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Posted at the Zurich Open Repository and Archive, University of Zurich
ZORA URL: <https://doi.org/10.5167/uzh-25275>
Conference or Workshop Item

Originally published at:

Wende, E; Philip, T; Dubberke, S (2009). Storytelling – an instrument to bolster knowledge transfer in offshore software projects. In: Third Global Sourcing Workshop, Keystone, USA, 22 March 2009 - 25 March 2009.

Storytelling – an instrument to bolster knowledge transfer in offshore software projects

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Storytelling – an instrument to bolster knowledge transfer in offshore software projects

A case study research paper

Abstract

Over the past few years IT Offshoring has become one of the most important corporate strategies in the software industry. Along with the advantages it offers, it also poses numerous challenges. One of the important challenges faced is with respect to efficient knowledge transfer between client and vendor as they are geographically distant, in differing time zones and of disparate cultural backgrounds.

While considering offshore software process, the transition phase is one of the most critical and involves an immense communication effort. During an offshore software development project there is a lot of integration and collaboration that happens between client and vendor.

The paper offers an explorative, in-depth case study to analyse the challenges of knowledge transfer. The analysis leads to a description of the effects and benefits *storytelling* as a tool provides at the beginning of the knowledge transfer process, in transferring tacit knowledge, bridging cultural differences and building trusting relationships in offshore software projects.

Keywords

offshore, culture, storytelling, knowledge transfer, global software development, interpretive methods

INTRODUCTION

The public perception is that companies in the United States, Western Europe, and Japan send work to India, China, and other low-wage countries principally because of lower labour costs. There is some truth to this perception. Offshoring is practiced for many reasons, of which a wage factor is the most dominant. Sometimes, companies begin offshoring to cut costs, but continue because of the quality [1-3]. Sometimes, the motivation to offshore is derived from a lack of qualified workers, for example, in the United States during the Y2K era [4]. The six most important reasons why companies send work offshore are reduced costs, access to skills, experience, time shifting, time to market and market access [2]. Once knowledge transfers from local to offshore resources, the latter must acquire and handle new knowledge swiftly. They also need to gain access to existing domain knowledge and to find out who-knows-what to tap into this knowledge. The power of the anecdote, or the action of storytelling, is suggested in the research as a successful means to achieve the aforementioned processes. In general, differences in culture must be met part-way in order for mutual understanding and collaboration to move forward on both sides of the relationship.

THE NEED FOR KNOWLEDGE TRANSFER

As offshore software development increases, organisations must build up new methods and models to handle enormous amounts of knowledge [5]. ‘Knowledge management’ and ‘knowledge transfer’ are critical success factors in this scenario. ‘Knowledge management’ has many definitions, e.g. the process of continuously creating new knowledge, disseminating it widely through the organisation and embodying it quickly in new products/services, technologies and systems [6]. ‘Knowledge transfer’ is basically giving background information on software projects to people who do not have it [7].

The concept of knowledge transfer is difficult to capture because there is no clear distinction between the transfer of knowledge and the creation of new knowledge [8]. In offshoring, it is customary to speak of the ‘transfer’ of knowledge between a vendor and a customer or even between countries.

Knowledge transfers are strategically important to organizations for several reasons. They transmit localised know-how, which is generated in one sub-unit, to other locations in the organisation. Knowledge transfers also facilitate the coordination of work flows linking multiple, geographically dispersed sub-units. Furthermore, they can enable organisations to capitalise on business opportunities requiring the collaboration of several sub-units. Finally, knowledge transfers are also crucial to the orchestrated execution of unified strategic responses to moves of competitors, customers, and suppliers.

Successfully identifying, analysing, specifying, and documenting better requirements is crucial. It earns a higher priority in terms of its effectual transfer across boundaries in offshore software development cases. Differences in location specific work cultures like work ethic, importance of hierarchy and mode of communication can impact the transfer of software requirements specification (SRS).

When cautiously considering the inherent risks of globally distributed development [9], coordination and communication issues are the most intense burdens compared to distance and time [10].

Moreover, issues on data and system security, contractual and intellectual property issues as well as concerns about loosing domain knowledge play an important role [1]. Despite those risks, cost effectiveness remains the single most important reason to offshore [1]. Offshore strategies are further utilised to gain access to enormous skilled labour pools with a certain domain experience and to exploit time shift advantages by expanding the daily development cycle to different time zones.

Conveying SRS knowledge to counterparts in geographically and culturally distant countries, thus, becomes an important issue. The crucial challenges are ‘knowledge transfer’ and ‘culture’, so it is imperative that these areas are monitored and attended to with throughout the offshore process.

The figure below demonstrates the embeddedness of tacit knowledge. The transfer of knowledge yields the delivery of ‘knowledge items’ from a source to a target. Knowledge items are embedded in local contexts such as culture, organization, workflows, common pre knowledge, etc.

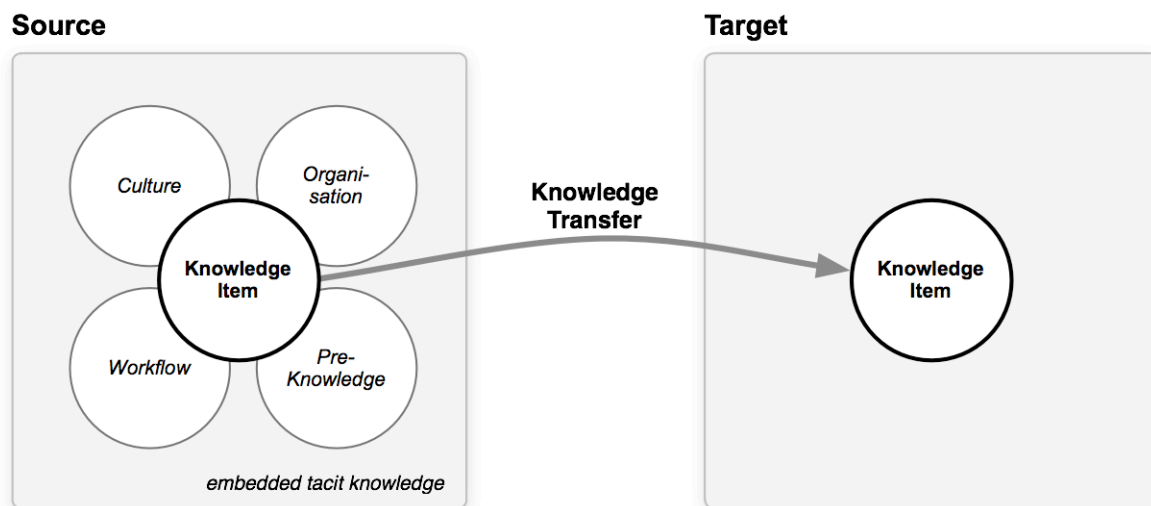


Figure 1 Knowledge Transfer

The central goal of the paper is to demonstrate how storytelling can help to deliver this particularly troublesome kind of knowledge.

UNDERSTANDING THE GAP

“How can storytelling support the start of the knowledge transfer process in offshore software development projects?”

During offshore software projects, it is common that the conception, requirements analysis, SRS documentation and design are usually carried out by the client, located far from the vendor. Successfully identifying, analysing, specifying and documenting better ‘requirements’ is essential, as from this initial point onwards, the SRS document is transferred to the vendor, who carries out detailed development and testing tasks, supervised by the client. Successful transfer of the SRS document is extremely crucial to the entirety of the offshore project, as the later phases depend on how efficiently the ‘requirements’ are conveyed, as the resulting software or system should be developed exactly as the customer mandates. It earns a higher priority in terms of its effectual transfer across borders in offshore software development (OSD) cases as the offshore team is located in a distant country with a different culture, language and time zone.

Tacit knowledge is highly personal, which has led it to be described as ‘sticky,’ alluding to its immobile, non-transferrable properties [11]. Tacit knowledge is also hard to formalise and communicate, as it is deeply rooted in habits, commitment, and context-specific involvement.

Another common setback between the two parties is a difference in organizational culture and location-specific work culture [1]. Existing literature deals extensively with how cultural differences such as work ethic, work hours, importance of hierarchy, mode of communication, and concern for quality can impact requirements engineering [12]. As seen, the functionality delivered by the offshore team highly depends on the way the SRS is transferred and how well the vendor understands the goals and relates to the client’s objectives. Major problems arise while collaborating and working in dispersed teams, like coordination, communication, and effectual knowledge transfer. Since both client and offshore teams are from different national backgrounds, cultures and languages, the transfer of knowledge from sender to receiver poses enormous challenges.

Today, organizations commonly engage in knowledge-intensive efforts in global software initiatives. Knowledge moves within and across organizational boundaries, and it must do so in an effective and cost-efficient manner for the superior calibration of software products and services [5]. Without effective information- and knowledge-sharing mechanisms, managers cannot exploit global software development benefits. Also, owing to poor knowledge and information management, teams miss many repeatable opportunities that otherwise would have saved money and time [13]. Hence, ‘knowledge management’ and ‘knowledge transfer’ become highly prominent.

Knowledge has been recognised as a primary resource of organisations [14]. Rottman highlights how one firm was able to successfully outsource the development of embedded software [15]. Success, however, came only in the firm’s second attempt at offshore outsourcing – their first attempt failed.

Their success in the second attempt can be attributed in large part to the attention paid to knowledge transfer processes. Knowledge transfer manifests itself through changes in knowledge or performance of the recipient unit.

It is common for Indian software companies to handle frequent employee turnover, therefore it is important to ensure an equilibrium of domain knowledge between client and vendor. Vendors exert enormous amounts of effort to provide a stable team and profound domain knowledge during a project's lifecycle. Again, this high turnover rate signifies a frequent loss of tacit knowledge that is built up in a team's members. Storytelling can bolster the speed and success of knowledge transfer. In so far as it provide a way to store embedded knowledge and therefore a way to make tacit knowledge transferable.

Companies still face problems in managing and transferring knowledge. Since most of their company units are geographically dispersed, their main aspect of managing knowledge is transferring it from one unit to another. A key to understanding the success and failure of knowledge management within organization is the identification and assessment of preconditions necessary for the effort to flourish and a context in which knowledge transfer takes place [16]. The most relevant influences to knowledge transfer have been gathered from scientific literature: Knowledge Specific Influences, Culture Specific Influences, Organizational Specific Influences, Person Specific Influences.

The following table (Table 1) shows the authors who have presented the various influential factors on the transfer of knowledge. Most of the research work suggests that the transfer of knowledge is highly influenced by the type of knowledge being transferred and the specific culture of the person conducting it

Author Name	Influence presented	Name of the article
Jensen and Szulanski 2004	Tacitness of knowledge, Adaptation and institutional distance	Stickiness and the Adaptation of Organizational Practices in Cross Border Knowledge transfers
Haghirian 2003	Knowledge, Culture, Organization and Person specific influence	Does Culture Really Matter? Cultural Influences on the Knowledge Transfer Process within Multinational Corporations
Haghirian and Chini 2002	Culture and Person specific	Storytelling: Transferring tacit corporate knowledge in different cultures
Sarker et al. 2002	Capability, Credibility, Communication extent and Culture influences	Knowledge Transfer in Virtual Information Systems Development Teams: an Empirical Examination of Key Enablers
Thomas et al. 2001	Human and social factors	The Knowledge Management puzzle: Human and social factors in knowledge management

Table 1 Influential factor on knowledge transfer

The transfer of knowledge can also be influenced by the nature and ambiguity of knowledge transferred. Furthermore, culture is an extremely important factor that influences the process. In offshore software development, people of various cultural backgrounds collaborate, thus it is important to examine cultural dissimilarities. Consequently, in the following sections we look into the types of knowledge that exist to understand such differences.

CULTURAL ASPECTS OF KNOWLEDGE TRANSFER IN ITO

As current literature shows, cultural differences make collaboration and communication across countries difficult to shape the knowledge transfer process [12]. Global software development requires close cooperation of individuals with different cultural backgrounds, mostly between high and low context cultures [17]. Cultures differ in many critical dimensions, such as the need for structure, attitudes toward hierarchy, sense of time, and communication styles [18]. While many people find such differences enriching, they can also lead to serious and chronic misunderstandings, especially among people who do not know each other well. An email, for example, from someone in a culture where communication tends to be direct might seem abrupt or even rude to someone from a different background. A different sense of time can lead to acrimony over the interpretation and seriousness of deadlines. Cultural differences often exacerbate communication problems as well [13]. A lack of trust, not having a common understanding of client and vendor team culture, varying forms of hierarchy and negotiation, differences in language, etc. can impede communication, coordination and knowledge transfer [18, 19]. Hence, it is essential to be sensitive to and aware of culture for OSD cases to be synchronised.

STORYTELLING

Stories have been used for generations as a way to exchange and propagate complex ideas, but the association between storytelling and knowledge management has only recently attracted the widespread attention it warrants [20]. In the strategic use of stories lies a huge potential for organisations. Not only has this assumption been propagated by practitioners in numerous publications over the past few years, but also it has been confirmed by several practical experiences in the meantime [21].

Stories play a significant role in imparting and storing knowledge within organisations. In everyday life, employees tell each other stories all the time, thereby accepting this process as a natural form of passing on knowledge, applying a method which has been used from early childhood [21]. Stories and storytelling provide another possible way to foster creativity in individuals and groups, and they also provide a valuable way of presenting and communicating knowledge. Organizations should better understand as how to socialize knowledge through techniques such as storytelling and scenarios

which will offer them greater mastery and scope in creating, sharing and reusing the knowledge that is critical to survival in the twenty-first century [22].

It is generally acknowledged that most knowledge remains embedded – that is to say experiences, insights, memories and judgments cannot be easily extracted from the bearer. Thus, most knowledge is not codifiable, but only pertinent at a given moment in time. The transfer of this embodied tacit knowledge presents organisations with a major challenge. For organisations, the changing boundaries of nations, technologies and markets, as well as global/local tensions, increase the need for thoughtfulness in considering different cultures, identities, languages and abilities. Complex messages have to be transmitted quickly and believably, and an environment of trust needs to be created and maintained. “The short-term timeframe of modern institutions limits the ripening of informal trust.” There is an increasing dislocation between the values and ambition of organisations and of the individuals who travel through it or participate in temporary teams or projects. Reduced trust leads to an increased sense of risk, and so to a greater need for self-preservation. Ward et al. suggest that embryonic business models of the 21st century will become dependent on responding to, and weaving together, individual patterns into a different organisational fabric, of which story will be an essential vehicle and storytelling a necessary process. Today’s organisations are witnessing a rise in stories and anecdotes as carriers of knowledge [23].

Storytelling thus presents itself to the Knowledge Management practitioner as a powerful tool to capture knowledge. “Generating, sharing and discussing stories is an excellent way of converting tacit knowledge to explicit knowledge, and an effective method for quickly assimilating new learning.” [20]. For example, a study of photocopier technicians reveals that technical knowledge is socially distributed across a network of technicians and that it is tapped into and disseminated through oral processes such as storytelling [22].

Storytelling is recognised as a legitimate field for exploration, and experiments in its use are ongoing in businesses around the world [20]. More recently, the use of the story in an organisational setting has grown exponentially [20], but using it in an OSD project for knowledge transfer is still in its nascent stages.

RESEARCH CASE

The case study will show the effects and benefits of storytelling as a methodology to facilitate the start of knowledge transfer process, to transfer tacit knowledge, bridge cultural differences and build trust relationships in OSD projects. In order to create a deeper understanding of these issues, the use of a qualitative research design was chosen.

A ‘case study’ approach was adopted as it is a strategy for doing research when the investigator has

little control over events, and when the focus is on a contemporary phenomenon within some real life context [24]. ‘Case studies’ can be used to accomplish various aims and one such aim is to provide description [25]. An exploratory research with an in-depth case study was used in order to come up with a description to address the knowledge transfer problem in OSD projects. In this case, the particular interest is in presenting a detailed description and analysis using a ‘case study’ research setting and providing the findings on what effect the use of the storytelling methodology offers to improve the start of knowledge transfer process, bridges cultural differences and builds trust relationships in OSD projects.

Although the benefits of storytelling as a knowledge management instrument have been explored and used in organisations, its use as a methodology for knowledge transfer in OSD projects remains unknown. Initially, an exhaustive look into the existing related theory was conducted. The relevant theories were identified and adjusted accordingly, consequently giving a detailed description of what benefits storytelling can yield to minimise conventional knowledge transfer problems. Hence, for this study, the intention is to explore the advantages of storytelling for lowering the barriers to knowledge transfer process in OSD projects.

The case study is centered on a web development project for a German customer¹, whose development was offshored to an Indian vendor². The project started in November of 2007 and lasted 8 months. This particular project was chosen because it contains the traditional problems associated with knowledge transfer, e.g. the conveyance of the SRS document, cross-cultural communication, trust building, etc. Because of the differences in perceiving and using knowledge, work and national cultures between the German client and the Indian vendor companies, this case was appropriate to review the difficulties in OSD knowledge transfer process. The data collection was in the form of interviews of key project members as the primary source. Secondary information was drawn out from questionnaires, relevant project documents, chat logs of the management team, research articles and books. Instant messaging (IM) was the main communication media between client and vendor. Chat logs were an important source for data analysis, since IM was the main communication media during the project. Secondary sources are also important because they often bring forth indirect, but highly relevant, information.

Qualitative, semi-structured interviews lasting 32 hours were conducted with key informants including the project manager, project coordinator, developers and several others. The project manager, who was involved, provided a well-rounded perspective on the case. A semi-structured form

¹ The German costumer was a small medium enterprise (SME) with 40 employees, specialised in web applications and interface design.

² The Indian vendor was a SME as well, situated in Hyderabad India with approximately 100 employees.

of interview gives the researcher a greater amount of flexibility [26]. The interviews provide the research with a better understanding of knowledge transfer complexities. Questionnaires were sent to the project coordinator of the client side. This multiple data collection method was used to assure triangulation and, thus, accuracy [24]. Constructed validity is ensured by using multiple sources of evidence.

Interviews and questionnaires were based on basic project details, but emphasised culture's effect on communication and the transfer of knowledge. The interview results, answers of the questionnaires, chat logs and other documents were analysed to sense and visualise the problems that occurred during development time. This analysis, along with existing theoretical propositions on storytelling as a knowledge management tool, helped to come up with the description and findings on what advantages the storytelling methodology can yield if used for the knowledge transfer process in OSD projects.

RESULTS AND FINDINGS

There is an immense amount of knowledge pertaining to the project that has to be transferred during an OSD project. As seen, the initial procedure is executed by the client team, which develops the scope of the project, elicits the requirements from the customer, which are then analysed, validated, negotiated and documented. Afterwards, the documents are usually transferred to the vendor team. Again, tacit knowledge is the most challenging part of this transfer. At this point, the development of software will be based on how well the materials and facts are understood.

The examination of the case study proves that in order to overcome knowledge transfer problems, solutions should be grouped in two ways:

1) Storytelling will initiate the transfer process and convey tacit knowledge

and

2) Storytelling will bridge cultural differences to motivate and facilitate communication in physically distant teams

The attempt here is to gain a deeper insight into the knowledge transfer process in offshore projects. The project was a good example for showing the benefits of storytelling to transfer tacit knowledge and bridge cultural differences. The following description provides in what situations and ways it had been used.

Storytelling to initiate the knowledge transfer process and convey tacit knowledge

During the interview, the project manager said “The developer did not have an idea about printing related matters and it was very important for him to know concepts related to printing for consequent development”. Another point noted was that the concept of online book printing was absolutely new to the developer. An implication was made that this lack of knowledge with respect to users

customising their books, placing an order for print, all this which could be done online was not available in the vendor country. To put it in a nutshell, the scheme of online book printing does not exist or even if it exists, it is very scarce and not known to many people. Such background knowledge, which is related to the project, can be conveyed by the means of stories.

Stories provide a groundwork where new knowledge items and domain knowledge can grow from. One of the benefits of this method is storability. When new members join to team, they can easily access stories and build new, tacit forms of knowledge

Stories can be used in informal education and training where stories provide guidance and lessons in the advanced or more sophisticated applications of basics [27]. Under such circumstances, it is very important to kick start a new project involving ideas that are new to the development team. Stories are a compact way to catalyze progress. The surrogate experience of a story can quickly share the history of initiative, its ethos and its direction [28].

The case shows that projects run smoother if stories utilize comparison with former projects.

In this instance, it was necessary for the developer to know the basics of printing and the online book printing concept which is a very common trend in Germany. In cases like this, where the idea is new to the development team, the project manager used a story to tell the concept of online printing that exists in Germany, why it is convenient and how such a website helps the users. This can prove that if you can embed a story in your products and services, it will enhance their visibility [29]. Hence, stories can be used to improve and provide a better vision of the project to the vendor team.

In a case like this, where it is hard to convince people to adopt new concepts, storytelling can be particularly valuable in order to transfer the new idea or promote the use of a new concept.

Although there is some word of caution when using stories in knowledge management, “artificially constructed stories ultimately will be less effective than true ones” [30]. In other words, stories should not be made to sound didactic; they should be real stories from experiences [27]. When real success stories are told of how a change to a product was implemented and was effective and convincing to the customers, people (what people? The greater society?) may be persuaded to believe the idea, too. This is called the ‘springboard effect,’ where people believe in a new concept and are convinced enough to promote the change themselves. The project coordinator expressed to the ‘developer’ (I don’t think you need to use quotations around these people’s titles, but I’ll leave them for you to decide. It’s clear you are referring to people within the vendor team in the case study) that this project had to reach the standards a similar web portal that was already being used. The ‘project coordinator’ used several stories to give background information to the developer in order to build a shared vision for the future.

The ‘project coordinator’ describes how good storytelling can bound an organisation to a business

goal. Table 2 shows a categorization and provides a chart for creating stories to match situations in the information technology world. As the table shows, the project manager/coordinator can make use of stories to convey the vision they see for the project, and also try to foster collaboration in order to work together in a better way and also to spark greater action within the team. This may make the team to visualise and the project in a better way.

Create Stories to match the Situation			
If your purpose is	Use a Story that...	Be sure to...	Expect responses such as...
Sharing a vision	Evokes the future you want to create, without providing too much detail that may turn out to be wrong.	Be confident of your storytelling skills. Otherwise, use a story in which the past serves as a springboard to the future.	"When do we start?" "Let's do it!"
Fostering collaboration	Movingly recounts a situation that listeners have also experienced and that prompts them to share their own stories on the topic.	Provide time for people to swap stories and have an action plan ready to tap the energy the exchange will unleash.	"That reminds me of the time..." "Hey, I've got a story like that."
Sparking action	Tells how change was implemented in the past and allows listeners to imagine how it might work in their situation.	Avoid too much detail. It can take listeners' minds off their own challenges.	"Just imagine..." "What if..."

Table 2 Stories to match situation in the IT world [31, 32]

It was observed from the communication between the ‘project coordinator’ and the ‘developer’, that the information about a particular functionality in the ‘requirements document’ was just not clear to the developer. Although he had a brief idea about the functionalities, the exact and detailed logic was not understandable to him. In spite of explaining it again and again, he was coming up with the same doubts and clarification frequently to the project coordinator. It was required that the functionality detail was elaborated and told to him so that it could be supplemented better to what he already knew. In such cases, stories can be used to embody the knowledge and transfer it. This is because stories are said to be memorable and their message tend to ‘stick’. “If you want people to remember information and believe it, your best strategy in almost every case is to give that information in the form of a story”. Stories can be used to elaborate the extent that people reflect upon and integrate information with what they already know, they will remember it better. For example, we remember information better when we can elaborate it by constructing vivid images drawn from our own experience to organize it. Stories provide a simple way of combining verbal and visual information. If the story is sufficiently clear or dramatic, it will almost certainly stimulate visual images complementing the story line, providing a vicarious experience that result in a greater likelihood of being remembered. Because

stories are more vivid, engaging, entertaining, and easily related to personal experience than rules or directives, the research would predict they would be more memorable, be given more weight, and be more likely to guide behaviour [30].

Stories can help understand the user audience better. A user scenario is a fictional narrative of a likely consumer using the product. User scenarios can powerfully explore the use of plot. In conditions when the 'developer' is not understanding functionalities of the product being developed, the 'project coordinator' can tell a story to him, putting him as a user using the website and what functionality should be provided by the website to the user. Placing the 'developer' in such a situation and narrating stories will help him visualise the functionalities better and remember. Ultimately, these scenarios present stories about how members of the target audience might navigate the existing site and how they might navigate a site with the proposed design features. User scenarios help developers envision the product functionality from the viewpoint of the target market. They force them to think the way users act. For each user, think through a scenario. Create a character for that user, and give her/him a name, a context, and a purpose to accomplish on the site. Use a goal from the list of audience needs. Visualise a story about how the character uses the site to complete the hypothetical task.

The concept of storytelling using user scenarios can be used in order to give the developers an insight of the entire web functionality, the intended users, the probable in which they may interact and the possible options in the website that may facilitate them to interact the way they want to etc. can be conveyed in a more memorable and understandable manner. This provides the developer with a more clear idea about the web usability and the related concepts that are to be satisfied as per the requirements of the client. This can also reduce the number of times the concept needs to be explained. Research suggests that people learn best with stories because "organization of information in story form is a natural brain process" [27]. Some advantages of user scenarios include: (1) They represent requirements from a user perspective, and (2) They can be a powerful technique to identify "holes" in the unfolding of the story which require design adjustments and revisions [29].

Very often, during the development period it was noticed that the developer had a range of misunderstanding about concepts regarding the project. These conceptual misunderstandings if not cleared in the correct way, tend to show its effect with an incorrect implementation in the development. Under circumstances where the developer's knowledge of the concept, which is highly tacit in nature is not understandable, stories helped to enable a more efficient exchange of the embedded and embodied, highly contextual knowledge that can help to solve difficult problems quickly [28]. Stories also support chunking of facts and events in ways that correspond to how our brains are designed both for paying attention and for remembering [33].

The Figure 2 shows the storytellers and listeners during the case in the development lifecycle for knowledge transfer, building trust relationships and bridging cultural differences between client and

vendor teams. During the project start off, concept phase the client side project manager/coordinator can tell stories to vendor side project manager/coordinator regarding the vision and scope of the project. And during the requirements analysis and development phase client side project coordinator and development team can tell stories regarding user scenarios, the required functionalities to be delivered, how best they can be developed etc. to vendor side project coordinator and development team for knowledge transfer.

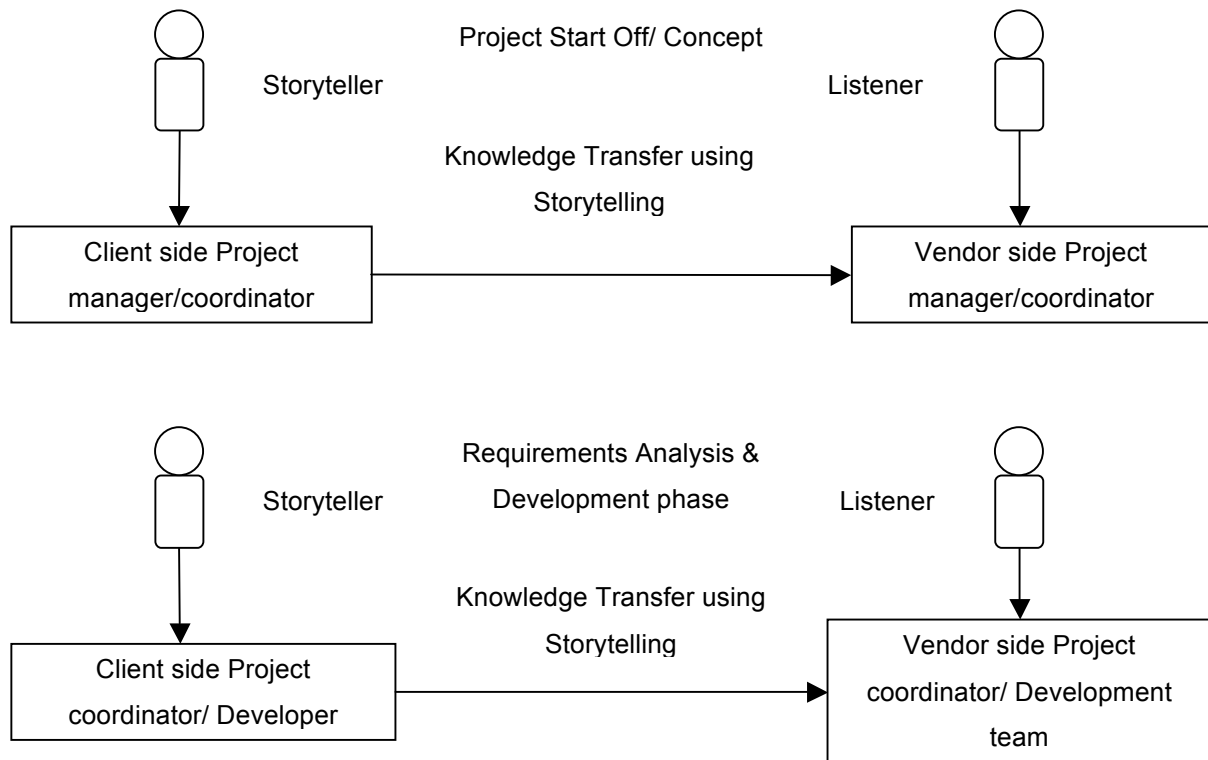


Figure 2 Appropriate storytellers & listeners

On the other hand, taking into account the positive effects of the use of storytelling to transfer tacit knowledge, care should be taken to see in what situations and events it can be used. The 'project coordinator' who communicated and spent the maximum time interacting with the 'developer' exposed the fact that, "The know-how of the developer wasn't adequate for the project. This was noticed from the developer's side as he also expressed that the project was complicated for him to handle. Although, he was always trying to solve problems, he wasn't able to do it." Under such conditions, where the developer does not possess the required content domain skills to handle a project, the application and use of storytelling tends to be of no use and fails. So, it is important to understand that it is impossible to transfer hard core, technical aspects about technologies, coding, and teaching how to use a new product etc. by the use of the storytelling methodology. Stories do not lend

themselves equally well to transferring different kinds of knowledge. As a strategy for building core capabilities within an organization, an indiscriminate use of stories to transfer critical skills, managerial systems, and norms and values would probably be misguided. Critical skills, including deep knowledge of a content domain, would be very difficult to transfer via stories. For such concrete forms of knowledge, people rely on formal education, apprenticeships or mentoring, training programs, and self-study for mastery. Indeed, we know of no studies where critical skills have been transferred by stories [30].

Storytelling to bridge cultural differences, to motivate and facilitate communication in physically distant teams

Various factors of cultural difference between the client and vendor countries often led to a delay in progress. A lack of shared culture causes misunderstanding, misguided judgment and confusing workplace situations and challenges. The 'project manager' who was not used to the hierarchical system in India said "hierarchy has a big influence in India, any decision that the developer had to take would always be asked and consulted with his project manager and done accordingly." Although the decisions were directly related to the developer's work, he was never allowed to take decisions by himself. As the project manager was a bit surprised by this behaviour, as he comes from a low-context culture where there is no rigid hierarchy. As reported by the client side 'project manager,' this sometimes led to a slow decision making process, when there was a need for an urgent decision to be taken. This in turn slowed down the development process as the contact person to make decisions was not available at the right time.

The cultural dimension known as 'power distance' [18] can be explained and modified by through the use of stories. A story of how a Chief Executive listened to a student on work placement - and changed a company policy as a result - says that this company is not about hierarchical learning; it encourages the communication of new ideas. The 'project manager' can narrate stories to the vendor 'project manager' and 'development team' as to how they encourage and value new ideas from an individual point of view. This could diminish the 'power distance' factor and may also signal a change in attitude [21]. Telling such stories to vendor side team members would have probably simplified the hierarchical situation, in turn the developer being given authority to take his own decisions when required.

Conversely, it was noticed that the 'developer' once took the decision about a particular implementation regarding a development issue by himself. The decision he made was neither efficient nor convincing to the client, as it was outdated. So, it is necessary to identify the situations in which people are allowed to make decisions, so that the taken decisions are feasible for both the client and vendor sides. The notion that storytelling can be used to reduce hierarchy and help inexperienced people make decisions is false..

Since OSD usually involves people from high and low-context cultures working together, a lot of misunderstanding is rooted in communication styles [12]. This as explained by Hall [34], who shows that people from high-context cultures speak implicitly, which is very hard for people from low-context cultures³ to follow.

In addition, variations may be seen in organisational culture or location specific work culture of the client and vendor countries. Many practices followed in the client country may not be the same as in the vendor country. So, it may seem difficult for both the teams to accept the variations in work culture and practices. Stories explaining national and work culture can be used at the beginning of the project to diminish issues related to cultural differences and also to convey clear guidelines to the counterparts for better communication. Facts like why things are done the way they are, the client's expectations, etc. can be conveyed using through stories [32].

Stories narrating differences in culture and ways to cope with them can be used to increase cultural awareness, an important aspect of building strong, intercultural teams. These stories are as much a self-discovery process, helping to understand how one's own culture is defined, as they are a process of understanding others. Such stories may make it possible for the team to react in a more friendly way, in turn building trust relationships which is very important whilst working together with physically distant teams. Responses from the team may be such as "Yes, now we understand why you do it this way", "We will make progress according to your expectations" etc. [32].

The following story was used in an early phase of the project:

"I'm a programmer myself so we share a certain degree of experience. But sometimes the Indian programmer asked an elementary question or could not solve a simple problem. At one point (after several days on his part trying to solve a particular problem) he declared a certain task were impossible when I knew it would be quite easy to accomplish. Using a web browser and typing the three keywords into Google gave the correct solution ranking first. So I sent him the article I found and an example of how to accomplish that particular task. I did not get an answer to that email but the next email merely stated the problem had been addressed."

The project coordinator told us, that the story was based on a former client project and the intention was to establish an open communication between client and vendor team.

When new members enter into a group, stories are effective ways of communicating guiding values and principles [28]. Stories a coach might tell about to share experiences about last year's successful

³ Low-context cultures "say what they mean and mean what they say". In other words, they don't rely heavily on non-verbal communication when they speak.

players to foster a sense of dedication and hard work [28]. We found that it often succeeded in inspiring and motivating people when cold, hard logic failed.

The Figure 3 and Figure 4 below categorises how storytelling can be used during the initial phases of the software development lifecycle. It provides a view of the phase in which it can be utilised, to convey what kind of knowledge and information and in turn in what way it may help the vendor side development team.

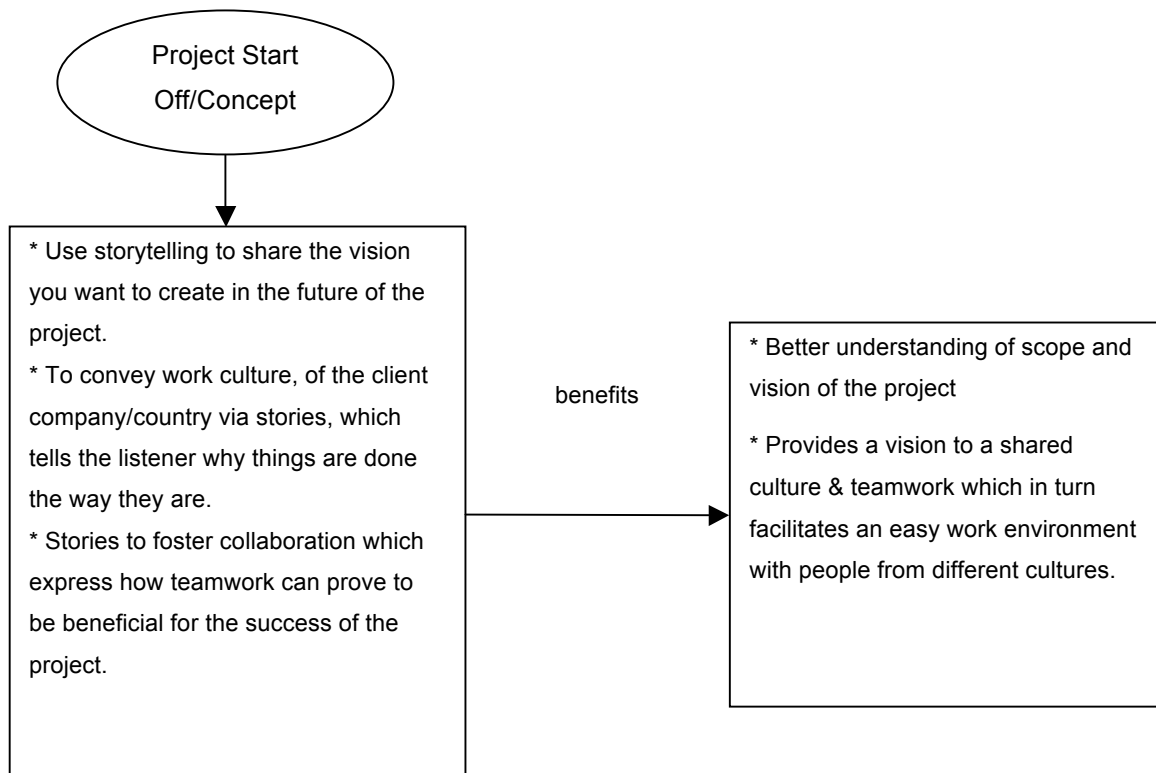


Figure 3 Recommendations to use Storytelling during project start

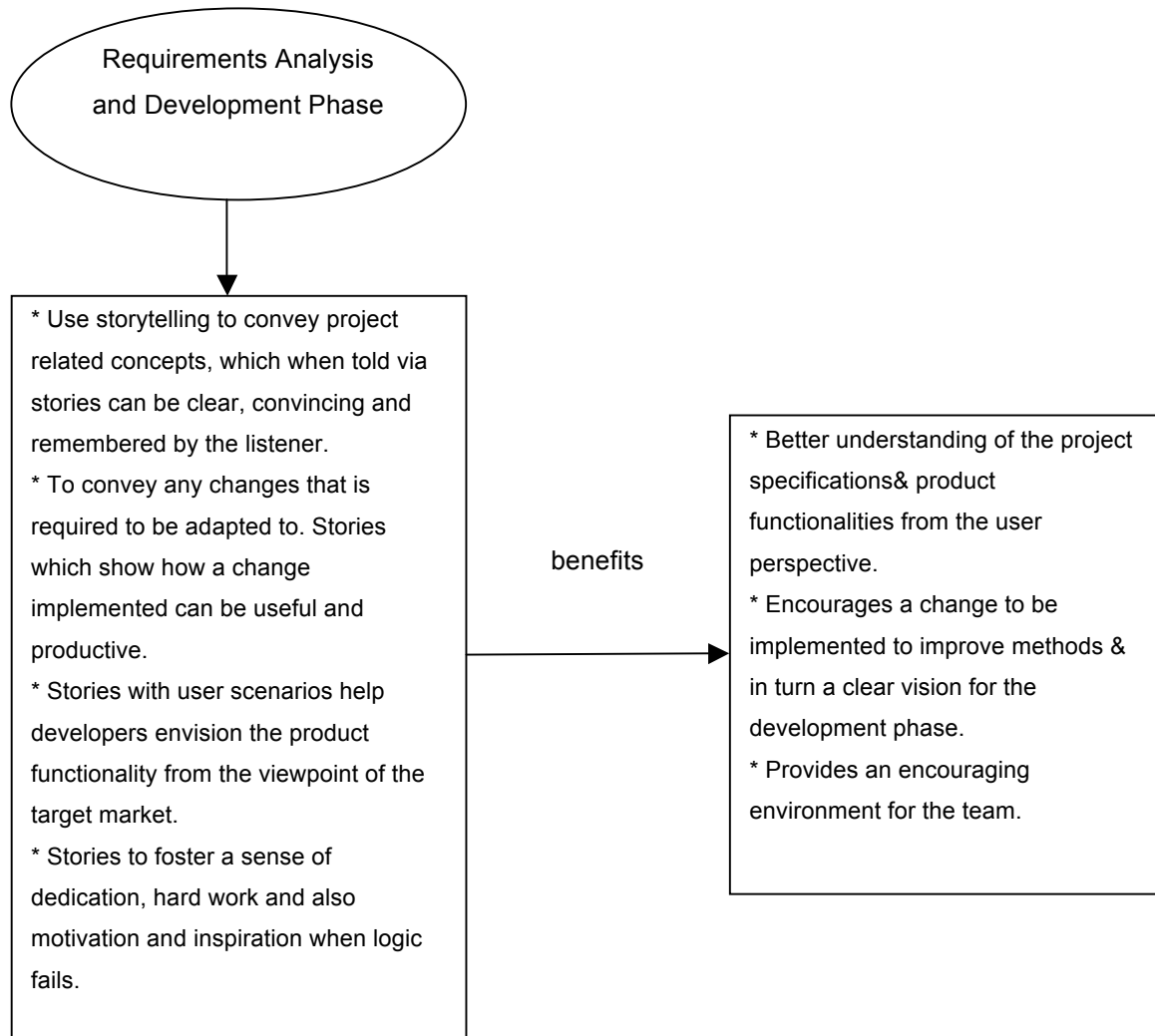


Figure 4 Recommendations to use Storytelling during Requirements Analysis

Looking at the various kinds of problems during OSD projects, and the viable solution storytelling can offer, in order to alleviate them has been put forth. In order to extract the benefits storytelling presents, certain points should be kept in mind. It is not the final and complete solution to address the typical problems faced during OSD, but it is just a low tech tool which can be utilised in organisations to initiate the knowledge transfer process, bridge differences in culture etc. The limitations of the incorrect use of this tool and the circumstances it provides to be valuable will be discussed in the following section.

CONCLUSION & DISCUSSION

The case study description reveals the ways in which storytelling can be used as a knowledge management tool in OSD. We already know that storytelling is utilized throughout the enterprise [33], but during IT offshore projects it seems quite unusual.

In fact, it was seen that the client side ‘project manager’ while discussing project related matter during

an online chat, used an expression with the developer: “to put the long story short...”. This implies that we are unknowingly using ‘stories’ as a medium to explain and convey facts in our day to day life, as well. It should be kept in mind that various factors revolve around its usage which when not followed or violated will turn out to be counter-productive. If used effectively, storytelling offers numerous advantages over more traditional techniques [20].

It is important to show that storytelling is a powerful tool, but also that it is very difficult to use it intentionally as a management instrument. With these forms of knowledge formal, education is still widely used [35]. Knowledge about skills and domain content relies on more explicit, codified means of communication rather than on stories [30]. It must be noted that storytelling is not the complete answer to transfer knowledge. It is an easy and useful way in which people can initiate the beginning of the knowledge transfer process. Storytelling is a useful tool for knowledge management because people learn things easier via stories, as they convey meaning, tacit knowledge and are a natural way of interpreting information [27].

Complex technical knowledge and core domain content is impossible to transfer or teach through storytelling. It does not replace analytical thinking. It supplements it by helping to give it context and meaning. It is essential that all issues and matters regarding the ‘requirements’ document are expressed and conveyed well to the development team at the start of the project. Arranging a meeting or workshop with client and vendor would be an appropriate option. A common understanding of all tools, products and software that are intended to be used for the development process must be decided beforehand in order to eliminate any further decisions and confusions regarding the choice of tools. This helps to save time by avoiding uncertainty regarding the choice of tools.

In addition, the impact of the story is likely to vary depending on its delivery - who is the teller and is it shared in an oral or written form [27]. Another point concerns the relationship between stories told face-to-face or virtually. Some authors suggest that as you move away from face-to-face, you lose the power and impact of stories and gain nothing in return. In the written word there is a distance between the speaker the audience, so in an organisational context, it can lack authenticity. Practitioners have found that oral storytelling has a greater impact than putting stories into booklets or videos or online. To try to capture all the multidimensionality of stories in simple text would expand the story-reading experience to mind-numbing size, not to mention academic jargon overload. One way around that is to represent the multidimensionality with a multidimensional multimedia. So, if that multimedia presentation activates more parts of the brain, two things happen, people can pay attention better and they can remember better [33]. This doesn’t mean that written stories can’t achieve good effects, but that they work in different kinds of ways.

storytelling can be counter-productive when the story told is not true. “Artificially constructed stories ultimately will be less effective than true ones” [30]. Stories must be real and purposeful; else they

will fail to achieve the intended aim that it is being told for.

Another important point is that the organisational as well as the cultural context impact the tacit dimension of knowledge heavily. For this reason, this kind of knowledge transfer is extremely organisation and culture specific. Thus, knowledge transfer through stories is supposed to differ in low-context and high-context cultures. A logical consequence would be that organisations in high-context cultures emphasise storytelling more [35]. This is especially important for software offshore development because this usually involves low-context cultures in the western hemisphere and high-context Asian cultures [32].

On the other hand, literature suggests that storytelling maybe be particularly useful in kick-starting a new idea, socialising new members, transferring tacit knowledge, to spark an action, fostering collaboration and sharing a vision. Stories can be used to convey what happened in the past project and make it available to people involved in future projects. This helps in conveying the vision you want to create in the future project and not allow the repetition of mistakes within the company in future. The story itself provides a purpose [21]. Experience has shown that storytelling can be highly effective as a change agent. Telling an appropriate story can stimulate people to think actively about the implications of change and to project themselves into visions of the future, enabling them to better understand what it will be like doing things in a different way, rather than being given vague, abstract concepts about it.

Stories can nurture a sense of community and help to build relationships. It helps for communications, to capture, embody and transfer tacit knowledge etc. Good stories make sense and explain something. Perhaps they show you how to behave in a particular situation, how to resolve a problem or why something happened the way it did. To be effective, stories must make sense within the context of the listener's experience [36].

Current research says that storytelling could potentially have a very valuable impact on business, but more companies need to give it a try and report on their successes and/or difficulties with it. There were no reports or unsuccessful attempts at implementing stories into knowledge management, but it cannot be assumed that there are no unsuccessful attempts [27]. Since, for SME's the available resource pool is limited; storytelling a low-tech tool can serve the purpose of efficient knowledge transfer process. storytelling has been around forever and it is likely only a matter of time before this latest trend in knowledge management is making headlines as the latest and greatest tool. The proposed justification is an attempt to show what benefits storytelling can provide of used during OSD to address the traditional knowledge transfer and cultural issues.

Future research in this area will benefit if it is possible to use storytelling to transfer tacit knowledge and bridge cultural differences, motivate and facilitate communication in physically distant teams during OSD. Using this tool and testing its effectiveness in OSD cases will prove its efficiency. So,

the next step important stage for further research is to test the storytelling tool to transfer knowledge and validate it.

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