FACTORS CONTRIBUTING TOWARDS VIRTUAL TEAM PERFORMANCE: EVIDENCES FROM PAKISTAN'S IT SECTOR

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ABSTRACT. Virtual team possesses strong pursuit for business. Virtual team may be encircled quickly and is active in its working. Performance is having major significance in any corporate team. Working in a virtual group follows many difficulties. This research focuses on the evaluation of effectiveness of trust, communication, and adaptation of culture, technology and composition on virtual team performance in Pakistan's IT sector. The study examined that by linking these factors with the performance of virtual team either enhancing or lessening it. Moreover, study uses positivism research philosophy because it prefers scientific quantitative methods, deductive research approach as it is narrower in nature and is concerned with testing or confirming hypotheses and survey strategy. The acquisition of data has been done by spreading self-managed survey questionnaire, developed utilizing a software facility available online by Google Inc. This study provides the basic guideline for the managers/administrators of virtual teams. It may enable them as how to enhance their role in increasing team performance thus smoothing their way towards achieving the target particularly with reference to IT professionals.

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Introduction

Virtual team possesses strong pursuit for business. Virtual team may be encircled quickly and is active in its working. It can participate in relation to decrease its response to the adjustments in the existent hyper-centered markets. Its far-reaching connections may use abilities of various individuals, scattered over topographical regions which was previously not made familiar. Popiel (2017) remarked about the work as it is promoted to the level of innovativeness because of virtual team's limit less nature.

Additionally, virtual team can similarly benefit its professionals because it enables them to meet and work in scenario of scattered gatherings in reduced time. Moreover, members of the team may get the chance to widen their capabilities by working through limited connections and social settings. Additionally, the limit with respect to individuals to participate and leave after some time, and various other limitations prompt the risk that the team will not be able to achieve its final targets. Performance is having major significance in any corporate team. In the scenario of virtual team working on any project, its importance is increased because it assumes a critical part to be played in virtual team's objective accomplishment. It is imperative to contemplate the impact of all essential variables on virtual team (VT) performance.

Working in a virtual group causes many difficulties. When you can't see your associates, and you can't have the social communications that assemble compatibility and connections, it can be hard to set up trust and adaptation of culture. Reed and Knight (2010) named numerous components which have effect on virtual teams such as organizational/

governmental issues as well as absence of respectability, struggle among colleagues, cost overwhelms, social or dialect contrasts, created item doesn't fulfill prerequisites/inadmissible to end clients, geopolitical issues, concealed plans, idle HR, insufficient task administration/ specialized assets, absence of or deficient communication, absence of partners contribution, no patrons or wrong supporters, staff turnover, poor leadership, hazy undertaking goals, farfetched time plan and so forth. O'Keefe et al. (2011) expounded that communication and timetable/ time limitations affect the performance of virtual team (VT). Vaidyanathan et al. (2010) contended that inability of sharing the relevant information in virtual team (VT) situations can cause errors/distortion of any remote colleague's conduct, and contrarily influence performance of the team. Chang et al. (2014) expressed that adaptation of culture, communication, and trust are the highly powerful affecting variables in virtual team.

Earlier research brought up that cultural adaptation, trust and communication are highly persuasive/important variables in the performance of virtual team (VT). To coordinate these factors essential idea of virtual team, technology and virtual team (VT) composition are picked as additional two components/factors. There is a huge gap in research finding the connection between these most persuasive/ important variables, and virtual team (VT) performance, particularly in setting of Pakistan's IT industry. To satisfy this gap, this experimental investigation expects to give a model intended to decide the connections among all the basic/important variables expressed above, and virtual team (VT) performance.

This research focuses on the evaluation of effectiveness of various factors on virtual team performance in Pakistan's IT sector by linking these factors with the performance of virtual team either enhancing or lessening it.

Virtual team

Monalisa et al. (2008) examined that in the present fast pace world, we have a virtual presence parallel to a genuine one. Access to cutting edge and differed innovations and methods for correspondence, cutting edge associations have rushed to embrace the idea of such virtual teams. As virtual teams have been defined differently in previous literature.

'Members of such teams may be formed by people from different departments, organizations, countries and cultures (Cagiltay et al., 2015). Another definition is: 'a virtual team is a special form of a working group allowing collaboration over spatial, temporal, and even organizational boundaries' (Ellwart et al., 2015). Chang et al. (2014) define virtual teams as 'culturally diverse people who work in a geographically dispersed manner with links strengthened by information technologies designed to facilitate the completion of a specific task'.

However, the common across them and the one being considered by the researcher is, 'a virtual team is a group of individuals who work on shared tasks while distributed across space, time, and/or organizational boundaries' (Jordan and Adams, 2016). Since the team is distributed, it uses technology to communicate. Scott (2013) talked about that separation makes up close and personal correspondence uncommon among such colleagues, so colleagues depend on correspondence advancements, for example, email, phone, texting, wikis, and videoconferencing for association.

Magnus (2011) explained that exclusive issues have been observed in virtual team conditions, including trust issues, correspondence issues and issues with imperceptible colleagues (Afaq et al., 2014) and socially assorted variety can prompt clashes (Magnus, 2011). Contention might be more common and hard to overcome in virtual teams (Furumo, 2009). Vaidyanathan et al. (2010) have similar perspectives with respect to Virtual teams. They said that, Virtual teams convey extra multi directed quality and increment danger of unsuccessful activities as far as achieving their objectives. Kai and Jin'ai (2008) expressed that under various situations virtual properties can advance team adequacy, yet in addition may obstruct it.

Virtual Team Composition

As stated by (Turel and Zhang, 2010), the design of the team all in all, and especially in virtual team's specific situation, can influence the team's performance. Monalisa et al. (2008) expressed that administration and virtual team creation has numerous viewpoints in the same way as making and dealing with a traditional team, yet in addition a few contrasts.While (Turel and Zhang, 2010) contended that ideal team

synthesis in virtual settings might be not the same as that of customary teams. Virtual Team structure is by one means or another same as a standard one.

Turel and Zhang (2010)further spoke to those goals ought not to neglect this imperative theme, as ideal setup of virtual team is related with team's performance. The heads of virtual team (VT) must possess the ability to pass on commands unmistakably without seeming like a micromanager. An ideal virtual partner is presently prepared to work self-sufficiently, and micromanagement can stunt the free work. Further, it is expressed by (Monalisa et al., 2008), managers should consider that the team being created must be suitable for the goals aimed to achieve. And (Sarker et al., 2011) highlighted the influence of individual performances on each other within a team. It is the recommendation of (Turel and Zhang, 2010) that design of virtual team is a theme that benefits and encourage investigation. On the basis of discussion stated above, it could be hypothesized,

H₁. There exists a positive relationship between virtual team performance and virtual team composition.

Adaptation of Culture in Virtual Team

Adaptation of culture alludes to adjustment of oneself to fit conduct of another different culture, standards and practices (Chang et al., 2014). Workplace has never been more universal than today. Chang et al. (2014) additionally expressed that there is need to talk about, how individuals alter themselves adjusting to the virtual team. In any case, despite that, it is every now and again found that the continued going things on people's minds while completing widespread work is the worldwide part. Changes in the culture making it simpler for people to acknowledge assignments to the virtual teams (VTs) (O'Keefe et al., 2011).

Adaptation of culture implies the strategy and time it takes the individual to assimilate to another different culture. Chang et al. (2014) explained that intercultural adjustments include co-operations between culturally unique members and results in modification by individuals from the two cultures. Working in another culture can be outstandingly difficult to process, especially in case it isn't the same as should be expected practice. A powerful team pioneer makes less conflicting

situations and actuates higher the performance of team (Chang et al., 2014). Social differentiations address an open entryway, not a peril, to adjust things and organizations to neighborhood markets. On the basis of discussion stated above, it could be hypothesized,

H2. There exists a positive relationship between virtual team performance and cultural adaptation in virtual team.

Communication in Virtual Team

Sarker et al. (2011) featured the significance of communication as it is a vital procedure inside virtual cooperation and has imperative ramifications as far as the results. As explained by (Kuruppuarachchi, 2009) that adequacy of the effective communication is vital in virtual team. Sarker et al. (2011) have noticed that main relic of an appropriated team's presence is basically its correspondence. The ability to pass on effectively transversely finished culturally different teams is fundamental.

When managing a virtual team, every member might be performing various activities. Besides that, they might work in various circumstances as well as on various projects. Setting a period where the virtual team can assemble to meet up is useful for everybody to comprehend the full structure of the project. Holding regular meetings of the team will enhance communication and get every member in agreement. Sarker et al. (2011) proposed that it is critical to analyze the impacts of communication on performance. On the basis of discussion stated above, it could be hypothesized,

H3. There exists a positive relationship between virtual team performance and communication in virtual team.

Trust in Virtual Team

A positive association among members and manager can also add to motivation, reliability, and occupational satisfaction, all of this can improve degrees of the consistency and augmentation essential concerned benefits. As portrayed by (Sarker et al., 2011), trust depends on presumption that the others will act not surprisingly. Lowry et al. (2014) clarified that trust enhances, while distrust degrades team performance.

Kuruppuarachchi (2009) describes trust as an essential factor for the virtual team. One of the main characteristics of productive remote team administration is strong sentiment shared trust among virtual team members and managers. Sarker et al. (2011) consider trust to be major factor which aides in making the connections in virtual team. Virtual Team Manager can build trust by setting up a typical sentimental reason. Representatives must modify the system, pass on enough, and collaborate straightforwardly. The important of all is the means by which to develop productive working associations among partners, and how to develop and increase effectiveness as the team achieves its total targets. Achievement or disappointment of virtual teams can likewise be affected by an association of cultures and advancement of the trust (O'Keefe et al., 2011). Sarker et al. (2011) expressed that the issue of trust is significantly more risky with regards to scattered teams. Clarity and coherence in correspondence portrays the teams with a united reason and will help avoid any ordinary misinformed judgment that could break down trust. On the basis of discussion stated above, it could be hypothesized,

H4. There exists a positive relationship between virtual team performance and trust in virtual team (VT).

Technology in Virtual Team

Kuruppuarachchi, (2009) expressed that the ability of making advancements in ICT's, particularly in online methods has empowered the development of electronically brought together virtual associations, offering universal reach and coordinated effort proficiencies. Utilization of innovation can positively affect performance (Vaidyanathan et al., 2010). With openness of internet, associations never need to bond inside comparative country to get the capacity that they require. As explained by (O'Keefe et al., 2011) that data advancements provide the project managers with novel techniques for arranging, planning, staffing, coordinating and the controlling activities. Work ought to be conceivable for transversely finished edges.

A few innovation instruments and communitarian innovation can enhance the performance, fulfillment, make attachment and lessen the conflict in socially various teams (Magnus, 2011), like: texting, wikis, discussions, web journals, web conferencing, person to person

communication destinations, cloud, report sharing and the virtual societies (O'Keefe et al., 2011). Colleagues can talk to each other through virtual informing administrations and video-conferencing that are fundamental segments of virtual team (Kuruppuarachchi, 2009) and thus having ability to deal with their work in more central way. Innovations can likewise enhance the manager's capability to track unintended variables and make administration frameworks (O'Keefe et al., 2011). Cloud based documentation can be utilized for the accessibility of team's information and all the required data to every member of the team, at any time, who are geographically dispersed, the information and data can be modified accordingly with the needs of the team. In case administration of organization is unsupportive of new advancements and progressions, virtual team (VT) performance could be influenced (O'Keefe et al., 2011). In virtual team, quite possibly the innovation will contrarily affect the performance (Furumo, 2009). On the basis of discussion stated above, it could be hypothesized,

H₅. There exists a positive relationship between virtual team performance and technology in virtual team.

Virtual Team Performance

Performance is characterized by (Gavrea et al., 2011, p.287) as 'an arrangement of financial and nonfinancial markers which provide information on the level of accomplishment of targets and results'. In the modern dynamic world, the ways of associating organizations are also changing dynamically, these associations must modify accordingly for their survival. According to (Chang et al., 2011), when it comes to the virtual team, its performance is always of great attention.

Furumo (2009) expounded that if any conflict within a team is not properly overseen, it adversely affects virtual team's performance. Furthermore, it is contended by (Vaidyanathan et al., 2010) that the performance of team can be diminished if the members avoid peace promoting behaviors. Magnus (2011) has analyzed that, with the varied styles of execution or administration, the multicultural team's performance can be affected critically. O'Keefe et al. (2011) stated that some variables which affect team's performance can incorporate time or calendar requirements and correspondence. Chang et al. (2011) defines the

performance of a virtual team as 'the degree of satisfaction with the decision-making process, perceived decision quality, perceived participation, and member agreement'. Virtual Team Composition (Turel and Zhang, 2010), Technology (O'Keefe et al., 2011), Adaptation of Culture, Communication and Trust (Chang et al., 2011; Chang et al., 2014) are the most important and main factors which have connections with performance.

Thus, this paper tries to examine the relationship of these five most important factors with performances of virtual teams and furthermore extends prior research by examining the performance of virtual teams through the assessment of satisfaction with the decision-making process, perceived decision quality, perceived participation, and member agreement based on evidences from Pakistan's IT Sector.

Research Framework

A few examinations regard worldwide teams to be superior, inventive and developmental while in others worldwide teams are identified with conflicts and poor management (Magnus, 2011). Inability to share the logical learning in virtual team conditions may cause false impressions or distortion of a remote colleague's conduct, and adversely influence the team's performance (Vaidyanathan et al., 2010).

The existing frameworks, which included adaptation of culture, communication, trust and virtual team performance, our proposed framework will adopt new variables such as: virtual team composition and technology for measuring the virtual team performance in Pakistan's IT sector. No previous studies have tested the proposed framework involving the virtual team composition and technology, adaptation of culture, trust, communication to measure the virtual teams' performance.

The proposed model for research helps in selecting the true structure of entire study and masterminding it. This model urges one to pick which material can be accumulated, from which illustrations/cases and about what attributes/variables of those cases. This model of research follows the theoretical model proposed by (Chang et al., 2014). For coordinating virtual team's basic structure, technology (O'Keefe et al., 2011) and virtual team composition (Turel and Zhang, 2010) are picked as vital variables to contemplate on virtual team performance.
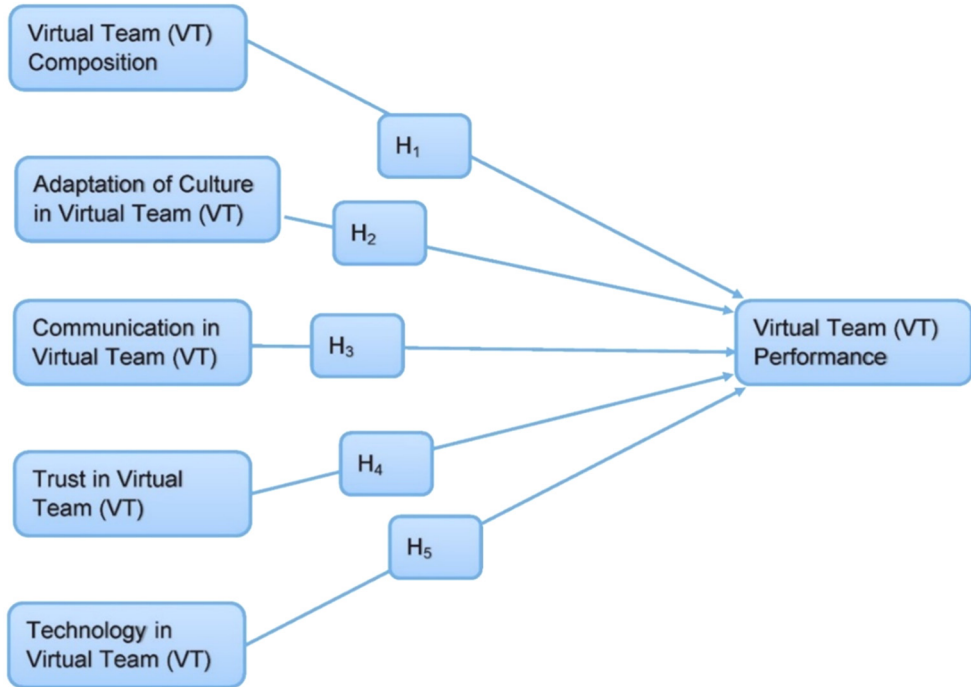
Figure 1.1. – Model for Research based on the theoretical model
proposed by (Chang et al., 2014)

Methodology

This study in its approach is quantitative & deductive in its
nature so essential data accumulation has been finished by utilizing
survey questionnaire (Dutot and Mosconi, 2016). An online questionnaire
survey has been conducted for this research. The survey questionnaire
has been dispensed utilizing email messages, web-based social networking
locales, online IT group/teams, and distinctive informing programming's
to deliver an adequate reaction rate roughly to the standard mean of
prior research studies. Moreover, this research has adopted resolute
sampling. The study is focused on at least the average of above mentioned
sample sizes thus a small non-probability sample which led to acquisition
of rich-information for insights into this research phenomena.

The time horizon taken for this examination has been cross-sectional as opposed to longitudinal being the objective of this investigation is to reveal the influencing factors affecting performance within virtual teams at a particular point in time and gives a preview of the current circumstances. Conversely, longitudinal investigation requires long-term perceptions and examinations of successive change after some time. Information accumulation for this examination was finished amid a brief timeframe of three weeks amid the long stretch of February 2018.

Analysis

Correlation Analysis

Table 4.1: Correlations

	Composition	Adaptation of Culture	Communication	Trust	Technology	Performance
Virtual Team (VT) Composition	1	.880**	.847**	.834**	.800**	.800**
Adaptation of Culture in Virtual Team (VT)	.880**	1	.844**	.884**	.816**	.789**
Communication in Virtual Team (VT)	.847**	.844**	1	.898**	.767**	.855**
Trust in Virtual Team (VT)	.834**	.884**	.898**	1	.821**	.840**
Technology in Virtual Team (VT)	.800**	.816**	.767**	.821**	1	.817**
Virtual Team (VT) Performance	.800**	.789**	.855**	.840**	.817**	1
**. Correlation is significant at the 0.01 level (2-tailed).						

Source: Authors' compilation

It was found that the "Virtual Team (VT) Composition" subscale was positively correlated with the Performance of Virtual Team (VT) subscale, r (258) = .800, p < .01. It was found that the "Adaptation of Culture in Virtual Team (VT)" subscale was positively correlated with the Performance of Virtual Team (VT) subscale, r (258) = .789, p < .01. It was found that the "Communication in Virtual Team (VT)" subscale was positively correlated with the Performance of Virtual Team (VT) subscale, r (258) = .855, p < .01. It was found that the "Trust in Virtual Team (VT)" subscale was positively correlated with the Performance of Virtual Team

(VT) subscale, r (258) = .840, p < .01. It was found that the "Technology in Virtual Team (VT)" subscale was positively correlated with the Performance of Virtual Team (VT) subscale, r (258) = .817, p < .01.

Regression

Table 4.2: Summary Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.894a	.799	.795	1.85366
a. Predictors: (Constant), Technology in Virtual Team (VT), Communication in Virtual Team (VT), Virtual Team (VT) Composition, Adaptation of Culture in Virtual Team (VT), Trust in Virtual Team (VT)				

Source: Authors' compilation

Table 4.3: ANOVA Results

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3452.811	5	690.562	200.976	.000b
	Residual	869.320	253	3.436		
	Total	4322.131	258			
a. Dependent Variable: Virtual Team (VT) Performance						
b. Predictors: (Constant), Technology in Virtual Team (VT), Communication in Virtual Team (VT), Virtual Team (VT) Composition, Adaptation of Culture in Virtual Team (VT), Trust in Virtual Team (VT)						

Source: Authors' compilation

Table 4.4: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	.978	.651		1.502	.134		
	Virtual Team (VT) Composition	.120	.080	.100	1.495	.136	.178	5.619
	Adaptation of Culture in Virtual Team (VT)	-.074	.056	-.097	-1.315	.190	.147	6.820
	Communication in Virtual Team (VT)	.528	.084	.439	6.276	.000	.162	6.160
	Trust in Virtual Team (VT)	.219	.102	.169	2.138	.033	.127	7.844
	Technology in Virtual Team (VT)	.453	.072	.340	6.311	.000	.273	3.659
a. Dependent Variable: Virtual Team (VT) Performance								

Source: Authors' compilation

A multiple linear regression was calculated to predict Virtual Team (VT) Performance based on Virtual Team (VT) Composition, Adaptation of Culture in Virtual Team (VT), Communication in Virtual Team, Trust in Virtual Team (VT) and Technology in Virtual Team (VT). A significant regression was found ($F_{(5, 253)} = 200.976$, $p < .000$), with an R2 of .799.

Predicted Virtual Team (VT) Performance is equal to .978 + .120 (Virtual Team Composition) -.074 (Adaptation of Culture in Virtual Team) + .528 (Communication in Virtual Team) + .219 (Trust in Virtual Team) + .453 (Technology in Virtual Team).

Furthermore, as can be seen in Table 4.5, based on coefficients output collinearity statistics, obtained VIF values are between 01 and 10, it can be concluded that there are no multi-collinearity symptoms.

Table 4.5: Summary of Correlation and Regression Analysis

Variable	Mean	Std	Correlation with virtual team (VT) performance	Multiple regression weights	
				b	β
Virtual Team (VT) performance	19.9421	4.09298			
Virtual Team (VT) Composition	15.6988	3.40457	.800**	.120	.100
Adaptation of Culture in Virtual Team (VT)	28.1274	5.36165	.789**	-.074	-.097
Communication in Virtual Team (VT)	15.7876	3.40504	.855**	.528	.439
Trust in Virtual Team (VT)	15.9459	3.16181	.840**	.219	.169
Technology in Virtual Team (VT)	16.1931	3.07424	.817**	.453	.340
**. Correlation is significant at the 0.01 level					

Source: Authors' compilation

Correlation and multiple regression analyses were conducted to examine the relationship between virtual team (VT) performance and various potential predictors. Table 5.6 summarizes the descriptive statistics and analysis results. As can be seen each of the influencing factor scores are positively and significantly correlated with the criterion, indicating that those with higher scores on these variables tend to have higher

performance. The multiple regression model with all five predictors produced R^2 = .799, F (5, 253) = 45.67, p < .000. As can be seen in Table 4.6, Virtual Team (VT) Composition, Communication in Virtual Team (VT), Trust in Virtual Team (VT), Technology in Virtual Team (VT) scales had significant positive regression weights, indicating virtual teams with higher scores on these scales were expected to have higher performance, after controlling for the other variables in the model. The Adaptation of Culture in Virtual Team (VT) scale has a significant negative weight, indicating that after accounting for Virtual Team (VT) Composition, Communication in Virtual Team (VT), Trust in Virtual Team (VT) and Technology in Virtual Team (VT) scores, those virtual team with higher Adaptation of Culture in Virtual Team (VT) scores were expected to have lower performance (a suppressor effect).

Discussion and Conclusion

The quantitative analysis results confirmed H_1. Setting up little, high-performing virtual teams has colossal potential for associations to extend bargains, invade new markets, upgrade business strategies and think about the best in class time of hazardous advancements. But composing a good team is difficult. Solitary capacities critical to perform in a virtual space should be underlined while picking the associates for virtual team. Since the virtual team incorporates fascinating troubles and threats, the people require specific data, aptitudes and abilities to work helpfully and satisfactorily in it. This research recognizes that nationwide diversity in virtual teams can increase performance.

The greatest preferred standpoint of virtual team appreciated by an association is the related cost investment funds. Numerous associations outsource their activities to the ease areas. In this way generation cost likewise diminishes with the lessened material cost, operational expenses and lower wages of the workers in these geographic areas. Virtual Teams enables associations to search for talent beyond their country of origin. This research study proves that performance excites with diverse nature of team.

The cultural variances between the virtual team members give rise to number of clashes, which would prompt doubt and troubles in productive cooperation. Resolutions of those doubts and troubles are fundamental for the accomplishment of virtual team working. The results of this study indicate that, if adaptation of culture among virtual team members is too high, this may negatively impact virtual team performance. The quantitative analysis results partially confirm the results of this study prove that there exists the relationship between adaptation of culture and virtual team performance but it is of adverse nature. Further results exposed that the information exchange and coordinated effort required to convey project assignments are expand on the solid establishment of trust and social ties among the virtual colleagues. Previous literature also contended that trust is a key to a successful virtual team. The results of this study confirmed, at the point when individuals feel great and certain about each other, they exhibit useful individual behavior which positively adds to virtual team success.

This study further confirmed that advances in technology enhances virtual team's performance. Associations should invest in technology to bolster its use. Further, this examination also confirms that use of technological tools has positive influence on team's performance. All the colleagues should have simple access and aptitudes to work with these technological apparatuses. The managers should be introduced to new methods of planning and organizing with information technology. Technological tools like electronic mails, instant messaging and videoconferencing ought to be given. The technological backing ought to be effortlessly accessible for individuals situated in various time zones. Technological tools like ERP/CRM, WEB 2.0 improves team performance and lessen the conflict between members.

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