Engineering Management Field Project

Evaluating the Performance of Virtual Teams in a Highly Distributed Information Technology Organization
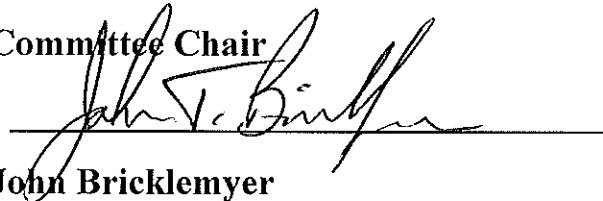
By

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Executive Summary

Evaluating the performance of virtual teams in large corporations is especially challenging when there is a lack of understanding of the common factors that influence it and the existence of a framework for evaluation. The presented research results are based on interviews conducted at Cerner Corporation, a global healthcare information technology organization, relevant literature review, and the author's own experience and observations. While Cerner employs a full set of performance evaluation tools and methodologies, and extensively uses virtual teamwork, a unified framework geared specifically towards virtual team performance evaluation does not currently exist.

The research work presents a comprehensive literature review of current trends in virtual team performance evaluation, followed by a summary of conducted interviews with a sample audience of interviewees, representing the different layers of one of Cerner's client facing organizations. As a result, a complete set of research findings and recommendations for additional work are presented and summarized. While the research identifies a set of common factors affecting virtual team performance, a specific framework could not be readily presented due to the great difference in opinions about its structure and measurement metrics. Thus, it was recommended as a suggestion for additional work that a committee be formed which uses this research work as the basis for creating a unified framework for evaluation of virtual team performance at Cerner.

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Introduction

Virtual teams are slowly maturing in the business world today and the need to understand their intricacies are becoming increasingly important. Several years ago, virtual teams were simply perceived as telecommuting groups of employees relying on newly introduced communication technologies to connect with each other. Today, virtual teams have evolved into the de facto form of conducting different business functions; there is hardly an organization that does not rely on one form or another of virtual teamwork – from large multinational corporations to small start-ups.

When studying virtual teams various authors increasingly focus on things like performance metrics, productivity, leadership, management techniques, and other management science terminologies. Others compare virtual teams with collocated teams and examine their inherent differences. Some even go as far as claiming that virtual teams, if managed properly, can outperform collocated teams. There is an abundance of scholarly pieces – research papers, journals, textbooks, and periodicals that deal with different aspects of virtual teams. Some of them present leadership frameworks for leading different types of virtual teams – multicultural, multinational, cross-functional, and their variances. Others try to put structure around aspects like measuring performance, evaluating criteria for success, examining virtual teams in project organizations, etc.

In reality, the extent that organizations are concerned with virtual teams today still revolves around the different tools of communication that those teams use to perform their work. It seems that more attention is placed on studying the importance of various technologies like Instant Messaging, e-mail, teleconferencing, videoconferencing and the like, rather than on

issues like performance, team members' interactions, motivation, trust, cohesiveness, etc. While studying the different tools that virtual teams rely on is important, it is just a technical aspect that makes their existence possible. Technology is viewed as a facilitator and enabler, but it can also be a detractor. The amount of information that we process on a daily basis is in times larger than what previous generations dealt with ten or fifteen years ago, due to the incredible advances in technology.

Virtual team members spend extra time and effort in planning their communication; they need to take into consideration things like time zones when setting up conference calls, scheduling conflicts, and other issues that collocated teams take for granted. Because of the lack of frequent face-to-face interactions, trust between team members is slower to form than with collocated teams which can make their day-to-day operations challenging.

The purpose of this research paper is to examine the factors that determine the performance of virtual teams in a highly distributed information technology organization. The research is based on input from different levels of the virtual team organization, both team leaders and team members. The intent is to reveal any inherent differences in the perception of both groups towards the factors that influence virtual team performance. It is the author's personal observation that not enough attention is given to researching and studying the management of virtual teams in large corporations today. Specifically at Cerner, virtual teams comprise a large percent of all teams. To the author's best knowledge, Cerner has not developed a framework for evaluating and managing virtual team performance. Ideally, this research will serve as the foundation for a future work effort at Cerner that would bring about a methodology for evaluation of virtual team performance.

Literature Review

Evaluating team performance has been an integral part of management science since its existence. Evaluating virtual team performance is a relatively new phenomenon introduced with the rapid advancements in technology and the globalization of the world economies in the past few decades. The first part of the research work examines the nature of virtual teams and their relations, similarities, and differences with traditional teams. Next, we explore some of the challenges and opportunities virtual teams face in general and in relation to their performance evaluation. Following is a discussion of suggested frameworks for evaluating virtual team performance based on empirical research. Finally, a more detailed discussion of some of the most important factors for virtual team performance is presented.

Virtual Teamwork

Definitions

For the purpose of this research paper, we will use the following definition of a virtual team: "... *a group of people, often culturally diverse, most of whom are not collocated, who work interdependently with a shared purpose across space, time, and organizational boundaries using technology*" (Hardin, Fuller, Valacich, 2000, 71). The definition implies that like a traditional team, the virtual team works interdependently as a group. The significant differences between traditional and virtual teams are the lack of collocation and the need to use technology. Both of these distinctions can contribute for the increased complexity between team members' interactions.

In today's business world, teams are viewed as the building element of an organization. Teams are formed for different business purposes with the intent to utilize the various talents, qualities, and characteristics of their members (Siebdrat, Hoegel, Ernst, 2009, 63). Traditionally, teams were formed in a collocated setting in order to facilitate communication, exchange of ideas, streamline work processes, build trust, and reduce conflict to achieve common business goals. As companies became more globally oriented and with the intent to capture an increasingly available talent worldwide, organizations began forming and using virtual teams comprised of geographically and culturally dispersed employees.

The term "virtual team" dates back to the early seventies when MIT researcher Tom Allen discovered that the probability of spontaneous communication between two co-workers dropped significantly with the distance between their workstations (Gordon, 2005, 22). Allen claimed that past fifty feet, that probability decreased to such an extent that it would not matter whether the teams were on the same floor or in completely different countries. Today, technology has become such an intrinsic part of the modern worker that even employees sitting in adjacent cubicles use instant-messaging rather than communicating face-to-face. The notion that using different communication technologies make us more productive can be misleading: "Technology makes virtual teams possible. Only people can make them productive" (Gordon, 2005, 20).

In his book The Manager's Handbook of Virtual Teams: 24 Exercises to Take Your Team to High Performance, Steve Zeisler states that team performance depends on how well the team goes through the classic stages of team development: forming, storming, norming, and performing. In other words, Zeisler believes that conventional team processes, not necessarily technology or other factors, are the team's performance contributing factors.

Other authors support the idea that virtual teams should be built on the premises of collocated teams. Carl Worthy maintains that managers should use the same methods and techniques used to build collocated teams in virtual team building, and create a formal agreement for their operation (Joinson, 2002, 71).

Challenges and Opportunities

Along with the many benefits, virtual teams present some challenges, one of which is effectively monitoring and evaluating their performance. In order to fully examine the factors influencing virtual team performance, we need to understand the challenges and opportunities that these teams face today. There is a multitude of literature providing research information on the topic. Different authors view the pros and cons of virtual teams from various angles. The framework described below is based on Tuckman's Stage Model of Development and Gersick's Punctuated Equilibrium Model (Furst, Reeves, Rosen, Blackburn, 2004, 7). Tuckman's model is based on the notion that there are four stages of team development: forming, storming, norming, and performing. In her Punctuated Equilibrium Model, Gersick studied the impact of deadline pressure on the teams' development. Essentially, the model states that there are "two periods of stability – Phase I and Phase II punctuated by abrupt changes at the project midpoint that occurs halfway to the deadline" (Furst, Reeves, Rosen, Blackburn, 2004, 7).

Table 1. Stages of Virtual Team Development

Model				
Tuckman: **Gersick:**	**Forming** **Phase I**	**Storming**	**Norming** **Midpoint Transition**	**Performing** **Phase II**
Description of Team Behavior During Each Stage	Team members get to know each other, exchange information about themselves and the task at hand, establish trust among group members, and clarify group goals and expectations.	Similarities and differences are revealed and conflicts surface as the group attempts to identify appropriate roles and responsibilities among the members.	Team members recognize and agree on ways of sharing information and working together; relationships are strengthened, and team members agree on member obligations and team strategy.	Team members work toward project completion, actively helping and encouraging each other.
Challenges	Fewer opportunities for informal work- and non-work-related conversations; risk of making erroneous stereotypes in the absence of complete information; trust slower and more difficult to develop.	Reliance on less rich communication channels may exacerbate conflicts by provoking misunderstandings; ease of withdrawing behaviors; diversity of work contexts; reliance on an emergent or assigned team leader.	Difficulty in developing norms around modes of communication, speed, and frequency of responding, and commitment to use special software.	Vulnerability to competing pressures from local assignments, frustrations over freeriding or non-committed teammates, and communication discontinuities due to asynchronous communication.

Source: Adapted from Furst, Reeves, Rosen, Blackburn (2004, 8)

As seen from the model, certain opportunities and challenges exist at the different levels of team development. When analyzing virtual team performance, it is important to clearly understand the team's current development stage in order to better mitigate the challenges and capitalize on the opportunities. Zeisler concludes that regardless of the distance between team

members and the technology they use to collaborate, a team's performance depends on how well they work through the classic stages of team development (Gordon, 2005, 22).

Other authors (Siebdrat, Hoegel, Ernst 2009, 65) provide a more holistic classification based on virtual teams' opportunities and liabilities:

Table 2. The Pros and Cons of Dispersion

Opportunities	Liabilities
• Heterogeneous knowledge resources • Utilization of cost advantages • Access to diverse skills and experience • Knowledge about diverse markets • "Follow the sun" working	• Language differences • Cultural incompatibilities • Difficulties establishing "common ground" • Fewer synchronous face-to-face interactions • Good teamwork more difficult to achieve

Source: Adapted from Siebdrat, Hoegel, Ernst (2009, 65)

The opportunities above are derived from the very nature of the virtual teams and essentially depict the reasons for their existence. The liabilities are the result of their existence – these are all challenges that usually are not present within collocated teams. There are certainly ways to mitigate these challenges, for example by matching people and responsibilities to work locations, and the right communication medium to the communication objective (Putnam, Laurie, 2001, 58). Other authors suggest increasing the level of effective teamwork through positive predictable behavior, respect, being in the moment, and contribution (Gordon, 2005, 25).

Fitzpatrick identifies four roadblocks and three interventions when evaluating virtual team performance (Fitzpatrick, (Undated), 70). With virtual teams, managers and team members are usually physically separated. This presents a *physical observation challenge* as managers are not able to physically observe their team's performance and effectively implement corrective actions to build trust and co-operation, and ultimately improve performance. The second

challenge is *Employee Equity and Organizational Justice Issue* and deals with the fact that virtual team members are usually isolated from the main organization. Virtual employees often feel that being "out of sight" prevents them from being considered for promotions and professional advancement compared to the collocated "office" employees. This ultimately leads to virtual team members' withdrawal from the organization's goals, reduced productivity, and in many cases leaving the organization (Fitzpatrick, (Undated), 70). Another challenge evaluates the *Barriers to Team Performance Knowledge and Awareness* and is concerned with the lack of leadership knowledge when dealing with virtual teams in general. Managers that do not understand the factors and root causes that influence virtual team performance are most definitely faced with the challenge of effectively evaluating and improving their performance. Lastly, when managers focus solely on results (output) and not on the process that brings about those results, they are presented with the *Overemphasis on Output Evaluation* challenge (Fitzpatrick, (Undated), 70). Due to physical distance, managers are usually not able to observe and evaluate the actual process that leads to the results, and therefore they cannot accurately determine the reasons for the virtual team performance.

To mitigate these challenges, Fitzpatrick suggests the use of a *balanced scorecard*, comprised of business priorities, to evaluate virtual team performance. In his opinion, "Creating objective performance appraisals against an organization's various scorecard dimensions enables managers to have a far more transparent understanding of the effectiveness of their virtual team and create more standardized methods of evaluating future virtual team performance" ((Fitzpatrick, (Undated), 71). Another intervention that can be used in order to improve virtual team performance is *increasing the information flow*. Essentially, this means that by sharing more information among team members, clearly communicating team goals and objectives, and

facilitating mutual knowledge exchange, managers can significantly improve their virtual team's performance ((Fitzpatrick, (Undated), 71). Indeed, lack of information sharing and clearly defined objectives lead to frustration and withdrawal of virtual team members and possible departure from the organization. Lastly, the *utilization of alternative sources of information* can be used to evaluate virtual team performance based on evaluating individual team members' performance ((Fitzpatrick, (Undated), 72). By using different criteria for measuring both objectively and subjectively individual performance, managers can assess the overall team performance.
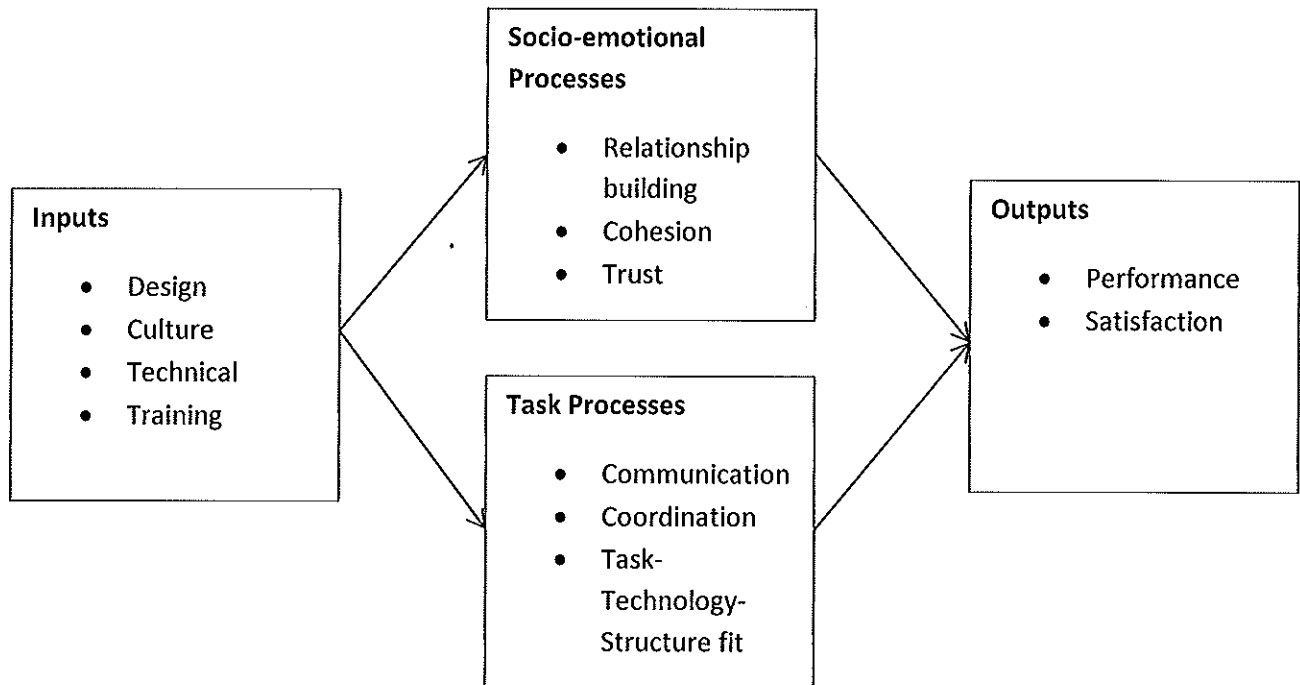
Evaluating Virtual Team Performance

Multiple literature sources deal with evaluating and measuring virtual team performance. Most sources present holistic frameworks of combinations of factors that directly or indirectly contribute to the virtual team performance. Furthermore, different researchers have focused on the relationships and impact of these factors on virtual team performance. Some study the correlation between cohesiveness, status processes, counter normative behavior, and communication. Others examine things like diversity, extraversion, expertise, and group interactions and their effect on team performance (Liu, Burn, 2006, 19). More often than not, these frameworks revolve around two general sets of factors: social and task-related determinants. The following section will try to illustrate some of these frameworks and discuss in more details the factors that the author deems to be the most important for the virtual team performance.

One of the most fundamental frameworks for studying virtual team performance was suggested by Powel et al. in 2004 (Liu, Burn, 2006, 21). It presents the main factors that

influence virtual teams and can be applied and revised for different research environments, i.e. the weight of the individual factors can vary from one study to another. The framework is based on four constructs: "inputs", "socio-emotional processes", "task processes", and "outputs".

Figure 1. Powell's et al. (2004) framework of virtual team performance factors

Source: Adapted from Liu, Burn (2006, 22).

By studying the individual elements of the framework, one can understand the characteristics and relationships between the factors that influence virtual team performance and satisfaction. The "inputs" refer to the structure and composition of the virtual team – design, culture, technical abilities and training levels of its members. This foundation is then analyzed against the various socio-emotional and task-related processes to determine their degree of influence on performance and satisfaction.

Other authors (Sridhar, Nath, Ravi, Kapur, 2007, 162) present a similar framework using slightly different methodology:

Figure 2. Research model for virtual team performance factors
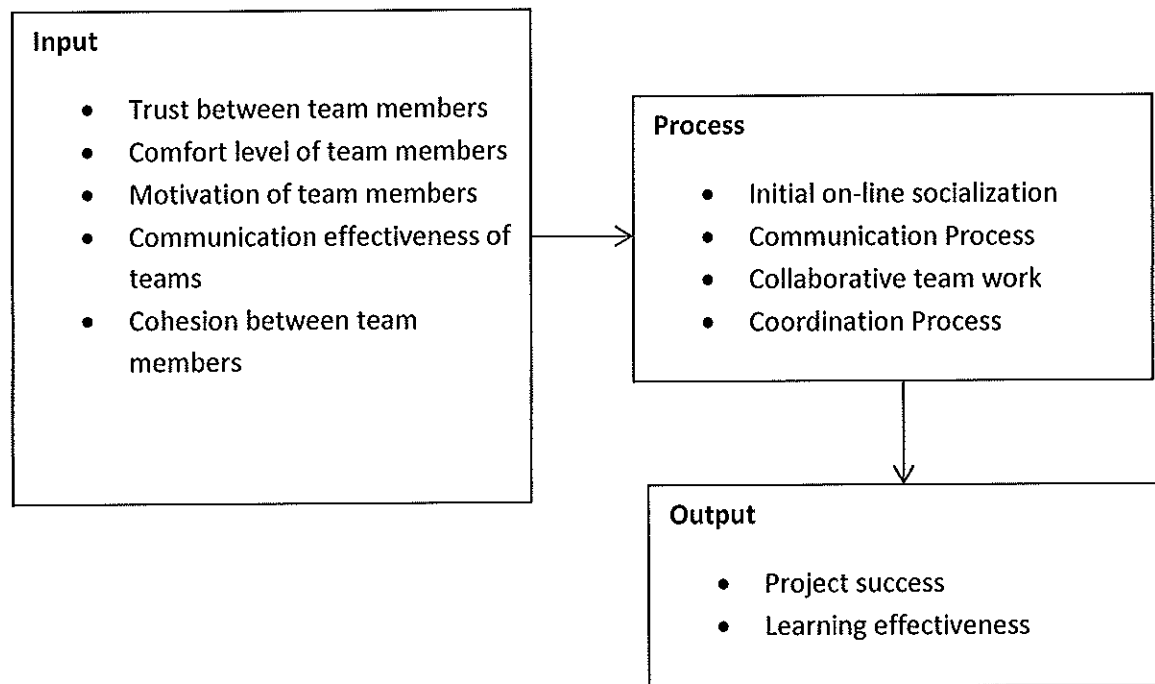
Source: Adapted from Sridhar, Nath, Ravi, Kapur (2007, 162).

In this case, the virtual team performance is measured through the "Output" variables *project success* and *learning effectiveness*. The framework is adapted towards more specific project virtual teams rather than Powell's framework above, which is more general. Although there are slight differences in the two models, most of the variables are present in both and they follow a very similar logic. Moreover, both frameworks are process driven in the middle.

Another group of researchers simply present a classification of factors derived from multiple studies that affect virtual team performance (Rico, (Undated), 2). In this classification, Rico divides the factors in two groups: technology and non-technology and three types of

variables: independent, mediating, and dependent. Based on this research, the non-technology factors are: role, coordination, interdependence, empowerment, culture, maturity, centrality, motivation, collaboration; and the technological factors are: medium, technology, usage, incentive, absorption, perception. The correlation between technology and non-technology factors and their impact on team performance has been studied extensively. The main findings from Rico's research are that non-technology factors are the most significant determinants of virtual team performance and that technology was not able to overcome the classical barriers to virtual team performance (Rico, (Undated), 3).

If we study closely the last classification, we can see the similarities with the previous two frameworks. Although different authors use different ways of structuring their research findings, they all come up with very similar results. The presented frameworks give us a very good idea of the common factors that influence virtual team performance and their relationships.

Following is a further discussion of what the author feels are four of the most important determining factors of virtual team performance.

Performance and Degree of Collocation

There are many different classifications of what constitutes virtual and collocated teams. Although some authors believe that virtual teams never meet face-to-face and carry all work tasks remotely, many definitions agree that virtual teamwork involves some level of face-to-face interaction even though, on a day-to-day basis, most work is performed using technology mediated communication (Kirkman, Rosen, Tesluk, Gibson, 2002, 5). Thus, there are a few fundamental similarities and differences between the two types of teamwork.

It is natural to assume that collocated teams perform better than geographically dispersed teams solely due to the short distance between their members. Many experts though believe that "virtual teams can be successful if they are formed, trained and managed correctly" (Joinson, 2002, 71). Others go to the extent of claiming that dispersed teams can outperform collocated ones if managed in specific ways (Siebdrat, Hoegel, Ernst, 2009, 63). In particular, the latter authors performed a software development study of 28 labs in different countries. As a result they found out that certain crucial team processes were determining when it came to virtual team performance. They classified these processes as task-related and socio-emotional (See Table 3). Namely, the task-related processes had the most critical importance for the virtual team's performance.

Table 3. Team Processes Affecting Performance

Task-Related Processes	Socio-Emotional Processes
1. Mutual Support	1. Overall Group Goals
2. Member Effort	2. Identify with the Team
3. Work Coordination	3. Actively Support a Team Spirit
4. Balance of Member Contributions	4. Increased knowledge transfer
5. Task-related Communications	5. Resolution of team conflicts

Source: Adapted from Siebdrat, Hoegel, Ernst (2009, 63)

Although the authors did not find the socio-emotional processes to be differentiating, they believed that those processes had an indirect effect on the task-related processes and in turn on the virtual team's performance.

Performance and Team Empowerment

One of Cerner's corporate directives is to empower its associates in order to provide client and shareholder value. Managers today are expected to be good at and comfortable with empowering the people they work with. Through empowerment, managers help others to acquire

and use the power needed to make decisions affecting themselves and their work (Schermerhorn, Hunt, Osborn, 2002, 181). In today's corporate environment we see the existence of the knowledge worker who needs to be empowered and not managed with the traditional top-down methods to achieve superior results. Organizational structures are transforming into horizontal and matrix/project driven organizations that rely on empowerment and knowledge rather than on stick-and-carrot approaches. In his article Management's New Paradigms, Peter Drucker states that managing knowledge workers presents new challenges: "Managers today must direct people as if they were unpaid volunteers, tied to the organization by commitment to its aims and purposes and often expecting to participate in its governance. They must lead workers instead of managing them" (Marcus, Manville, Agres, 2000, 13).

Research has shown that team empowerment has positive effect on the performance of collocated teams (Kirkman, Rosen, Tesluk, Gibson, 2002, 1). The same authors argue that team empowerment is more important to the performance of virtual teams than to collocated teams because of the nature of the virtual teams' tasks. Their research shows that team empowerment is especially critical for virtual teams' process improvement and customer satisfaction. Due to the nature of virtual teams their members need to be able to have the power to make decisions, collaborate with other teams, and freely transfer knowledge and initiatives. Empowerment makes possible the constant process improvement in the virtual team's work because of the many sources of ideas and input. In a traditional top-down organization this would be difficult to achieve due to the multiple levels of approvals and the expectation that only higher management is responsible for process improvement.

With respect to customer satisfaction, empowerment allows virtual teams to effectively and proactively solve internal and external customer issues without waiting for managerial

approval (Kirkman, Rosen, Tesluk, Gibson, 2002, 4). Indeed, customer satisfaction levels depend on the efforts of every team member and those levels increase when team members have the power to make decisions and react to environment changes. Moreover, virtual teams that find their work meaningful and impactful are more likely to proactively engage and influence customer satisfaction because such responsibilities are intrinsically important.

As a result of their study on empowerment and virtual team performance Kirkman, Rosen, Tesluk, and Gibson concluded that highly empowered virtual teams are able to deliver higher levels of process improvement and customer satisfaction, especially for teams that rarely meet face-to-face. In cases where face-to-face meetings are not feasible, virtual team leaders need to put extra efforts to empower team members to directly contribute to process improvement and customer satisfaction.

Performance and Level of Trust

In the context of virtual teams, trust is of great importance as team members are geographically dispersed and have rare, if any, face-to-face interactions (Sridhar, Nath, Ravi, Kapur, 2007, 160). Moreover, developing trust in dispersed teams is more difficult to achieve due to the fact that team members seldom or never physically meet. In many project oriented virtual teams trust needs to develop more quickly due to the relatively limited life of the team.

In order to build trust for sustained relationships, many virtual teams meet face-to-face to establish project expectations and rapport with each other, decide on communication strategy, and socialize. Without the necessary level of trust, virtual team members are usually reluctant to share information, establish a common ground, and fully engage in the team's activities. Face-to-face meetings are extremely important for building team trust and directing team members

towards achieving a common goal. Moreover, face-to-face meetings enhance communication and level of trust and reduce the sense of isolation (Joinson, 2002, 72).

Performance and Effective Communication

Communication is at the center of any virtual team process. Hulnick notes that "if technology is the foundation of the virtual business relationship, communication is the cement" (Sridhar, Nath, Ravi, Kapur, 2007, 161). Some of the challenges to effective communication in virtual teams include time delays in sending feedback, differences of interpretation of written text, assurance of participation from remote team members (Sridhar, Nath, Ravi, Kapur, 2007, 161). As discussed below, these challenges can lead to conflicts within the virtual team, cause unnecessary stress, and consequently have a negative impact on the team's performance.

According to Daft et al.'s <u>Media Richness Theory</u>, organizational success is based on the organization's ability to process information of appropriate richness to reduce uncertainty and clarify equivocality (Liu, Burn, 2006, 26). Exchanging information is part of the communication process and when information is absent or insufficient, uncertainty exists; with the increase of information, uncertainty decreases. The second part of the theory implies that multiple interpretations or misinterpretations of the information can produce conflicts about a specific situation. When facial expressions, non-verbal cues, dress and posture are excluded from the communication process the team's effectiveness decreases. According to the same authors, face-to-face communication presents the richest media as it allows for immediate feedback, non-verbal cues and message implication expressed in natural language (Liu, Burn, 2006, 26), while technology mediated communication is suitable for task-oriented rather than social-oriented processes.

Some authors point out that technology limits "the communication process because electronic media are intrinsically leaner than face-to-face communication and convey a limited set of communication cues" (Sridhar, Nath, Ravi, Kapur, 2007, 161). According to other theories the less information available within a medium, the less attention is paid by participants (Liu, Burn, 2006, 21). In essence, this means that virtual teams are presented with bigger challenges than collocated teams when exchanging information, which in turn can affect their performance. Others believe that despite the lack of face-to-face communication, asynchronous communication in virtual teams can actually increase effectiveness because the delay between response and feedback gives members the opportunity to think about and analyze the problems more thoroughly (Liu, Burn, 2006, 30).

Research Procedure

For the purpose of evaluating virtual team performance we studied and analyzed some of the current literature trends on the subject and conducted a series of interviews with a group of virtual team representatives. All interviews were conducted with associates of Cerner Corporation ("Cerner"), a major supplier of healthcare information technology ("IT") solutions. In particular, Cerner's ITWx business unit was targeted for this research due to its extensive use of virtual teamwork. The ITWx organization provides a full suite of strategic and information technology services to Cerner clients and fully integrates with the client organization. By taking over the IT operations of the client and rebadging their existing IT staff, Cerner essentially creates ITWx virtual teams that consist of Cerner employees at the client sites and at Cerner's multiple locations. These teams often span across different time zones, geographic locations, and in some cases different countries.

Cerner uses a relatively flat matrix based organizational structure giving managers the latitude to create and implement their own procedures and practices. Associate empowerment is one of the leading principals at Cerner and therefore it was expected that a wide variety of views and opinions on the topic of evaluating virtual team performance would be presented.

A careful sample of associates was chosen that represents the different layers of the virtual teams. A mix of executives, technical engagement leaders, project managers, and technical architects were selected based on roles and responsibilities within the teams. The intent was to reach out to a wider audience in order to get a fuller understanding of the different viewpoints and opinions. The expectation was that a significant difference in opinions would

exist between the associates at Cerner and the ones at the client sites. The following questions were used to conduct the interviews:

1. What are the characteristics and determining factors of a well-performing virtual team?

2. How can we capitalize on the advantages and mitigate the challenges of virtual teamwork?

3. Should performance of virtual teams be evaluated and do you believe that Cerner should implement a tool for evaluation?

4. If we are to use a framework to evaluate virtual team performance, what would be the building components of that framework?

The literature review which was the starting point of this research along with the conducted interviews at Cerner, were taken together with the author's viewpoint during the analysis of the results. The following results summary can be used as the basis for potentially creating a framework for evaluating virtual team performance at Cerner.

Results

Interviews

Following is a table with interviewed Cerner associates that are representative of the targeted audience. Both Cerner based and client based associates were interviewed that were either in management or technical roles. All interviews were conducted either in a face-to-face setting or over the phone between July and September of 2012.

Table 4. Interviewed associates by role, organization, and work location.

Name	Role/Title	Organization	Work Location
Jack	Service Delivery Manager	CernerWorks	Cerner Based
John	Sr. Director Service Delivery Executive	CernerWorks	Cerner Based
Josh	Director Enterprise Solution Hosting	CernerWorks	Cerner Based
Jason	Sr. Director ITWx Project Implementation	CernerWorks	Cerner Based
James	Sr. Process Architect	CernerWorks	Cerner Based
Jared	Sr. Technolgy Architect	CernerWorks	Cerner Based
Juliana	Sr. Programmer Analyst	ITWx	Client Based
Jackson	Sr. ITWx Project Manager	ITWx	Client Based
Julie	Director East Jefferson Technology	ITWx	Client Based
Joel	Information Systems Architect	ITWx	Client Based

Service Delivery Manager - Jack

Jack's answer to the **first question** revolved around the notion that virtual teams need to perform well regardless of the physical distance between them. He mentioned that client based

and Cerner based employees of the same virtual teams should feel like they are extensions of each other. In general, Jack believes that virtual and collocated teams share similar characteristics when it comes to ways of operating, and executing day-to-day activities. He also noted that an independent auditing agency – KLAS, recently rated one of Cerner's strong selling points as the ability to extend well the CernerWorks teams with the client based teams. Part of KLAS' audit is finding out how well Cerner works with their clients, and if they build good relationships and trust. In Jack's opinion, it takes about a year for the virtual team to establish a trust relationship and ground rules for operation within the team – roles and responsibilities, how to communicate, etc.

Some of the factors that Jack thought determine virtual team performance are communication, distance, trust, recognition, empowerment, knowledge capital, planning, being upfront with any issues and concerns. In his experience, being taken by surprise and failing to follow and execute a plan could ruin a virtual team. Another important characteristic of well-performing virtual teams is clear definition of responsibilities – who-does-what is defined and communicated to every member of the team. Knowing team members' availability and being mindful of each other's schedules, especially when working with global clients and different time zones is extremely beneficial for the proper operation of the virtual team. Lastly, recognizing other teams' contribution to the end goal is especially important when it comes to the success of the different project and production virtual teams within Cerner.

Jack's answer to the **second question** was that Cerner takes advantage of virtual teamwork by being able to work around the clock by virtue of being a global company. Also, by having employees at the client sites Cerner provides subject matter experts on site, allocation of resources, and combined responsibilities. On the other hand, by centralizing certain system

management activities Cerner could achieve economy of scale by servicing multiple clients with centralized specialized teams at Cerner.

In his opinion, communication issues like language barriers or lack of face-to-face interactions are a huge challenge. They could be mitigated by using specialized training courses, e.g. Cerner's "Cultural and Global Awareness" training class, use of common toolsets to communicate, like virtual conferencing. Another challenge is building team's trust, which could be mitigated by having regular face-to-face meetings and social events that include virtual team members that are both Cerner based and client based.

In his answer to the **third question**, Jack agreed that it would be beneficial to evaluate the performance of virtual teams in Cerner by using effective measurements. He gave an example with their regular SDM meetings where an associate from CernerWorks - India attempted to judge resources against their counterparts in the US using metrics such as: SR (Service Request) turnaround time, number of SRs closed, and number of CRs (Change Request) generated. According to the metrics used, the engineer that took first place was recently hired and was assigned with all the trivial cases that had a very quick turnaround time. Hence, his numbers looked really good on paper. Jack believed that Cerner needs to find a balance between quantitative and qualitative metrics in order to be objective in performance evaluation. A manager needs to know their associates and what they are working on and not just use a scorecard or a graph to measure performance, but be in touch with what is going on with the team to determine what that team needs, i.e. training, allocation of resources, leadership changes, changes in responsibilities, etc.

When answering the **fourth question** Jack mentioned that managers could use open ended surveys among Cerner associates and collect data from Cerner's business systems – CRM, CMDB, etc. in order to identify key metrics for performance evaluation that are meaningful. He continued with proposing the following framework for evaluating virtual team performance at Cerner: *Step 1* – identify key metrics for evaluation; *Step 2* – collect information from various sources CRM, CMDB, etc.; *Step 3* – analyze and evaluate the information; *Step 4* – make recommendations to improve – could be at micro and macro levels; *Step 5* – implement changes to improve performance; *Step 6* – monitor progress and repeat through the steps as needed. According to the SDM, the ultimate indicator of performance was client satisfaction and client reference-ability; these two affect the bottom line directly. Moreover, each team needs to have the right people for the job and be at the right place and time in order to execute flawlessly and ultimately achieve client satisfaction.

Sr. Programmer Analyst - Juliana

Juliana answered the **first question** by saying that virtual teamwork requires dedicated team members that could thrive in such an environment. In her opinion, those are usually people that require less direction and supervision. For the team to perform well, all team members need to be on the same page at all times, have the ethics and accountability to work in a virtual environment.

In her opinion, communication is the most important factor affecting virtual team performance. She believes that regular conference calls with team members could contribute to creating a constant communication flow within the team. She also warned that some of the current communication media like IM and e-mail could be misleading and the message might be

misinterpreted. Hence, reliable tools like web conferencing applications and systems that allow for the participants to see each other are crucial for improving the communication process.

In answering the **second question**, Juliana used two perspectives: the client's and the virtual employee's. From the client's point of view, Cerner could provide a tracking mechanism of all current and closed projects so that team members and executives on the client site could get a better idea what has been accomplished by the ITWx teams. One of the clients' remarks in the past has been that they could not get the immediate response they needed on project status. In a virtual environment the immediate accessibility to resources could be challenging, especially when these resources are thousands of miles away at Cerner's headquarters.

From the virtual team members' perspective, Juliana placed the greater risk for miscommunication as the biggest challenge in virtual teamwork. To remedy this challenge, virtual teams should work at least 10% of the time collocated, or have frequent video conferencing calls. Some of the other challenges in her opinion are relationship building, work recognition, lack of specialized skills, and managing expectations. Relationship building could be achieved by regular face-to-face meetings and attending company events. Good examples for company events are Cerner's health conference and town hall meetings as well as Cerner's annual technology conference. Both of these venues provide ample opportunities for relationship building and exchanging professional experience. Managers need to recognize team members' contributions and be actively engaged in their professional development. Also, team members need to specialize in certain areas in order to better meet client demands and expectations. This could be achieved by attending specialized training classes at Cerner and at vendor conferences or training events.

In her answer to the **third question** Juliana stated that most people stop being productive due to frustrations of not being heard or that their efforts were not recognized. For that reason there should be a corporate team that gets feedback on a regular basis from the virtual employees at the client site and at Cerner about the challenges they experience. This information should be circled back to the leadership team that has the power to change policies and procedures, and make necessary changes. Juliana felt that Cerner should definitely develop a system to evaluate virtual team performance that in turn could be used to make their processes smoother and more productive.

To answer the **fourth question**, Juliana said that a framework for evaluating virtual team performance should have three components: *virtual team member satisfaction, virtual team productivity*, and *client satisfaction*. Essentially she believed that satisfied virtual team members would have increased productivity that would result in a greater client satisfaction.

Juliana further elaborated that *employee satisfaction* in the virtual team could be determined by monitoring the level of dissatisfaction among team members. In particular, managers should find out if virtual team members have the right tools to perform their jobs, have the necessary training and access to knowledge banks, and develop good professional relationships with other team members. The second stage of the model is measuring *productivity of the virtual team* using metrics such as issues resolved, projects closed, system uptime, system recovery time, etc. Finally, to measure *client satisfaction* Cerner should perform regular client surveys inquiring about items like project follow-up and follow-through, do they feel that Cerner has their best interest, are issues resolved in a satisfactory manner, problem ownership and action plans.

Sr. Director Service Delivery Executive - John

When discussing the **first question** with John, he stated that there were two key factors when it comes to virtual team performance characteristics. The first factor deals with the experience of the virtual team members. In his opinion, virtual team members, as well as leaders need to possess a certain degree of experience and maturity in order to perform successfully in a virtual setting. John emphasized that this was especially true for the virtual team leaders; they need to be proven leaders aware of the challenges of virtual teamwork.

The second factor for virtual team performance is the certain culture of the team. John believes that Cerner needs to build a culture that is supportive of virtual teamwork. As part of that culture, virtual team members should feel at all times that they have the support of their leaders and the rest of the company. Another crucial component of that culture should be creating an environment that values every team member's contribution and also makes them feel that they have real long-term future with the company.

John answered the **second question** by saying that proximity to the client is Cerner's biggest advantage. The part of the virtual team that works at the client site has the ability to quickly build client relationships; as he put it: "They are the face of Cerner". Cerner's leadership has tried and adopted different types of organizational structures through the years in order to better reach out and service its clients. In his opinion, Cerner would have failed if all associates were concentrated in Kansas City and virtual teamwork had not been adopted. Using virtual teams also allows Cerner to extend its talent pool to different markets and not be completely dependent on the local labor market. These advantages also allow Cerner to react quickly on the ground as leadership is provided with immediate feedback form the client site.

One of the challenges of virtual teamwork is that the virtual team on the client site is to a great extent disconnected from what is happening at Cerner and also from what other client teams have done, i.e. lessons learned, experience, problem resolution, etc. John believed that this challenge could be mitigated by creating virtual communities that share their client experiences and stay in touch with Cerner by frequently visiting the headquarters or just meet at a common place and have them share their stories.

In John's opinion, it is more difficult to manage employees from a distance than face-to-face. Thus, a certain maturity level of virtual team members and leaders need to exist. Managers need to create professional opportunities and build strong relationships with team members. In this way they can help them grow and make them feel connected to everything going on at Cerner. John is convinced that a lot is lost form the communication process in a virtual environment. For that reason, using video conferencing and more face-to-face meetings are necessary – either at the client site or at Cerner.

John's immediate answer to the **third question** was "Yes, absolutely. Performance should be evaluated at both the team level and individual level. If you can't measure it, you can't manage it." Cerner already uses an evaluation curve for measuring individual performance that can also be applied to team performance. John believes that metrics are necessary to measure the success of the team, but we also need to look at other non-measurable factors like relationship building, motivation, team engagement, etc. that are not easily quantifiable. As he put it "… we can't just use a scorecard and call it good. " Managers need to be very involved in the evaluation process and provide team members with constant feedback so that they can track their progress throughout the year.

To answer the **fourth question**, John said that we need to focus on finding out what the key measures for team success are: whether it is client satisfaction, defects reduced, Service Requests (SR) logged, etc. In his opinion, the key areas for success are financial performance, client satisfaction, clinical transformation, technical transformation, and workforce transformation. Based on these key areas for success we can build a framework for evaluating virtual team performance at Cerner. Namely, John stated the following metrics for each key area for success: *financial performance* – capital, expenses, head count, and sales; *client satisfaction* – SR turnaround, client surveys, and reference-ability; *workforce transformation* – team turnover rate, training needs, rate of filling open positions, use of score cards to measure performance, and initiatives around connecting team members; *clinical transformation* – number of clients at HIMS level 7, number of clients on CPOE, and number of clients that have tested for meaningful use (these are all industry accepted measures for clinical transformation); *technical transformation* – assessments performed to drive the technical transformation. In John's opinion, the technical transformation drives the clinical transformation and vice versa; they are interdependent.

Director Enterprise Solution Hosting - Josh

Josh began answering the **first question** by saying that the ITWx team on the client site should be an extension of the virtual team at Cerner. In his words, mutual respect for each other is of utmost importance within a virtual team and maintaining personal contact with each team member goes a long way to building chemistry and camaraderie. In his opinion, spending face-to-face time with other team members helps build trust and credibility in each other's abilities and skillset. Moreover, team members build trust by working together and sharing experiences. Another important factor contributing to virtual team performance is communication.

Communicating frequently on routine project status calls, or weekly project update calls is crucial. Another important factor that contributes to the team's performance is the existing culture within the team – being able to sympathize and empathize within each team environment.

In his answer to the **second question** Josh mentioned that one of the biggest challenges of virtual teamwork is distance. Distance makes the operation of the team difficult and to alleviate that, team members need to have face-to-face meetings or use virtual rooms (teleconferencing) in order to build team trust.

Josh is also a firm believer that Cerner should have the leading role at the beginning of the new client engagement until the rebadged virtual team employees get on board with Cerner. The challenges at the beginning of the onboarding process are with educating the new team members on how Cerner functions in general and what their roles entail. As these relationships mature, the exchange between virtual team members on-site and at Cerner can become bi-directional. He also believes that virtual team members need to spend time together to share their experiences and learn about the culture at Cerner, e.g. team summits, social events, etc. Another activity for building trust and learning about each other's work is through team shadowing – a practice that is widely accepted at the individual associate's level at Cerner.

In Josh's opinion, the biggest advantage of virtual teamwork is the proximity to the client and the ability for Cerner to extend its teams to the client sites. The client teams on-site represent Cerner directly and are able to immediately solve issues or get feedback on opportunities for improvement. Virtual teamwork also allows Cerner to extend its talent pool to larger geographic ranges by recruiting and retaining employees at Cerner's client sites. Virtual teamwork also has financial benefits by reducing the travel budget of the company.

To answer the **third question**, Josh went on to say that he is a big proponent of creating a standard approach to evaluating how virtual teams measure up to the company's goals and imperatives. He believes that Cerner should be evaluating virtual teams through measuring the progress in the clients' technology roadmaps, project maps, and benchmarks. He also thinks that all the tools used to evaluate collocated teams could be applied to virtual teams with some modifications: "We do have the tools; we just need to use them for this purpose."

In answering the **fourth question**, Josh proposed the following five-component framework for evaluating virtual team performance at Cerner: *skills inventory* – evaluate whether team members possess the necessary skills to perform their jobs in order to achieve the necessary results; *technology assessment* – determine the current state of the technology environment and find areas for improvement; *project management* – assign the right people, communicate effectively, determine training needs, prepare project plans and create templates for future use to implement Cerner best practices; *process review* – determine in-flight project status and resource contention, receive feedback on overall progress, use meeting status calls to measure progress; *corrective actions* – realign resources and processes, and take possible corrective measures to remedy problems.

Director East Jefferson Technology - Julie

Julie answered the **first question** by saying that historically Cerner has had well-performing virtual teams and that the company relies heavily on virtual teamwork. In order for the virtual team to be successful, all team members need to know their subject matter very well; they need to be subject matter experts in their respective areas of expertise. Another important factor for well-performing virtual teams is effective communication via regular meetings and

discussions of very specific topics. Also, Julie said that documenting everything that is discussed during the meetings, e.g. roles, responsibilities, progress, etc. is of utmost importance in a virtual teamwork setting. For the team to perform well, a designated leader figure that possesses great communication skills needs to be assigned. The virtual team leader can provide vision and guidance to the rest of the team and also keep track and follow up on task-related activities. Another important factor in Julie's opinion is openness - everyone needs to feel comfortable bringing up issues in real time and not wait until the next team meeting. Lastly, spending face-to-face time with other virtual team members at Cerner and client sites helps build trust and eases the communication process.

When discussing the **second question**, Julie pointed out that one of the biggest advantages of virtual teamwork is the level of expertise that exists at Cerner and that can be used to resolve situations locally at the client sites. This is usually expertise that many of the clients did not have prior to signing ITWx contracts with Cerner. Cerner already has an established culture of using virtual teamwork to do business with its clients and part of that culture is the ability to pull resources together at any of its client sites to quickly remedy different issues. Associates at Cerner have the expectation that they will be working in one form or another of a virtual team and in many respects they feel inspired by the level of collaboration within Cerner and the existing knowledge base. This type of environment provides huge opportunities to learn and grow professionally.

Some of the challenges that Julie mentioned during the interview were the lack of face-to-face interaction between team members and the fact that they usually do not know each other personally. Also, due to the high level of expected multitasking at Cerner it is very easy to get distracted and lose focus which can negatively affect the performance of the team.

Communication is another challenge because of the lack of emotion and body language in the virtual team's usual means of communication – email, IM and conference calls. Julie stated that to mitigate these challenges virtual team members need to take very seriously the regular team conference calls and participate 100% of the time. Also, face-to face meetings are absolutely necessary, especially during the forming stages of the virtual team to build trust and get to know each other.

Julie also mentioned the fact that virtual teams in most cases comprise of associates who belong to different functional groups in Cerner and report to different functional managers. This often creates friction as all these different entities compete with one another for the same resources. In her opinion Cerner can do a better job establishing the roles, responsibilities, and structure of the various teams so that the clients know clearly who to contact with their various requests.

Another challenge in Julie's opinion is that often the part of the team that resides on the client sites is unaware of what the expectations are from that local team. To a great extent this is due to the fact that the processes and procedures on the client sites are not the same as the ones at Cerner and that causes confusion and uncertainty. These challenges can be remedied by increasing the awareness of virtual teamwork at Cerner, deciding who the specific virtual team leaders are, and providing access to the same tools to Cerner associates at the client sites as the ones available to the associates at Cerner.

Julie's answer to the **third question** was that evaluation of virtual team performance is necessary and that Cerner needs to put more effort into studying the factors that affect that performance. Virtual teamwork is an intrinsic part of Cerner's culture and because of that fact

virtual teams are not viewed differently than collocated teams; and not enough recognition exists that they need to be managed differently. This is why awareness all the way down to basic training and understanding of the differences and challenges of virtual teamwork is necessary. Julie is also convinced that the individual performance evaluation that Cerner uses can be applied towards the evaluation of virtual team performance.

To answer the **fourth question,** Julie said that Cerner already has a great framework for evaluating individual associates that can be readily used to evaluate performance of virtual teams as well. It is called the **Cerner Attributes Framework** and consists of the following eight elements: *Accountability, Agility, Collaboration, Commitment, Edge, Energy, Innovation,* and *Integrity.* The framework captures the core Cerner behaviors that associates are expected to demonstrate in order to deliver results. A full description of the framework and the specific metrics for evaluating each attribute can be found on uCern: https://wiki.ucern.com/display/HR/Cerner%20Attributes.

Sr. Process Architect – James

James started answering the **first question** by saying that well-performing virtual teams should have similar characteristic as well-performing collocated teams. He noted that effective communication through regular status calls and discussion groups is one of the biggest factors contributing to virtual team performance. James also believes that the virtual team should have common goals; sometimes this can be a challenge for virtual team members. He also mentioned that understanding and following the same processes and procedures, establishing clear expectations on ground rules for team operation, and defining roles and responsibilities early on are especially important. Another important factor is the use of common tools and company

training, and what its different teams do; how do the virtual employees fit in the big Cerner picture.

To answer the **second question,** James pointed out that one of the advantages of virtual teamwork at Cerner is the proximity to the client and understanding at a much deeper level what the challenges and opportunities are at the client site. Cerner is very project-oriented and we receive immediate feedback on the aftereffect of a project because we have virtual team members on the client site. This allows us to rapidly develop new solutions with doctors and nurses in mind and identify areas of improvement.

Another advantage is knowledge sharing. Cerner has a wealth of knowledge and resources that are readily available to our clients. Sharing of knowledge between the different Cerner client-teams is very important as well as it allows them to share expertise and experience from different projects.

Some of the challenges that James pointed out are the transitioning of responsibilities between the different Cerner teams. It is often unclear who is responsible for what and the extent of their responsibilities. James believes that this can be mitigated by using a formal sign-off process of responsibilities between the different teams and use of training and education about the various challenges of virtual teamwork. Another challenge is the maturity of the ITWx organization. ITWx is a very new organization and there are certain inconsistencies in the teams' structures at the client sites. Cerner is addressing this challenge by being aware of it and adapting to the new organization. Lastly, James mentioned that communication is a big challenge in virtual teamwork. It can be mitigated with weekly meetings, clear and frequent communication, bringing people together physically at different Cerner events. Virtual team

members can also shadow different Cerner employees and in this way build trust through the face-to-face interactions.

James answered the **third question** by stating that Cerner should evaluate how virtual teams compare to non-virtual teams performing the same work. He mentioned that operations reviews are performed monthly and quarterly based on SLAs, training needs, change management, etc. Information about these reviews can be obtained from various data repository tools like MyBI, which contain information about different metrics for evaluation. In James' opinion it would be beneficial if we could use a balanced scorecard for evaluating the performance of virtual teams. The scorecard should be an actual live view of how teams are doing, in other words, it would be a real time reporting dashboard. This would be very valuable for the periodic management reviews that tie corporate imperatives down to ITWx imperatives.

To answer the **fourth question,** James further developed his idea of a balanced score card for virtual teams performance evaluation. In his opinion, the score card should have the following four quadrants: *Responsiveness to clients* - Metrics: turnaround time on SRs, number of re-open tickets, responsiveness to outages, meantime-to-recovery; *Client satisfaction* (survey results about Cerner) - Metrics: are we knowledgeable, how fast was the service provided; *Training and education* - Metrics: use of Cerner Learning Manager (CLM) – assigned training per role, track progress and results, etc.; *Client site performance* – Metrics: SLAs, profitability, penalties, CHIAs, etc. All of these metrics are contained in the operations book review.

Sr. ITWx Project Manager - Jackson

On the **first question,** Jackson indicated that one of the determining characteristics of a well-performing virtual team is open and direct communication. Unlike collocated teams, with

virtual teamwork communication is deliberate; a concerted effort is needed for the communication to happen. Jackson also mentioned that flexibility and adaptability to different situations are crucial in a virtual team setting. As the virtual environment changes rapidly, so do client needs, which require adequate and sensible response from the virtual team members.

In answering the **second question**, Jackson pointed out that the broader pool of resources, geographic disparity, and follow-the-sun mentality are some of the major advantages of virtual teamwork at Cerner. By being able to draw from a virtual pool of resources, Cerner is able to increase the capabilities of its virtual teams.

Jackson mentioned distance as a major challenge in virtual teamwork which can be mitigated by dividing and delegating work, and empowering employees to take control and operate autonomously. Jackson pointed out that communication is another major challenge in virtual teamwork that can be facilitated by establishing appropriate communication channels and expectations. Another challenge in Jackson's mind is keeping the virtual team members engaged in the teams dynamic and processes. Managers need to be cognizant of their needs and make sure that information is equally accessible to all team members. Also, Jackson stated that one cannot fail to recognize that the virtual environment exists; the level of awareness of the team's environment is greatly more important in a virtual team than in a collocated.

On the **third question**, Jackson said that virtual team performance should definitely be evaluated, but being virtual should not be a factor in the evaluation. In other words, he believes that virtual teams should be evaluated as any other team and have the same performance expectations as collocated teams. Jackson also thinks that virtual team evaluations should be measured compared to collocated teams.

To answer the **fourth question,** Jackson said that if he was to create a framework for evaluating virtual team performance, he would try to benchmark virtual against non-virtual teams doing the same work. As Cerner already has data around productivity of non-virtual teams, it needs to be extracted from the various data collection tools and come up with metrics for evaluation. In particular, Jackson's framework has the following components: *Team adaptability* -Metrics: communication skills, job-related skills, soft skills, risk mitigation skills, problem-solving skills; *Defined team structure* - Metrics: established team processes, quality and frequency of communication, team members' engagement, team goals and imperatives; *Team's ability to execute in a predictable fashion* - Metrics: project timeline variance from baseline, completeness of execution plans.

Sr. Director ITWx Project Implementation - Jason

Jason answered the **first question** by saying that a well-performing team, whether virtual or collocated, is one that delivers expected results. Team dynamics in terms of how well team members interact with each other, how involved everyone is with the team's goals, and the level of leadership intervention in the team's operations are determining to team performance. Jason pointed out that probably the most important factor for virtual team performance is the adherence of all team members to a common goal; common goal is what keeps the team together and makes it successful.

To answer the **second question,** Jason mentioned that one of virtual teamwork's biggest advantages is the ability to attract employees from different geographical locations that have the necessary background to perform the job. Also, virtual teams present the opportunity to deploy resources on as needed basis to or from client sites in order to quickly respond to client issues.

In Jason' opinion some of the biggest challenges with the ITWx virtual organization have been the allocation of resources and convincing team members in the common goals of the ITWx organization. As he put it "the borrowing of resources" from other teams is challenging because of the team members' loyalty to their functional units, which creates issue with the reporting structure. Another challenge has been convincing the larger Cerner organization and executive leadership in the advantages and benefits of the ITWx organization, which in turn influences the allocation of resources for that virtual organization.

Jason believes that these challenges can be mitigated by proving the value of the ITWx virtual teams as the future de facto standard for doing business to the rest of Cerner. He thinks that by quickly introducing and solidifying the Cerner culture and values at the ITWx client sites we can achieve faster strategic integration with the client organization that will eventually lead to a mutually beneficial relationship.

On the **third question,** Jason responded by saying that virtual teamwork is ingrained in Cerner's organization and that Cerner rarely makes a distinction between their virtual and collocated teams. With that in mind, he pointed out that Cerner already measures team and individual contributor performance. Jason also mentioned that Cerner uses GE's Bell Curve to measure individual associates' performance and in turn team performance; teams are evaluated based on the individual team members' performance evaluation.

Jason answered the **fourth question** by further developing his thought that virtual and collocated teams' performance should be evaluated in almost the same manner. Hence similar metrics for evaluation should be used for both: what was produced, what processes were used, and how did team members interact with each other. If he was to suggest a framework for

performance evaluation, it would include the following components and metrics: *Deliverables* –

Metrics: SRs, server builds, solutions migrated, etc.; *Quality* – Metrics: number of

failed/successful migrations, margin of planning and execution errors, reopened SRs, etc.; *Time* –

Metrics: schedule variances, on-time delivery percentage, turnaround time, baseline variances,

etc.

Jason also added that project difficulty and project prioritization variables can be added

to the framework in order to objectively compare each project that the different teams complete.

Sr. Technology Architect - Jared

To answer the **first question**, Jared said that regular and clear communication is needed

for the successful operation of a virtual team. In Jared's view, the communication needs to

include items like reviewing and discussing projects and project decisions, but more importantly,

explaining why certain decisions are made and how they help achieve the overall goals of the

virtual team. A team, regardless of being virtual or collocated, that does not share common goals

is destined for failure in Jared's opinion. Another important factor for virtual team performance

is clearly defined and documented roles and responsibilities for each of the team members and

set performance expectations.

To answer the **second question**, Jared started with the advantages of virtual teamwork,

pointing out the cost benefits and the ability to engage subject matter experts from different

locations as two of the major ones. He continued with other advantages like diverse backgrounds

and viewpoints of team members both at Cerner and client sites, the unique client knowledge of

the on-site team members, and the reliance of each side of the team to one another. In the ITWx

virtual teamwork case, the client teams can rely on the big Cerner expertise and the ability of the

company to concentrate resource quickly to solve client issues. In the opposite direction, the immediate feedback that the client teams provide back to the leadership teams at Cerner is invaluable.

When speaking about the challenges of virtual teamwork, Jared said that the lack of face-to-face interactions creates "different" relationships between team members, i.e. it takes longer for trust and mutual rapport to develop. He mentioned that these challenges can be mitigated by increasing the frequency of communication and setting up more face-to-face team meetings.

Another challenge in Jared's view is accountability; it is hard to be accountable to someone you rarely meet in person. This can be mitigated by building mutual respect through frequent communication, discussing of issues, and building team cohesiveness by learning about each other and their abilities. Jared also sees project urgency in terms of prioritization and expectations as a major challenge in virtual teamwork, which can be mitigated by clearly communicating these items before the start of each project.

On the **third question**, Jared answered that virtual team performance is currently not evaluated at Cerner and that an evaluation tool would be beneficial. In his opinion, the problem with the current means of evaluation at Cerner is that they are very subjective and input is not being solicited from different parts of the organization that the associate has been in contact with through the year. In other words, he believes that managers should pay more attention to peer and relationship interactions when evaluating performance.

To answer the **fourth question**, Jared pointed out that current tools used at Cerner for performance evaluation can be further developed and adjusted to virtual teams' performance evaluation. In other words, Jared thinks that the Cerner Attributes framework along with the

GE's Bell Curve should include an additional section that allows for inputting evaluations of different parties that have had virtual team interactions with the subject associate through the year. Managers should be able to proxy each associates review to other people who have worked with that employee on virtual teams during the year. The associate's manager's evaluation should have the final say and biggest weight in the evaluation process, but others' opinions should be taken into consideration as well.

Information Systems Architect - Joel

Joel answered the **first question** by saying that in his opinion trust is the most important factor for well performing virtual teams. Other factors, like clearly defined roles and responsibilities, having a common goal, and good team communication affect directly or indirectly the trust between the virtual team members. In other words, the lack or presence of the other performance factors support or negatively affect trust as the most crucial factor for virtual team performance.

On the **second question,** Joel pointed out that the biggest challenge in virtual team work is the lack of face-to-face communication, which makes it harder to manage projects and work in general. Hence, periodic face-to-face meetings and frequent communication on a daily basis is necessary. In Joel's opinion, conference calls are a good means of communication in virtual teams, but they lack visual contact; people are not as engaged in the discussion and tend to "multitask" when on conference calls. A good alternative to conference calls are video conference calls where participants can see each other and maintain a discussion in a "virtual" face-to-face environment.

Another challenge, specifically for ITWx virtual teams, is the different environment of the client based teams. This can create conflicts of interests in many cases as those teams are positioned in a buffer between Cerner and the client. In Joel's opinion, Cerner's ITWx teams need to be able to fully integrate with the client environment in order to reduce any cultural, ideological, and operational differences.

Joel pointed out that one of the advantages of virtual team work is Cerner's ability to bring in many people with different ideas into the mix, which increases innovation. This allows managers to pick from a pool of different employees, resources, and ideas. Another advantage is the ability to provide support to the client organizations 24/7/365 and maintain lower costs. Joel also mentioned that virtual teams can be more productive because they deal with fewer distractions than collocated teams and make a deliberate effort to collaborate and communicate with each other.

Joel answered the **third question** by saying that performance of virtual teams at Cerner should be evaluated both on individual and team levels. He thinks that the current performance evaluation processes at Cerner might not be sufficient for evaluating virtual team performance and that they need further adjustment.

To answer the **fourth question**, Joel proposed a virtual team performance evaluation framework revolving around the different projects that these teams perform. Specifically, he suggested that three components be present: *Setting of individual and team goals* – specific metrics should evaluate these goals throughout the year; *Processes* – metrics for evaluating collaboration, personal interactions, personalities, conflicts; *Results* – tangible performance

metrics: client satisfaction surveys, client results, SLAs, projects completed, task assigned vs. tasks completed, rework, negative incidents, team turnover etc.

Interview Analysis

In order to evaluate virtual team performance we first need to understand the factors that influence that performance, which was the goal of the first two questions. Once we understand the determining factors and characteristics of well-performing virtual teams, we can come up with specific metrics, in the form of a framework that can help us evaluate the performance of those teams; this was the goal of the second two questions.

It is interesting to note that the interviewees pointed out similar factors that influence virtual team performance which matched very closely with the ones from the literature review. For example, communication, trust, team goals, distance, roles and responsibilities, and leadership were the most frequently mentioned determining factors for virtual team performance. Also, the virtual team advantages and challenges given as answers to the second question were greatly in line with the literature review. Almost everyone agreed that distance is the biggest challenge in virtual teamwork and it can be overcome with more frequent communication and face-to-face meetings. As a result, some suggested that video conferencing is implemented with the two-fold goal of reducing travel costs and increasing the team members' engagement and decreasing distractions during virtual meetings. Two of the prevailing advantages that almost everyone mentioned were the proximity to the client and the greater wealth of different resources that virtual teams offer. Both of these advantages result in increased client satisfaction due to better understanding of the clients' needs and being able to quickly react in response to those needs.

All interviewees struggled to a different extent with the second set of questions, especially with the fourth question. Although everyone agreed that virtual team performance should be evaluated and that Cerner should be using a tool to measure that performance, it was difficult to come up with specific metrics and place them into a framework. The answers here indicated that scorecards based on quantitative metrics alone like number of SRs and CRs closed are not enough and certain qualitative metrics like team relationship building, leadership awareness, being in the moment, and others need to be taken into consideration. Furthermore, due to the purely subjective nature of individual and team performance evaluations, there was a suggestion that a peer review system is implemented as part of the annual evaluation process to fully capture the real contributions of the virtual teams and their members.

The answers to the fourth question ranged from using tools that Cerner already has for performance evaluation to proposing completely new, and to the author's opinion, innovative frameworks for measuring virtual team performance. Interestingly enough, the organizational roles of the interviewees translated into the elements of their framework. Some used project management constraints to build their frameworks around, others used strategic imperatives, and yet a third group chose a more operational approach. As a result, a wealth of information and ideas were presented in the fourth question that can be used for designing a specific virtual team performance evaluation framework at Cerner.

To the author's surprise, no major differences in opinions were observed between the client based team members and the Cerner based associates. This can be attributed to the fact that Cerner has used virtual teams for quite some time and, in general, the distinction between collocated and virtual teams in the company is not very clear, which was a common theme across almost all interviewees. In line with Carl Worthy's opinion that virtual teams should be managed

same as collocated teams (see page 9 above), almost all of the interviewees maintained the same thesis. Moreover, almost everyone interviewed, maintained that virtual teams should be evaluated the same as collocated teams performance wise; some even suggested that virtual team performance should be benchmarked against collocated team performance. In other words, although all interviewees agreed that virtual teams are influenced by factors that do not typically play a role for collocated team performance, they all believed that both types of teams should be held up to the same standards performance wise.

Conclusion

Based on the conducted research, both literature and interviews, we can conclude that Cerner could benefit from a well-defined virtual team performance evaluation framework. A clear trend in identifying the determining factors, challenges and benefits across all ten interviewees was observed, which shows commonality in opinions and viewpoints on the subject. On the other hand, agreeing on a single and unified framework for evaluation could prove challenging due to the difference in opinions in finding a common foundation for building the framework.

One of the more obvious conclusions from the conducted research is that because virtual teamwork is so deeply ingrained in Cerner's business, not enough awareness exists that these teams are actually "virtual" in nature. In other words, Cerner fails to recognize the fact that team performance factors affect virtual teams differently than collocated teams; a clear distinction between the two types of teams does not exist. The general expectation is that virtual teams should perform as well as collocated teams, but the fact that factors like communication, trust, and distance influence virtual team performance differently than collocated ones is not taken into

consideration. Thus, it is important for Cerner as an organization to recognize the existence of its virtual teams and the role of the specific factors when evaluating their performance.

Along with the many benefits of virtual teamwork in Cerner, the biggest challenge for the ITWx organization is to fully integrate with the client organization. Differences in organizational cultures, policies and procedures, roles and responsibilities, unclear expectations are all challenges that the ITWx client teams face today. As the ITWx organization matures and its importance grows, it is expected that the adaptability and flexibility of its virtual teams would improve and they would become a true extension of the larger Cerner organization.

Suggestions for Additional Work

A logical next step to the conducted research would be forming a committee in the ITWx organization that is tasked with developing a unified virtual team performance evaluation framework and gaining executive support. The research provides a great deal of information on common factors that influence virtual team performance. The one area of additional work would be extrapolating the information from the answers to the fourth question and creating a specific framework for evaluation. Alternatively, the existing evaluation tools at Cerner could be adapted to capture the relevant virtual team performance factors during the annual performance evaluations.

One of the suggestions that came up as a result of the interviews was to incorporate peer reviews in the performance evaluations. Based on the research, a peer review system could be implemented in the semi-annual and annual associate reviews that can capture reviews from different project teams and areas of the organization that the associate has been in contact with through the year. Another area of additional work would be to quantify some of the performance factors that are not easily measurable, like team engagement, relationship building, motivation, and other intangible factors, and incorporate them in the peer review system. Adding the peer review system to the virtual team performance evaluation framework would greatly increase the value of the performance evaluation process at Cerner.

Lastly, this research could further benefit from extending the target audience to Cerner's virtual employees abroad. It is the author's opinion that interviewing virtual team members in other countries would add invaluable information to the mix of performance factors and framework suggestions that could complement and enhance this research effort.

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