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THE USE OF VIRTUAL PROJECT TEAMS FOR PROJECT MANAGEMENT IN JORDANIAN CORPORATIONS

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Abstract

Jordanian companies need virtual project teams that can use advanced technology to solve problems and make specialist multi perspective decisions when working across different and distance location. The main mission of the team is to make decisions through interdependent specialists and perspectives. In terms of its use and application, the virtual project team is a difficult challenge for Jordan corporations. This study aims to explore such applications and to detect which factors face virtual project teams in the Jordanian situation. The author focused on how to explore and gain a deeper understanding from a virtual team's perspective, and team members' opinions of the factors in the organization that support or hinder the mission. More specifically, this research sought to discover precisely which factors in an organization support virtual project teams, and how they can develop a support system which enables their work in an Arab environment. The main objective was to identify the effects of all factors on the efficiency of virtual teams. The research used empirical case studies from three Jordanian corporations in the communication sector which operate in a high-tech environment, and used surveys to collect data. Structured interviews with both management and team members during the study discovered that the use of virtual teams within Jordanian companies is still limited, and detected that the main factors which hinder their development in many corporations is the level of trust in the ability of virtual teams, together with the high level of centralized decision making in Jordanian corporations. Additionally, communication and coordination affect the execution of work processes and methods for virtual teams, together with a general weakness which exists in terms of infrastructure, resources and technology within the corporation, which then impacts on the efficiency of virtual team work.

Keywords: Virtual Project Teams, Managing Project, Jordanian Corporations, Support System Development

1. Introduction

Jordan is designated as a developing country; the challenges of decentralization in local governments and administration, together with the globalization of work procedures and the rapid revolution and development of information and communication technologies are trends which have had a strong impact on Jordanian organizational ability. Some organizations have responded to dynamic and changeable environments by introducing virtual teams (Belwal and Al-Zoubi, 2008). Virtual teams have practical advantages in that the outcome can be achieved using the expertise of team members based in different physical environments. Project work

can also be completed over a longer time period by team members in different time zones, increasing speed and flexibility, improving relations with stakeholders and reducing effective travel costs (Junemann and Lloyd, 2003). Therefore, organizations are increasingly dependent on virtual teams for activities such as design, production, and logistics (Bower *et al.* 2001).

2. The Structure of Virtual Teams

The structure of a virtual team should be socially dynamic and coordinated. The main characteristic of team structure is the division of labor related to its influence on team performance, but there is also an indirect influence from perceived efficiency and team coordination. The second characteristic is hierarchy, which is related to its effects on the effectiveness of communication, because team leaders are required to send a large number of messages and have a strong effect on the team. The final characteristic is the work process, which is achieved by means of technology to unite team members across time and distance. Tasks must be achieved in a short time, and it is necessary for all team members to understand the details of the project; the interaction between team members reflects the efficiency and skills of the analysis and rethinking (Piccoli *et al.* 2004; Prasad and Akhilesh, 2002; Kuruppuarachchi, 2006).
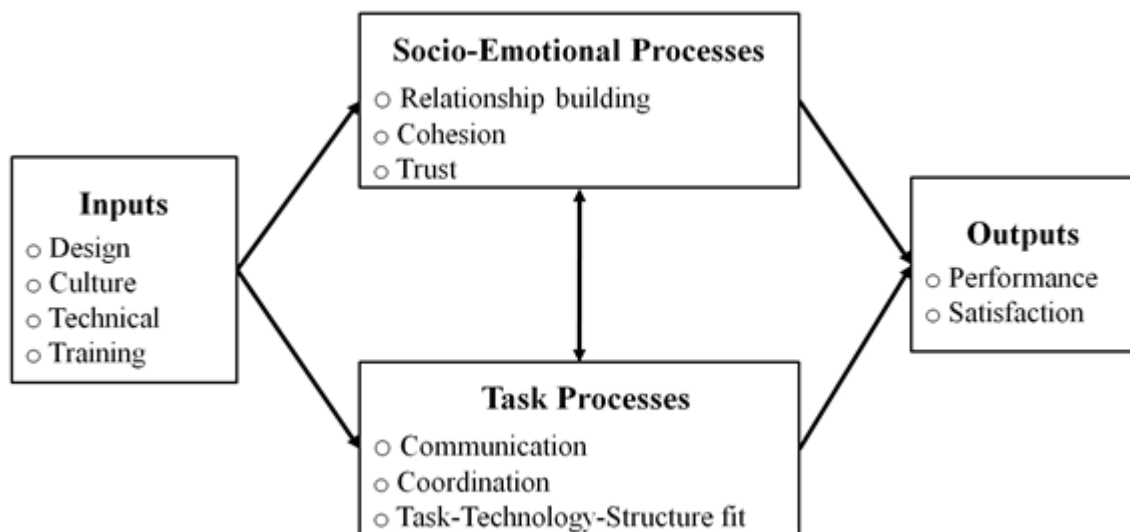

Figure 1. Virtual team structure (Nevogt, 2013)

Virtual teams as shown on the Figure 1 are used in both domestic and international situations concerned with multi specifications related to project plans and actions. The Structure of virtual team explain the realtions of process with socio emotional processes with the project   . They implement operational and production changes within an organizational environment in an internal corporate system (Drouin *et al.* 2010). Many publications have already published studies which demonstrate that various team building exercises help in understanding team culture and structure, which adds to the success of a team. Based on a team's social structure and individual behavior, people communicate differently. Time zones and cultural differences have a large impact on how team members communicate with each other, and organizational structure is a factor in managing successful projects (Stough *et al.* 2000). The range of computer and information technology which is now used, together with the application of projects as tools to find solutions to various problems, requires a new trend of effective operation in project organization.

3. Project Management

3.1. The Advantages of Implementing a Project Approach

There are four advantages of implementing a project approach: 1) simplicity and effectiveness of resource management and accomplishing goals in creative and innovative operations; (2) real value-added contributions to human morale; (3) improving the combination of various professional perspectives and knowledge shares; (4) application of the project approach as a professional approach in Project Management (PM) (Niebecker *et al.* 2010).

The major problems with the use of virtual teams are the complexity of technology and telecommunications infrastructure required, time and cost issues, and the lack of benefit derived from knowledge due to ineffective transfer of knowledge. The effectiveness of these factors impact on the level of effectiveness of overall project outputs, and the minimization of failure. The aim of project management is to improve the opportunity of success and the response to both the external and internal environments (Pangil and Chan, 2014).

A project is defined as a temporary endeavor undertaken to create a unique product or service. The qualification that a project is unique depends on demonstrated use of the following factors; multi-tasking, the presence of designated start and finish dates, the presence of planned and allocated resources, and an expected level of performance to be successful. Organizations use projects as temporary organizational structures which use knowledge, skills, tools, and technique in order to meet stakeholders' needs and expectations (Eve, 2007). From a project perspective, it is commonly stated that PM is the planning, organizing, directing and controlling of resources for a relatively short-term objective that has been established to complete specific goals and objectives (Jaques *et al.* 2001). Moreover, PM utilizes the systems approach to management by having functional personnel assigned to a specific project horizontal hierarchy, an organizational form also referred to as a matrix (Attallah *et al.* 2013).

3.2. Virtual Project Teams

Virtual project teams employ expertise and competencies, (often independent of geographic location) and short-term consultants. Leadership is shared among team members; however, a flatter and more fluid type of leadership or management structure often characterizes virtual project teams compared to traditional project teams. Internet technology plays a critical role in allowing collaborators to work from remote sites and to share ideas and resources (Bergiel *et al.* 2008). The Internet continues to influence all types of organizations and industries; therefore larger enterprises facing tough global competition appear to be the strongest supporters of virtual project teams, but these enterprises need to connect quickly to effectively tap into swift-moving markets or even create new markets. The increase in communication technology spending has also fundamentally changed the dynamics between competitors and customers (Curseu *et al.* 2008).

3.3. What Factors Have an Effect on the Success or Failure in a Corporation?

The project management professional has many alternative project management tools and techniques to create project success. However, the availability of tools has not appeared to heighten business awareness of how project management can create added-value by linking strategic intent and tactical execution. When evaluating project and cost management software, the problem may lie in differing views about what influences project success, and on what criteria appear most suitable for judging project outcomes, which are somehow expanded into a space called success or failure (Ika *et al.* 2010). The creation of a project generates the potential for many different levels of successes throughout the process itself.
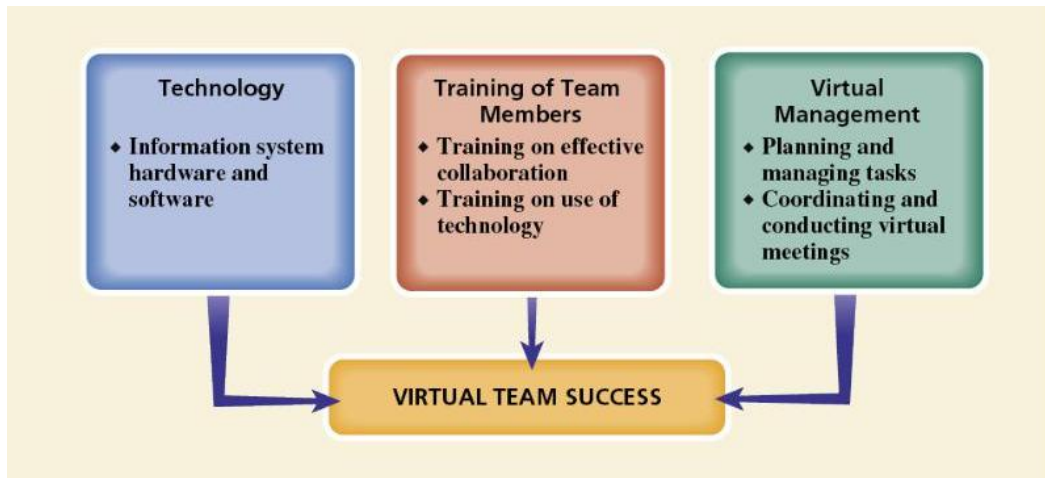
Figure 2. Factors affecting virtual team success (Thomson, 2005)

Project successa as shown in the Figure 2 is a complex concept, and considerable variety exists in the way various analysts and researchers have approached it. Project success can be measured in various ways, including cost, schedule, and performance metrics management. The willingness of top management to support the project and to provide the necessary resources and authority /power also impacts on project success (Muller and Jugdev, 2012).

3.3. Project Planning and Management

A project schedule or plan is a detailed specification of the individual action steps for project implementation. Client consultation, communication, consultation and active listening by all stakeholders is very important. Personnel recruitment, selection and training must be undertaken for the project team. The required technology and expertise must be available to accomplish the specific technical action steps. Client acceptance of the project is accomplished in the act of "selling" the final project to its ultimate intended users (Zarndt, 2011).

Monitoring and feedback is defined as the provision of timely, comprehensive control of information at each stage in the implementation process. Communication is achieved by the provision of an appropriate network and necessary data to all key actors in the project implementation. Trouble-shooting is the ability to handle unexpected crises and deviations from the designated plan (Xu *et al.* 2011).

3.3.1.Types of Virtual Teams

All teams can be categorized into seven basic types: project or product-development teams, networked teams, parallel teams, work or production teams, service teams, management teams, and action teams (Pangil and Chan, 2014). The common factor which holds true for all types is that "team members must communicate and collaborate to get work done and / or produce a product. However virtual teams, unlike traditional types, must accomplish these tasks by working across distance, time, and / or organizational boundaries by means of the use of technology to facilitate communication and collaboration "(Duarte and Snyder, 2001, p.6).

Members of a virtual project team or distributed project team work together on a communication project where team member's tasks are creative, and the results are specific and measurable. For the purpose of this paper, customers are not included in the definition of a virtual project team. If one were to include this category of team members in the definition of a virtual project team, almost all the members of project teams would be distributed and virtual.

Virtual project teams can be further characterized as having dispersed team members, knowledge, systems and workplaces, and as having a charter to make decisions (Ramsing, 2009). The team can cross real different time, distance, and organizational structures, as well

as make decisions to meet effective goals. Team members may use knowledge on and off a project as their expertise is needed. This is done in order to minimize project costs and efficiently utilize employee time and skills across the organization (Leinonen and Bluemink, 2008).

A networked virtual team is defined as individuals who work from homepr or who collaborate to achieve a common goal or purpose. Like project teams, networked teams frequently cross time, distance, and organizational boundaries. Furthermore, the membership of these teams is frequently diffuse and fluid, with team members rotating on and off the team as their expertise is needed. Thus, the networked team is different from a project team in that the membership is not always clearly delineated from the rest of the organization, and a final product is not always clearly defined, but can often be a recommendation (Chen and Li, 2013). The networked team is often found in consulting firms and in high-tech organizations. Table 1 provides a summary of the types of virtual teams discussed above.

Table 1. A summary of the seven types of virtual teams (Duarte and Snyder, 2001)

Type of Team	Description
Project or Product Development	Team has fluid membership, clear boundaries and a defined customer, technical requirement, and output. Longer-term team task is non-routine, and team has decision-making authority.
Network	Team membership is diffuse and fluid; members come and go as needed. Team lacks clear boundaries with organization.
Parallel	Team has clear boundaries and distinct membership. Team works in short term to develop recommendations for an improvement in a process or system
Work or Production	Team has distinct membership and clear boundaries. Members perform regular and ongoing work, usually in one functional area.
Service	Team has distinct membership and supports ongoing customer, network activity.
Management	Team has distinct membership and works on a regular basis to lead corporate activities.
Action	Team deals with immediate action, usually in an emergency situation. Membership may be fluid or distinct.

3.4. Jordanian Communication Companies

Projects in Jordanian organizations and the communication industry will employ various specifications to manage their projects, which follow a similar life cycle. The Jordan Communication Project life cycle is a series of stages that all projects go through to achieve their goals, utilizing specific project management methods; each project life cycle consists of four phases (Jaafari and Manivong, 1999). These phases are: the preparation phase, the planning phase, the implementation phase and the termination phase. For each project life cycle, there is common software development methodology, and a unified process.
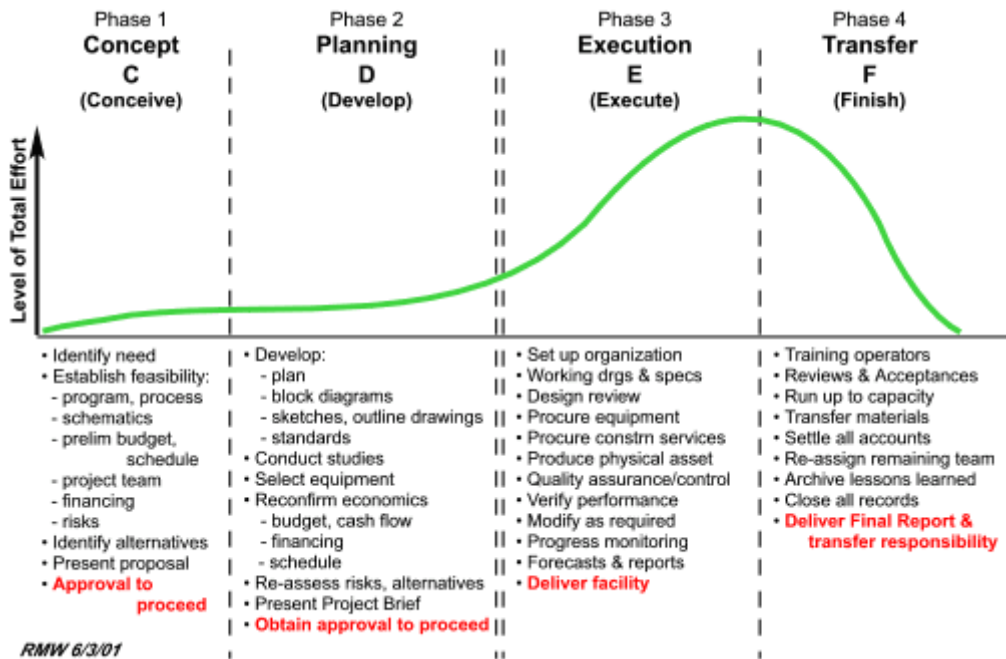
Figure 3. Project life cycle
Source: http://www.chandleraz.gov/Content/PM000PMMethodologyGDE.pdf

All Jordan communication projects begin with a purpose or idea to accomplish a specific objective. This is the Conceptualization Phase. During this phase the concept of the project is refined and finalized. It then becomes necessary to plan and define the architecture or components of the project. This is the Planning Stage or the Elaboration Phase. During the Planning Stage, tasks, schedules and budgets are completed. Once the planned project has been approved, the project goes ahead (Kloppenborg *et al.* 2011), and enters the Implementation Phase or the Construction Phase. During this phase, the project is monitored, controlled, and adjusted to meet the defined goals. Finally, the project is completed and its success is assessed. This is the Termination Phase or the Transition Phase (Bowenkamp and Kleiner, 1987).

Some studies may break these primary phases into several smaller phases, or they may have alternative names (as evidenced by the Unified Process), but the basic concept remains the same.

Thus one can see that, even though individual projects can be very different, the life cycle as shown in Figure 3 that each project goes through is very similar, whether one is developing a software application or coordinating a public event. This is also true for a virtual project team and a located team, in that the deliverables are the same and the project life cycle is the same (Bower and Finegan, 2009). The methodology employed to manage the project is also the same. The difference between these two types of teams lies in how team members communicate and collaborate to achieve their goal. Virtual team project managers must pay particular attention to communication and collaboration issues, because team members are geographically dispersed. It is critical to ensure that communication and collaboration methods are agreed to, explicitly specified, and controlled. Furthermore, because virtual project teams are likely to include members from different cultures, it is important to address the communication issue (Oertig and Buergi, 2006).
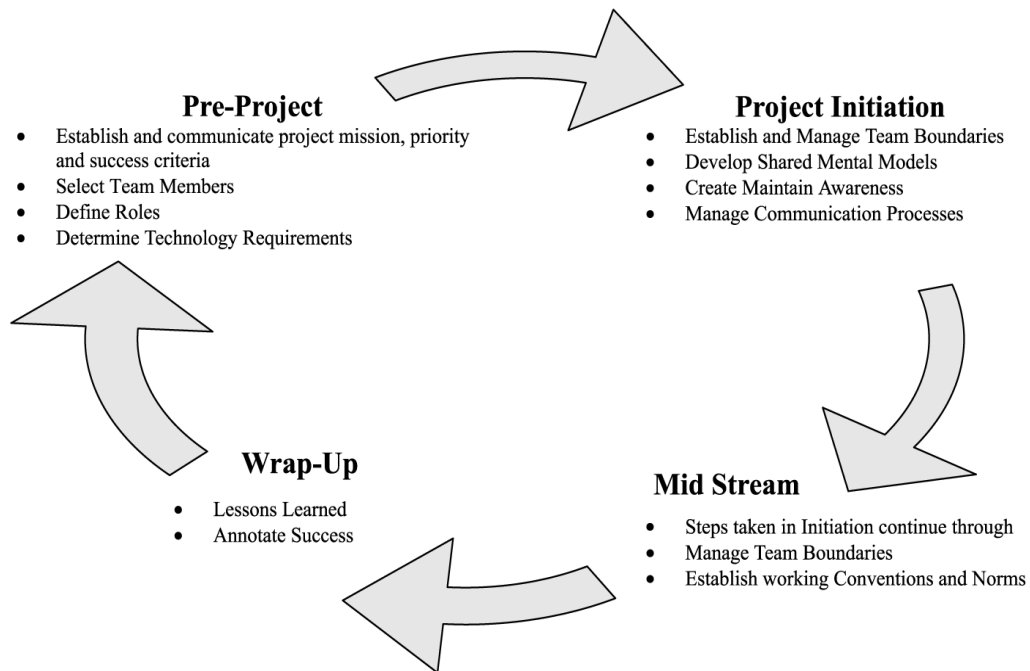
Pre-Project
- Establish and communicate project mission, priority and success criteria
- Select Team Members
- Define Roles
- Determine Technology Requirements

Project Initiation
- Establish and Manage Team Boundaries
- Develop Shared Mental Models
- Create Maintain Awareness
- Manage Communication Processes

Wrap-Up
- Lessons Learned
- Annotate Success

Mid Stream
- Steps taken in Initiation continue through
- Manage Team Boundaries
- Establish working Conventions and Norms

Figure 4. Phases in a project life cycle (Hunsaker and Hunsaker, 2008)

Furthermore, the dispersal of virtual project team members is an additional complex challenge for managers responsible for the project's results. These challenges as shown in Figure 4 are particularly difficult in terms of ensuring that communication and collaboration between team members is clear, timely and adequate (Trautsch, 2003).

4. The Factor of Complexity within a Virtual Team

Complexity is increased by the limited ways team members are able to communicate on a regular basis. Virtual team interactions are almost always mediated by electronic communication and collaboration technology. According to Duarte and Snyder, "Interactions fall into four categories: (1) same time, same place (such as face-to-face meetings); (2) same time, different place (such as audio or video conferences); (3) different time, different place (such as exchange of e-mail or voice mail messages); and (4) different time, same place (such as using a chat room or a shared file on a network)." Same time, same place communications will not be addressed in this paper, as it is not a common form of communication between virtual team members (Duarte and Snyder, 2001, p.5).
- There are six rules for achieving better communication within virtual teams as shown below in Table 2 ; they are: Build trust in each person and grow that trust with clear expectations,
- Manage results, not activity,
- Schedule regular communication,
- Create communication that saves time -- not the kind that kills it,
- Create standards that build a cohesive culture, and
- Establish rules of responsiveness (de Jong *et al.* 2008).

Table 2. Communication in virtual teams (Rico and Cohen, 2005)

Communication medium	Suggested uses in virtual teams	Don't do this
Email	Group updates, work statuses, general management updates, delivery of documents and in some cases sign-off on deliverables. Key: Keep emails clear and concise – "write for your audience, not for yourself"	Send an 'emotive' message. Any difficult discussion should be dealt with in person or if not possible, by phone.
Instant Messages	Quick and immediate clarifications, team discussions	Use for collecting sign-offs or requirements gathering, or any other formal requirement. Send an 'emotive' message. Do by phone or in person. Use during another meeting. Remember: IM's can be stored and retrieved by law in most countries, the same as emails.
Telephone	General project discussions, conference calls to review progress etc. Personal performance reviews for the project (if there is no way they can be held face-to-face), conflict resolution, project on-boarding and off-boarding	Leave a message without giving detail information as to why you called, when, who you are, etc.
Conference Calls	Regular project team meetings	Continue with a sensitive discussion post a conference call, as others could still be on it.
Video Conference	Group and team meetings, more formal work reviews, training as close to face-to-face as you can get (some modern video conferencing is very advanced, but expensive)	Don't use for unimportant events, it is costly
Face-to-Face	General meetings and daily work interactions, celebrate successes, training, project conclusion, major milestones	Don't forget those that cannot travel to meet face-to-face consider the best options for them

5. Conclusion

The primary research methodology used for this paper was a questionnaire consisting of six questions delivered via e-mail to various project managers of virtual project teams.

When asked how they rated the success of their virtual team management, 42% of respondents reported that they were successful. Whilst this information confirms the value of virtual teams, there were also 8% who reported that they were only somewhat successful, 30% reported that they were successful with some outside support whilst 20% reported that they were not successful at all. Clearly there is room for improvement, and these results indicate that there is a real need for development of virtual team ability, management and training for C.E.O.'s in this area of Jordanian companies.

The main restrictions facing virtual team work is to face and overcome challenges in the project definition phase, in order to include specific competencies designed to structure and manage virtual teams which are invariably comprised of people from different cultures and work styles, who come together to meet at different times.

Virtual teams need to establish specific work rules which are applicable in the countries their members are drawn from; this is related to the different legal issues resulting from attempting to co-ordinate team members from more than one country, an inherent weaknesses in control in the project planning phase, including how tasks are broken down within the management structure, budget and financial organization, and finally audit control planning.

There are clear ramifications for virtual teams related to culture and its impact on team structure and work styles. Many virtual teams which are located outside the borders of the host country (in this case, Jordan) have suffered from misunderstanding during the implementation phase of their projects. These misunderstandings are directly related to differences in the information technology sector in their country of origin compared to that of the host country.

There are examples of successful project management; for example, the cement industry. However, these successes are very much dependent on the team leader, and how they manage the team, particularly in the use of face to face meetings in order to express opinions, their ability to manage conflicts and competencies, and their success with challenging decision making.

The study findings indicate that information sharing between virtual team members, not only mere facts, but also knowledge of social skills and the provision of assistance when required for project implementation is a major factor in the success of the project.

The participants in the study also believe that the major factors facing a virtual team in the Termination Phase are:

- Difference in communication skills and language;
- Coordination and technology;
- Management and the provision of realistic, achievable goals;
- Cultural difference

In conclusion, as stated above, there is a vital need to develop specific and explicit work rules to replace those that are tacitly understood among members of co-located teams who share a common culture and language.

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