Individual Project:

Best practices to overcome communication challenges in virtual teams:

A Qualitative Meta-analysis of the past ETM research projects

Course Title: Human Side of Technology Management

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Instructor: Dr. Antonie J. Jetter

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Submitted By: Saranya Durairajan

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Abstract

Virtual Teams are the reality of today's modern era. Companies have expanded beyond the borders of their original campuses because of internal growth; manufacturing facilities have moved overseas to reduce costs; and strategic acquisitions have created resources for non-existent skill sets. These are just a few reasons why the landscape of the traditional project team has changed. Project teams rarely have the luxury of meeting in a single location at regular intervals; nor do they have the opportunity to walk down a hallway or across a cubicle to ask for clarifications or conduct elaborate discussions. The present-day teams work across time, space and organizational boundaries towards common goals, thereby, providing the potential for the best possible results in the shortest time possible. A virtual team is a group of individuals who pursue shared objectives while based at remote work sites. Being geographically dispersed, the reliance on technology for communication and the inability to meet face-to-face have made communication in virtual teams challenging in most scenarios. My study topic is how to overcome communication challenges in managing virtual teams. After a detailed literature review of the past ETM research projects, I identify the key communication challenges that virtual teams are probable to face, and attempt to come up with a framework to identify solutions on how to overcome these challenges.

Table of Contents

1. Introduction

Globalization of trade and economy in the modern-day world made it inevitable for multi-national corporations to span across the entire globe; naturally, virtual teams have become the order of the day and an indispensable requirement especially in the industrial, educational and many other technology and services sectors. Unlike co-located teams, virtual teams' members may be located in different cities and countries [1]. Virtual teams as an approach is gaining momentum in order to cope with the time-to-market pressures and also as a means to improve productivity at reduced costs. Modern companies implement projects over wide distances, seeking international customers to extend their business, or outsource parts of their products or deliverables in synergy with the trends of globalization. Erstwhile 'co-located teams' are now transformed to dispersed groups of people with inter-dependent responsibilities and common goals and objectives [2].

2. Research Methodology

The framework for the literature review was constructed with an aim to fundamentally understand the different project typologies; to lucidly define co-located, intra-national virtual and global virtual teams and their differences; to understand the advantages, disadvantages and challenges; and to obtain an insight into the different communication aspects involved in Virtual Teams. A qualitative meta-analysis of the past ETM research projects is performed on these topics and is used as the source of data for this project.
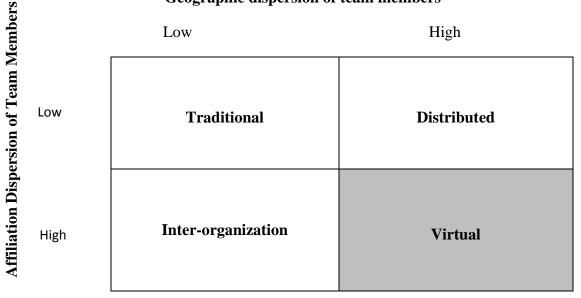
3. Literature Review

3.1 Typology of projects across organizations

Globalization has made virtual teams a necessity in many sectors of the global economy. They have all the "team basics" as the traditional teams -- they have the ground rules, common goals, performance measures etc. However, there is a significant difference between virtual teams and traditional teams -- the fundamental existence of a high level of affiliation and geographic dispersion among the virtual team members has a bearing on the overall team performance. As understood from the existing literature, a host of aspects directly influence the success of a team. Among them, I recognize that "communication" is the one aspect that will be majorly affected by being 'dispersed' in terms of time and geography, and hence it is the focus of my study.

Figure 1 represents the typology of projects across organizations and compares virtual teams with traditional teams. By comparing the policies, procedures, and the necessary structures of virtual teams with traditional teams, it can be broadly divided into three categories -- common practices, modified practices, and unique practices. Common practices directly require virtual teams to perform same as traditional teams (E.g., Project charter, requirement analysis, deliverable description, and overall team performance indices). Modified practices include those transposable methods and tools that have been employed for traditional teams. However, some modifications and enhancements are applied onto virtual teams such as

conflict management, communication management, team leadership and mentorship, negotiation, team evaluation, and performance recognition and reward mechanisms. Unique practices are practices and tools that are developed exclusively specific to a given virtual team. For instance, special procedures and features have been created for teams to deal with the issue of distance communication. Basically, these areas cover how to use technologies appropriately and effectively (e.g. e-mail, file transfer, software, phone-conference, video-conference, etc.) Moreover, other unique practices like formulating project plan phase, reporting, integrating of final product, and brainstorming are used as well [3].

Geographic dispersion of team members

	Low	High
Low	**Traditional**	**Distributed**
High	**Inter-organization**	**Virtual**

Affiliation Dispersion of Team Members

Figure 1: Typology of projects across organizations [3]

3.2 Co-located, Intra-National Virtual and Global Virtual Teams

At the onset, it is vital to properly define co-located, intra-national virtual and global virtual teams for the scope of this study.

A conventional or co-located or collocated team is a traditional team which consists of individuals working in physical proximity; because this was the only way for team members to access systems, documentation, company data, means of communication, and, most importantly, each-other [4] [5].

An intra-national virtual team is a functioning team, comprising of a group of people who are interdependent, share responsibilities for a common outcome, see themselves as an intact social unit embedded in one or more social systems, and collectively manage their relationships across organizational boundaries. Members of an intra-national virtual team may be geographically dispersed within a country and make use of technological communication rather than face-to-face interaction to accomplish their tasks. Some authors reserve the term 'virtual' for those teams

who never meet face-to-face, but the majority of authors defines a virtual relationship as one that is at least conducted mostly through technology [6].

Global virtual teams are internationally dispersed and are culturally diverse, most importantly, are global in their task accomplishments. Global strategies of international companies integrate different resources, regions and customer interfaces while maintaining local responsiveness when necessary [6]. A global virtual team can be defined as group of people who work inter-dependently with shared purpose across space, time, and organization boundaries using technology to communicate and collaborate. The word virtual is used to denote the use of technology such as the internet and phones to facilitate the flow of information. Teams are reducing the frequency of physical meetings, sometimes not meeting face-to-face at all, collaborating most of the time via electronic methods, and this has become more widely known as "working virtually". As technology improves, more organizations around the world are adopting the concept of virtual work groups [7].

Intra-national virtual and global virtual teams are considered for the scope of this study. For this project, I adopt the combined definition of virtual teams as groups of geographically, organizationally and/or time dispersed workers brought together by information and telecommunication technologies to accomplish one or more organizational tasks [7].

3.3 Differences between virtual and face-to-face teams
Virtual teams differ from conventional face-to-face teams in the following aspects [2]
- Managing Conflict
- Decision making
- Expressing opinions
- Face-to-face contact and relationships
- Communication
- Language and misunderstandings
- Time and distance
- Level of participation in discussions
- Positive observations

3.4 Virtual Team – Significance & Global Standing

Global virtual teaming gained accidental prominence and is something that was not really planned methodically, rather got developed because the appropriate supporting technology became widely available in a user-friendly manner. Technological applications allowed team operations to move beyond face-to-face situations to teleconferences and on to virtual conferences. Managing them is different from managing traditional teams as knowledge about the different technologies and cultures is needed to effectively manage them. The more advanced the technologies used, the better the team performs if the technologies are used properly. As the teams are being dispersed all over the world, it is empirical that the organizations know the benefits and issues of the global virtual teams to effectively utilize them [7].

3.5 Virtual Team advantages

Virtual teams have brought a multitude of advantages to organizations and corporations around the world. Companies can now have a team of diverse skills from all over the world; they can retain their valuable employees by offering flexible working hours, improve productivity and in some cases reduce the costs of their production.

3.6 Virtual Team disadvantages and challenges

However, having an effective virtual team and managing the team towards a consistent and noteworthy performance is a challenging task. Virtual teams are now facing problems that did not exist within co-located teams. Not all virtual teams are accomplishing their expected objectives and not everyone can perform well in a virtual team [2].

Virtual teams face many of the same challenges that all teams face – but, language difficulties, time-zone and distance challenges, the absence of face-to-face contact, and above all, the barriers posed by the cultural differences and personal communication styles make virtual-work significantly more complex. The list of challenges faced by virtual teams is long and can vary by author, industry, and population surveyed. However, these challenges can be broken down into two broad categories: team challenges and personal challenges. The challenges an individual faces compared to a team are different but not mutually exclusive. For example, the inability for an individual to read non-verbal cues creates misunderstandings, and may also cause group frustration due to language differences. An extensive survey was performed by RW3 Culture Wizard in 2010 yielding [2] the following list of challenges:

Team Challenges
- Time zones
- Language
- Holidays, local laws, customs etc.
- Technology

Individual Challenges
- Inability to read non-verbal cues
- Absence of collegiality
- Difficulty establishing rapport & trust
- Difficulty seeing whole picture
- Reliance on email & telephone
- Sense of isolation

Fortunately, these challenges are not insurmountable, and once a group is made aware of them, effective training and organizational structuring can ameliorate most of them [2].

3.7 Communication in virtual teams

Having global virtual teams in organizations provide great benefits, not only at the team level but also at the organization level. However, if the issues that are faced by these teams are not

addressed properly and adequately in a timely manner, those teams will not achieve its purpose and only be a waste of resources to the organization [7]. The most commonly noted boundaries are those of geography, time-zone, and organization, with the first two being mentioned in almost all definitions and as previously mentioned, the virtual team members rely on technology to communicate. Due to this communication barrier, virtual team members and leaders need to apply different strategies to achieve teams' goals. In the next following sections, the literature related to communication aspects in virtual teams is discussed.

3.7.1 Communication Process

Effective communication processes result not only from encoding and transmitting a message through a medium but making sure that the receiver is able to understand and provide feedback about the message [8]. This process is particularly crucial when team members are spread out while working together on a project. Sending information and gathering feedback are the two most significant challenges related to communication among virtual team members. The selection of the appropriate medium to transmit the information is what determines the successful transmission of the message content. On the other hand, the feedback that usually comes from informal chats, facial expressions, body language, and other subtle signals when having face-to-face meetings have to be replaced by using direct messages and sometimes one-on-one conversations to clear up misunderstanding and overcome language and cultural barriers. Both sending information and providing feedback are also influenced by the fact that, in virtual teams, team members tend to have different perspectives about the ways to deal with and solve a problem as a result of cultural and functional differences [8].

3.7.2 Communication Breakdown Problems

Communication breakdown is prevalent among Global Virtual teams and increases project delivery risks

- Team members struggle to effectively communicate and work with one another
- Team members are spread among several projects with competing priorities

From literature research, five areas are identified that significantly contribute to communication breakdown:

- Cultural differences
- Interpersonal relations
- Leadership
- Technology
- Trust [9]

3.7.3 Challenges

The communication challenges result mainly due to the lack of face-to-face interaction and the sole dependency on technology. Communication challenges include "barriers of geography, language and culture". Geographical and language barriers are somewhat easier to address than cultural barriers. Geographical barriers can be overcome with technology. Technology however

only compensates for the audio portion of communication and lacks all the non-verbal communication that is necessary for greater depth of interaction . Languages can be learned through readily available classes in most locations. Unfortunately this takes time, desire, and perhaps aptitude (i.e. stable competencies), and, if it is not addressed, it can have a significant impact on performance. Cultural barriers are much deeper; they are tied to "values, norms, assumptions and patterns of behavior" [10]

The several communication and technology challenges include:

- Inability to convey emotion via electronic means of communication
- Issues associated with the establishment and development of trust
- Inability to convey non-verbal cues which may result in increase in conflicts
- Failure to respond in a timely fashion may result in low-trust teams
- Challenges due to temporal differences
- Lack of informal and spontaneous interactions between members
- Challenges due to the communication technologies and its availability, reliability, supportability and cost
- Technophobia
- Monitoring or control of employees in virtual teams [11]

3.7.4 Technologies and tools

Extensive literature is available with regard to the technologies and tools used in virtual teams' communication [7][12-16].

[7] talks about different communication tools available in the market which are intended for virtual team communication and groups them into the following categories – email or chatting, tele-conference and video-conference and argues that the best communication option for the situation is to depend on the urgency, and complexity. Situations with lower urgency can be handled via email. Immediate items tend to be handled via instant messages (point-to-point) or IRC (entire team). Complicated items might require a phone call, either direct one-on-one, or a conference call. Usually start small and simple, and escalate as necessary.

[12] suggests that there are two communication aspects at the human level that can be supported by the technical mechanisms at the application level. There are synchronous technologies, which enable team members to interact at the same time. These include desktop and real-time conferencing, electronic meeting systems, electronic display, video conferencing, and audio conferencing. Asynchronous technologies, which facilitate delayed interaction, include E-mail, group calendars and schedules, bulletin boards and web pages, non-real-time database sharing and conferencing, and workflow applications. In short each technology has to be rated on its appropriateness for four types of team tasks:

- Generating ideas and plans about the team's work

- Solving routine problems where answers already exist
- Solving ambiguous or complex problems where routine answers may not exist
- Negotiating interpersonal or complicated technical conflicts between individual team members or organization.

[13] highlights the common computer mediated communication systems (CMCS) technology tools relative to space and time dimensions and proposes few human and technology factors that must be accomplished as pre-requirements before using CMCS. Considering time and space as dimensions, this paper divides CMCS technology tools as follows:

- Synchronous & Same place – traditional teams
- Synchronous & Different place
- Asynchronous & Same place
- Asynchronous & Different place - more complex

[14] overviews the communication tools for virtual teams such as Email, Repositories, tele-conferencing, Skype etc. and argues that even though these tools are powerful allies in team-building and are valuable to help facilitate team growth, these are only tools and Virtual teams still have to go through the growing pains that all teams go through. The successful teams will simply be the ones that can appropriately use the available tools to accelerate the learning curve.

[15] explores the literature using eleven characteristics of communication to identify critical factors that affect the competitive speed of communication and identify the gaps for future research. The eleven characteristics include

- Cognitive Synchronization / Reconciliation
- Developing Shared Meaning
- Developing Shared Memories
- Negotiation
- Communicating Data
- Communicating Knowledge
- Communicating Information
- Planning of Activities
- Tasks
- Methodologies
- Management of Tasks

These are compared against the following Computer-Supported Co-operative Work (CSCW) tools:

- IBM Lotus Software
- Microsoft Exchange Server

- Microsoft Share Point
- Google Groups

This paper identifies areas of improvements and needs amongst the CSCW tools available and argues that there are characteristics that are not addressed by the CSCW tools, possibly because of the difficulty to address or the developers did not see the associated need from the teams.

[16] explores the use of methods and technologies that can be effective to improve communication and interaction among cross-cultural virtual teams and concludes that communication technology is an enabler for virtual teams. However, machines and technology are not a substitute for human interactions. Accordingly, one of the most common practices is to establish a face to face meeting during the formation period then some companies meet their virtual teams several times a year.

From the literature review, it is clear that even though virtual teams' existence depends upon modern technology, some good basic human interactions are needed to make them work because issues of trust, conflict and leadership exists in any team and virtual teams are no exception.

3.7.5 Methods for effective communication
The following methods serve to establish effective communication [10]:

- Create a team language to ease the difficulties of language barriers
- Arrange the first few meetings of a global business team face-to-face
- Use dialog to facilitate "valid communication". Dialog is offered as a method for solving problems and resolving conflict within groups.
- Structure the team charter
- Active Listening
- Training that constitutes a methodology called "Mapping, Bridging and Integrating (MBI)" where the bridging is the effective communication
- Education of the team members in languages and cultural studies [17]

3.7.6 Recommendations and best practices to overcome communication challenges in virtual teams
The following suggestions are offered to overcome communication breakdown [9]:

- Company culture foster effective communication
- People communicate largely through body language and tone of voice; and conflict resolution is best handled via face-to-face
- There should be a clear line of decision-making authority and the team leader should effectively reinforce the team's roles

- Support to live speech significantly increases the naturalness of a communication medium whereas communication through certain unnatural (asynchronous) media saves time
- Clearly defined roles, consistent role behavior and strong leadership maintains trust

The following techniques are proposed in literature to mitigate communication related risks [18]:

- Use of effective Communication Medium
- Weekly one-on-one communication with team members
- Weekly staff meetings via conference call
- Lots of interim e-mails and phone conversations for routine communication
- A common toolset (with knowledge of use and common approach)
- Use phone calls and messages to enhance e-mail communication
- Project Managers should use phone communication as the primary communication tool with executive managers.
- Provide training in the following areas - Cultural Sensitivity Training, Interpersonal Communication, Intercultural Communication, Team Building, Distributed Project Management Techniques, Culturally Appropriate Management Techniques, Technology and Tools Training

Best practices proposed in the literature to be used in virtual teams' communication [1] are:

- Provide clear member availability and feedback standards
- Context awareness and replacement – is something communicators try to construct to understand the exchanged messages; without the context it is hard for the receiver to thoroughly understand the information.
- Use synchronous communication at least twice a week in the first two months
- Have communication prioritization in order to avoid information overload
- Periodically measure the communication pace and scope

Broad-based suggestions to make virtual teams more successful include:

- Face-to-face contact whenever possible
- Better communication and collaborative tools
- Better management and organization
- Better team members [2]
- Giving initial background introductions of each member before starting the project, so as to develop familiarity among members and also develop the trust between all the members who share the common goals for the team.
- Providing other team members with compliments and encouragement using positive tones in communication and handling disagreement positively.

- High clarity of tasks and goals, and high levels of discussions of these tasks, firm commitment and timely reminders of obligations/commitments made.
- Effective time management and high level of awareness of time zone differences in globally distributed teams.
- Verifying the most convenient means of communication suitable for all the parties involved.
- Selecting the right means of communication based on the various constraints and requirements of the project at hand.
- Recognizing and nurturing behaviors that build trust. For example, owning problems rather than blaming them on technology helps to build & develop trust.
- Encouraging individual initiative among team members and appropriate behaviors of team members that maintain the trust that is developed. For ex: positive criticism of team leaders whenever necessary.
- Recognizing the various communication behaviors of team members and understanding the cultural aspects involved in team communications.
- Strong focus on the tasks and goals of the team rather than emphasis on social and process aspects, orient the team towards a common goal, which in-turn leads to high team camaraderie [12].

4. **Proposed framework to overcome communication barriers in virtual teams**

Based on the understanding from the literature review performed [1-18], and an extensive analysis conducted on this topic in the Internet, this paper proposes the following framework which lists the causes/reasons for communication problems in virtual teams and solutions on how to overcome them.

Contributing Factors	Tips/Best practices to overcome these challenges
Multiple time zones	• Set agendas for meetings, distribute them beforehand and effectively manage the available time • Avoid scheduling meeting in odd hours of the day. If that is not possible, be sensitive to the amount of participation virtual team members will engage in if meetings are held early in the morning or late at night in their time zones
Language differences	• Create a common team language • Listen without interruption and speak slowly
Cultural differences	• Provide cross-cultural training • Leave time for relationship building whenever possible (Eg: Before a call etc.,)
Breakdown of trust, communication, leadership	• Ensure team member reliability, consistency, and responsiveness when dealing with teammates and customers to build trust • Develop a team charter and assign clear roles and responsibilities of team members • Motivate team members and establish trust by demonstrating strong leadership skills • Encourage clear communication and use of effective communication tools • Provide constructive criticism and feedback while resolving conflicts
Lack of face-to-face interaction	• Use appropriate technology i.e., Use online chats, video-conferencing and audio-conferencing in addition to one-on-one conversations and e-mail • Have initial face-to-face meetings if possible to build personal relationships • Have one-on-one conversations to resolve conflicts
Technology challenges	• Provide technology and tools training • Verify the convenient technologies for all the parties involved and use the standardized technologies and tools for communication across the entire team

All the above factors connect to **Communication issues/challenges**.

5. Conclusion

In conclusion, all teams have their advantages and challenges; and virtual teams are no exception. Since the benefits outweigh the challenges, virtual teams are becoming the reality of this century and every organization is bound to adopt this reality in one way or another. It is clear that even though communication challenges play a major role in stopping virtual teams succeed,

it is clear that many of the communication barriers can be overcome by following streamlined organizational procedures and training.

6. Limitations and Future Work

This paper is limited to the data collected from the past ETM research projects on the topic of communication challenges in virtual teams. The future work could potentially include other scholarly/peer-reviewed articles on this topic and personal experiences wherever available.

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