

Virtual Communications Index (VCI)

White Paper

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Abstract:

“Virtual Meetings can now be held with relative ease and using an array of technology from High Definition Telepresence systems, to Skype, Google Talk, and various webconferencing and webcasting systems. The success of the communication transaction requires a number of necessary factors and conditions to be aligned and satisfied. Although properly functioning technology is one necessary factor, we have found 13 other factors that play a critical role. These factors can be measured to indicate a Virtual Communications Index (VCI). Scoring proposed new communications enabled applications and virtual meetings using a VCI methodology can identify critical areas that need to be addressed so business models and capital investments can return the promised ROIs.”

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1 Introduction

Virtual Meetings can now be held with relative ease and using an array of technology from High Definition Telepresence systems, to Skype, Google Talk, and various webconferencing and webcasting systems. The success of the communication transaction requires a number of necessary factors and conditions to be aligned and satisfied. Although properly functioning technology is one necessary factor, we have found 13 other factors that play a critical role. These factors can be measured to indicate a Virtual Communications Index (VCI). Scoring proposed new communications enabled applications and virtual meetings using a VCI methodology can identify critical areas that need to be addressed so business models and capital investments can return the promised ROIs.

2 Factors Considered and Measured: Virtual Communications Index (VCI)

2.1 Differences in Time Zones

Differences in time zones, or temporal differences, amongst virtual team members are often cited as one of the factors that play a role in virtual team interactionsⁱ. It has also been suggested that temporal distance be considered when structuring organizationsⁱⁱ, globalizing an organizationⁱⁱⁱ, and assessing team boundary issues^{iv}.

Scheduling, availability, and presence detection factors are also incorporated in this factor.

2.2 Spatial Distance

Research suggests that the closer one is physically to another the greater the chance to form social ties^v. Physical distance also impacts the tendency to deceive, ability to influence and the likelihood of cooperation^{vi}. Spatial distance can be a factor in one's own organization even in the same building or floor, as well as when interacting with other organizations.

2.3 Task Factors

Interdependent tasks require more communication^{vii}, which should lead to increased trust between team members. Task interdependence has also been related to both organizational commitment and team commitment and organizational citizenship behavior^{viii}. The types of tasks, ranging from routine to innovative and complex, will also have an impact on the cohesion of the

interaction and the degree of success. Simpler and more routine tasks are likely to have a higher success factor. The match of tasks to communication methods is important.

2.4 Goal and Cause Match

The relationship between group goals and group performance has been well documented^{ix}. As teams become more virtual, however, the absence of experiences gained from face to face interactions may lead to difficulties in creating and maintaining a shared vision and commitment to goals^x. Among team members who are geographically or temporally distant, individual goals may become less clear if they are not directly attached to some sort of organizational mandate^{xi} potentially leading to less collaborative effort.

Understanding goals and objectives clearly, and having common goals and causes will contribute to driving the virtual interactions to success, whereas mismatched or opposing goals and causes will likely contribute to poor performance. Often the cause is superficially identified as something different.

2.5 Technology Access and Skill

Access to the required technology and one's comfort level with the technology plays a role in interactions with distant team members^{xii}. Less technically competent members may be less inclined or able to communicate and form relationships that would decrease social alienation. Major corporations have found that technical and interpersonal skills are key to the selection of virtual team members who are likely to be committed to the project and to each other^{xiii}.

2.6 Task and Tool Match

Using the "proper tool for the job" is not always as obvious as it seems. In virtual interactions task performance may be unduly influenced by a slow network or application, or simply by poorly functioning or poorly designed technology. How well the tool is matched to the tasks to be completed and to the number of participants in a session is a very important factor.

2.7 Culture Norms and Degree of Intercultural Understanding

Cultural differences have to date, been a focus of some of the research in virtual environments and innovation; virtual teams^{xiv}, new product teams^{xv}, risk mitigation^{xvi}, virtual societies^{xvii}, consensus building using group support systems^{xviii}, majority influence^{xix}, software development^{xx}, and more. Cultural

differences have also been used to study foreign investment expansion, entry mode choice, and the performance of foreign invested affiliates, among others^{xxi}. Cultural differences are also used to interpret network ties amongst managers^{xxii}. The mutual understanding of cultural norms in the participating organizations and the degree of intercultural understanding is important in determining the degree of mutual understanding.

2.8 Personal Familiarity

Personal familiarity includes both the extent to which members have had a prior relationship or relationships with some of the same people. Relationship history has been shown to be important in mentoring^{xxiii} and trust building^{xxiv}. Relationship history has also been found to positively impact openness, trust, and information sharing in computer-mediated teams^{xxv}.

Social distance has been studied in a number of contexts including economically defined class or status differences^{xxvi}, feelings of social closeness and distance based on social interactions in social space^{xxvii}, as a factor in direct and networked exchanges^{xxviii}, as a function of management^{xxix}, a dimension of the Systematic Multiple Level Observation of Groups (SYMLOG) management behavior assessment^{xxx}, as a perceived measure contributing to the concept of leader distance^{xxxi}, and as a factor in friendship networks^{xxxii}.

2.9 Organizational Familiarity

Organizational familiarity includes the extent to which members are familiar with both their own organization and the conferencing partner organizations. This includes familiarity with organizational goals, and styles as well as expected Organizational Citizenship Behaviour (OCB). There is strong support for the relationship between trust and OCB^{xxxiii} and also for relationships between trust and organizational commitment^{xxxiv}. Organizational familiarity is likely to be positively related to conferencing trust and project success.

2.10 Frequency of Face to Face Interaction

The notion of social presence has been used in research on virtual work to describe the extent to which team members feel the presence of other group members and the feeling that the group is jointly involved in communicating^{xxxv}. One end of the continuum of social presence is face to face interaction so frequency of FTF interaction, and frequency of virtual interactions, should be related to personal familiarity, trust, and team performance.

2.11 Team Size

Group or team size has been shown to affect one's sense of belonging^{xxxvi}. A sense of belonging is critical to the development of organizational identity, which has been shown to have a direct influence on organizational citizenship behaviors^{xxxvii}. Group size in virtual environments has also been shown to effect team decision making^{xxxviii} and satisfaction^{xxxix}.

2.12 Failure/Success Risk

Project success can be influenced by many different factors. Barczak, et.al. assert that face to face frequency can impact project success, in part because keeping a project on schedule is dependent on a certain focus and discipline that is difficult to maintain with geographically dispersed team members^{xi}. Smith contends that the perception of project success can also be affected by the "distance" from ownership of the project^{xii} asserts that physical proximity is also a key variable for project success regarding cooperation, communication, and a clear set of performance standards and goals.

Multi-tasking, a term used to describe a person working on more than one task at a time, can create significant stress and can lead to less efficiency and productivity^{xiii}. Cognitively distancing oneself from the stress created by multi-tasking and information overload is known as absent presence, "the idea that we may be physically on a street corner, but our distracted minds are not."^{xiii}

Changes and new methods of performing high risk projects, such as a data conferencing as opposed to face to face meetings, can influence the success factor of a project. Lower risk projects are likely less susceptible.

2.13 Leadership

"Trust has received considerable attention, especially in relation to virtual teams and innovation. Research has found that perceptions of physical distance impacted individuals' willingness to trust counterparts in computer mediated interaction^{xiv}. Jarvenpaa & Leidner, (1999) reported that timely and consistent communication (especially task-oriented) was likely to engender trust within virtual teams. The implications of trust perceptions for team performance are less clear. Lynn & Reilly (2002) found that members of virtual teams reported lower levels of trust and that these lower levels of trust correlated with lower levels of innovation and collaborative behavior. In their investigation of trust on levels of commitment and innovation, Ruppel and Harrington write, "He (Hosmer) suggests that trust and commitment result in enthusiastic cooperative and innovative effort beyond that gained from simple financial incentives or contracts. Only trust can assure people that they will not be overly penalized for new ideas that fail or that they are free to try improvisations leading to competitive innovations in products, markets, methods, and technologies." (Ruppel &

Harrington, 2000, p. 319). A recent survey of top innovators^{xiv} found that trust was the single most significant factor in differentiating successful innovators. Others have reported that trust perceptions can impact performance when cultural distance is considered^{xlvi} .”

Trust and management leadership supporting innovative new methods of performing work with virtual teams is crucial.

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- ⁱ Montoya-Weiss, Massey, & Song, 2002, Jarvenpaa 1998
ⁱⁱ Orlikowski and Yates, 2002
ⁱⁱⁱ Boudreau, Loch, Robey, & Straud, 1998
^{iv} Espinosa, Cummings, Wilson, & Pearce, 2003
^v Latane, 1996
^{vi} Bradner et al., 2002
^{vii} Bishop & Scott, 2000
^{viii} Pearce & Gregerson, 1991; Bishop & Scott, 2000
^{ix} O’Leary-Kelly, Martocchio & Frink, 1994
^x e.g., Handy, 1995; Seo, Barrett, Bartunek, 2004, Kezsbom, 1999).
^{xi} Manzevski & Chudoba, 2000
^{xii} Staples, Hulland, & Higgins, 1999).
^{xiii} Kirkman, Rosen, Gibson, Tesluk, & McPherson, 2002
^{xiv} Dube & Pare, Jarvenpaa & Leidner, 1999, Massey, Montoya-Weiss, Hung, & Ramesh, 2001
^{xv} Barczak & McDonough, 2003),
^{xvi} Grabowski & Roberts, 1999
^{xvii} Igbaria, 1999
^{xviii} Mejias, Shepherd, Vogel, & Lazaneo, 1997
^{xix} Tan, Wei, Watson, Clapper, & McLean, 1998
^{xx} Tellioglu & Wagner, 1999
^{xxi} Shenkar, 2001
^{xxii} Stevenson, 2001
^{xxiii} Siegel, 2000
^{xxiv} Rousseau, Sitkin, Burt, & Camerer, 1998
^{xxv} Alge, Wiethoff, & Klein, 2003
^{xxvi} Akerlof, 1997
^{xxvii} Bottero & Prandy, 2003
^{xxviii} Buchan, Croson, & Dawes, 2002
^{xxix} Fox, 1977
^{xxx} Jensen, 1993
^{xxxi} Antonakis & Atwater, 2002
^{xxxii} Krackhardt & Kilduff, 1999
^{xxxiii} e.g. Yoon & Suh, 2003, Deluga, 1995
^{xxxiv} e.g. Knight & McCabe, 2003
^{xxxv} e.g., Venkatesh, Johnson, 2002; Andres, 2002
^{xxxvi} Williams, 1993).
^{xxxvii} Pratt, 1998; Shamir, 1990
^{xxxviii} Baltes, Dickson, Sherman, Bauer, & LaGanke, 2002
^{xxxix} Dennis & Wixom, 2001
^{xl} (Barczak, McDonough III, 2003).
^{xli} (Smith, 2002). Loo (1996)
^{xlii} Brillhart, 2004).
^{xliii} (Berman, 2003).
^{xliv} (e.g. Moon, 1999, Bradner & Mark, 2002).
^{xlv} (Milton, 2003)
^{xlvi} Yadong, 2002