of the project was to deliver a fully functional 3G Trial Network with serving base stations (NodeB's) at four different locations. A comprehensive list of various field test scenarios was provided by HT's HQ office from overseas and was agreed upon by the local office and the customer with minor changes.

The project, as the name suggests, was of novel nature as the country's telecommunications regulatory authority had not awarded 3G licenses to any operators and was carrying out feasibility studies for the same. It is however important to mention here that HT had already delivered a similar project for another of its customers in the same country, at the same location. The author, besides being responsible for overall technical deliverables of the project, was also the leading engineer for Radio Access Network (RAN) part of the network. However, one of the biggest challenges that he faced was that he did not have any experience of 3G technology and IP networking, which forms the backbone of a 3G network. He explicitly highlighted his weaknesses to the project manager, who acknowledged the author's technical shortcomings and arranged formal trainings as means of learning. Acquiring a resource from HT's U-project (refer to Fig. 2) BSS/RAN team that had already delivered a similar project was considered as an option but rejected on the grounds of this project having been taken as a challenge that our project team needed to deliver utilizing its own resources. It was also important from the perspective of retaining the resource that delivers this project for future roll out of the same technology, which would not have been possible if the resource, RAN technical expert in this case, was acquired from some other project team.

Now, that it has been nearly two years since the project was delivered, the author studying Project Management as a discipline at the University of Technology, Sydney and having been exposed to different ways of learning and improving, realizes that there was a lot more that could have been done, not only for his own or his project team's learning for better project delivery by overcoming the obstacles they faced but also for future project teams at HT who are now actually rolling out 3G networks on a nationwide scale after the award of licenses by the regulatory authority.

To be able to demonstrate fully how knowledge sharing and individual and team reflections could have benefited the author and his team to achieve an improved outcome, it is important to first gain an idea of HT's organizational structure, a simplified version of which is illustrated in Fig. 2. HT employs a combination of matrix and functional structure (Chung-Ming Lau, 2002) in which project teams are segregated on the basis of HT's customer organizations. The organization's functional units provide support to all project teams as one. Due to the limited scope of this paper, only the relevant part of the overall organization's structure is illustrated in Fig. 2 in a simplified manner. The author was part of the BSS/RAN project team for Customer Z, which comes under the *Wireless* product technology, which falls under the umbrella of Network Integration Services Department of the organization. Where all BSS/RAN teams deliver similar projects, work on the same product range and provide similar services to their respective customers, they are totally segregated from each other with independent reporting lines that meet only at the top level. There is practically no interaction among these teams as no initiative has been taken yet to capitalize the opportunity that lies in knowledge sharing and group reflection. This paper, in light of the problems that the project team faced will highlight the importance of group reflection and knowledge sharing.

HT has valued knowledge management as any other leading corporation of the world (Chung-Ming Lau, 2002) and invests significant amount of revenue and effort in maintaining and enhancing this knowledge. It provides its employees with not only the documentation, guidelines, applications and processes as issued by the developers but also provides one single online platform for all of its international employees to share their knowledge and experiences with others. What is lacking is the man-to-man sharing of knowledge, especially teams with similar roles across different projects. The need of this knowledge sharing was explicitly highlighted during the project under discussion. That's because of its novel nature for the team that was asked to deliver the project.

In an ideal scenario, if there are resources in an organization who possess skills and knowledge that are critical for a project such as the one under discussion in this paper, if acquiring them for the project at hand is not possible, effort must be made to share their knowledge and experience with the team that is expected to deliver the project; as organizations that successfully share knowledge deal with new designs better than their competitors (Nelson, 1993).

	Product Technologies	Customer U		Customer Z		Customer M			
Network Integration Services Department	Wireless (GSM, WCDMA, WiMAX, LTE)	NSS Team	No horizontal communication for Knowledge sharing across teams	NSS Team	HR	NSS Team	Finance	Other supporting functions	
		BSS/RAN Team		BSS/RAN Team		BSS/RAN Team			
		RNO Team		RNO Team		RNO Team			
	Access Network (IP Core)	...		...		...			
		...		...		...			
	Microwave	...		...		...			
		...		...		...			
	Optical Transmission	...		...		...			
	Power Solutions	...		...		...			
	Other Departments	...		...		...			...
...		...	...	...					
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...		...	...	...					

**Fig. 2 – HT’s Simplified Organizational Structure (Left to Right)**

## The Way Project Was Delivered and How Knowledge Sharing Could Have Helped Achieve a Better and Improved Outcome

There were two major technical aspects that the author needed to *learn* and *improve* upon for the project. One was the interconnectivity and integration of various elements of the network (based on IP sub-netting, route definitions). The other being the commissioning and configuration of RAN nodes and their interfaces that he was responsible to perform himself, with no previous relevant training or experience of either aspect.

The project manager acknowledged these shortcomings in the expertise of the project’s technical lead and arranged formal technical trainings. The author accessed a large amount of

technical documentation for designing and implementation of the network. With reference to Fig. 1, the first mode of learning was *Training/Instruction* with some *Tacit Knowledge Sharing* by the trainer, and the second mode of learning was the knowledge gained from *Explicit Knowledge* database of the organization. *Experiential* and *Self Reflection* modes of learning were also employed by the technical lead, but what was ignored on a departmental level under the same product technology (Fig. 2) was knowledge sharing across RAN teams from different projects. This is not to say that the project team of the subject project did not reflect on their experiences during the course of the project to find solutions to problems that they faced, it is more about sharing knowledge across various or all RAN teams from different projects.

Major problems faced and descriptions of how knowledge sharing could have helped to avoid the problems are discussed below:

1. Due to lack of technical expertise during the initial phase of the project, the team members who were assigned different work packages faced a tough challenge even to put forward their own respective requirements they needed other team members and the customer to fulfil. It took the project team, and even more specifically the project technical lead, a significant time to brainstorm and to look for detailed set of requirements to share among the team members and the customer. The revision of these requirement on two occasions during the course of the project exposed project team's weakness to the customer and it certainly did not create a good impression.

*How Knowledge Sharing could have helped to avoid it:*

A great opportunity was missed by HT and the project management by not making an effort to take advice from experts from HT's customer U project team that had delivered a similar 3G trial project to their customer (U) at the same physical location only a few months ago. As the best opportunity to maximize a project's potential to deliver expected benefits lies in planning, a common platform for the two RAN teams (of customer U and customer Z) to share their knowledge and experiences would have helped the latter a great deal in preparation of a comprehensive project plan that would have addressed the requirements of all stakeholders adequately.

2. The technical lead of RAN was burdened the most, not only because he was the overall technical lead, but also because it was only the radio access part of the 3G Trial Network which was to be installed, commissioned and integrated as new. All other nodes of the network such as the Packet Switch core for data services, Circuit Switch core for voice services and IP core for interconnectivity of all nodes already existed and only needed some configuration changes.

*How Knowledge Sharing could have helped to avoid it:*

The technical lead for RAN part of the network was given formal training and access to technical guidelines (explicit knowledge) which although was quintessential but was deemed enough. He did use to reflect on his own experiences to identify areas of further improvement but needed someone with prior experience relevant to the project to guide him through the technical intricacies of delivering the work package that was assigned to him.



3. The only experts available for consultation and for finding solutions to the technical problems faced during project execution and on-field testing were the HT's Regional Technical Support team based in organization's headquarters overseas. On top of that, the only meaningful method of communication between the project team and the support team was elaborate emails as the support team did not have strong English language speaking and comprehension skills.

*How Knowledge Sharing could have helped to avoid it:*

There were significant communication barriers between the project team and the support team overseas, of which language and difference in time zones were the most prominent. Often, it used to take the two a few days to solve problems which later turned out to be trivial in nature. The field team's unfamiliarity with the technology, the equipment and tools especially when they were facing issues related to configuration and integration of various network nodes caused major delays in project delivery. This could have been avoided if there were established ways of sharing knowledge and ideas among teams across projects, in this case, between RAN project teams of customer U and customer Z.

## Conclusion

There is a social perception that it is easy to complain when one is the victim but one rarely feels the need to actually do something about it to help others facing the same problem. During one of the lectures that the author recently attended at UTS, a senior lecturer shared her experience of meeting a professional, who mentioned unavailability of explicit knowledge and lack of knowledge sharing as major hurdles during his career development. When asked what he was doing to change that for his subordinates, he replied that he had never actually thought about it himself.

The RAN-U team did not embed their project experience, obstacles they faced and how they overcame them into formal documents. Also, there was and to the best of the author's knowledge, there still is no platform on which teams with similar roles on different projects can share knowledge with each other. There is an online portal that exists for the employees to share their problem solving experiences with others, but HT being one of the world's leading ICT organizations, has huge amount of data on the portal, just like the internet. Instead of looking for solutions to problems on the portal, engineers directly raise queries to their support team in HQ.

But the project manager of subject project ensured every achievement and major progression was being documented formally. The team supported him well by contributing on an individual level and playing their part. The result of this effort was that the author, being the overall technical lead, was able to provide 3G RAN trainings to engineers not only from the team of customer Z but also from other customer teams. He, under the direction of the project manager, not only uploaded the project documentation on the platform, but also emailed the design documents, simplified guides, presentations, issues faced and their solutions to all staff of Wireless product technology branch of Network Integration Services department (See Fig. 1).

Let us not be the one to complain, let us be the ones who bring the change by sharing our knowledge to help others.

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