



## **Team Performance Management: An International Journal**

A profile of high-performing global virtual teams

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### **Article information:**

To cite this document:

Helge Lippert, Victor Dulewicz, (2017) "A profile of high-performing global virtual teams", Team Performance Management: An International Journal, <https://doi.org/10.1108/TPM-09-2016-0040>

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<https://doi.org/10.1108/TPM-09-2016-0040>

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# A profile of high-performing global virtual teams

Global virtual teams

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Received 8 September 2016  
Revised 4 April 2017  
31 May 2017  
24 September 2017  
27 September 2017  
Accepted 27 September 2017

## Abstract

**Purpose** – There is a paucity of research into high-performing virtual teams. This study aims to design and test a model of virtual team performance and to produce a profile of high-performing teams.

**Design/methodology/approach** – The main constructs found to have influenced virtual team performance in business were trustworthiness, commitment, communication characteristics, cross-cultural communication style and structure effects. New or revised scales to measure these and a new performance measure, based on five performance criteria, were developed. A research model was designed and tested, and a profile of high-performance teams produced. The sample from a global telecoms company comprised 108 global virtual teams. Two senior managers rated performance independently.

**Findings** – Hierarchical regression results explained 75.7 per cent of the variance of performance. Analysis of variance revealed that model fit was highly statistically significant. Trustworthiness was identified as the predominant factor, explaining a majority of the dependent variable's variance, while interpersonal communication, commitment and cross-cultural communication style were also identified as important. The 52 items differentiating high- and low-performing teams are reported and discussed.

**Originality/value** – The research model makes a contribution to team performance theory and understanding, especially the relative importance of constructs for explaining performance. The profile of high-performing teams adds greatly to our knowledge and provides valuable guidance for team management, selection and development.

**Keywords** Team working, Teams, Employee behaviour, Virtual work, Teambuilding, Global virtual teams, Performance model

**Paper type** Research paper

## Introduction

The extant literature shows a paucity of information on what makes a high-performing virtual team in business. The aims of this study are to design and test a model of global virtual team (GVT) performance and then to provide a profile of high-performing teams. A number of constructs were found in the literature to influence team performance. New or revised scales were designed to measure these. In addition, a number of performance criteria were identified as being relevant. A performance measurement scale was developed consisting of schedule adherence, budget adherence, conflict resolution, technical innovation and efficiency.

Performance was rated by two senior managers with responsibility for the teams' products. The study was conducted in a global telecommunications company which fully supported the research. A research model was developed and tested.

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The company in which the research was conducted gave its full support and permission for the doctoral thesis to be published. No funding was required or given.



The criteria used to review the literature were designed to cover a broad range of:

- personal, interpersonal, and communication characteristics;
- team process and structure factors; and
- studies conducted in a business context.

Constructs found to influence team performance were trustworthiness, commitment, communication characteristics, cross-cultural communication style and structure effects. Relevant literature will now be described.

*Team effectiveness and performance* have been extensively researched. According to [Salas et al. \(2007\)](#), around 130 team performance models and frameworks have been recognized. However, the factors determining GVTs' effectiveness and the variables contributing to performance are not well defined ([Ale Ebrahim et al., 2009](#)). Effects of social ([Lin et al., 2008](#)), task-related ([Lipnack and Stamps, 2000](#)) and communications ([Maznevski and Chudoba, 2000](#)) factors on the effectiveness of GVTs have been researched. However, a comprehensive profile of factors influencing high-performance in GVTs has not been reported. Not only is data collection from GVTs difficult owing to different locations ([Lin et al., 2008](#)), but the lack of clear definition between effectiveness and performance complicates matters further ([Piccoli et al., 2004](#)). [Lurey and Raisinghani \(2001\)](#) define performance as the degree to which the GVT's products or services meet required standards in terms of quality, quantity and timeliness.

*Trust* is one of the major challenges virtual teams face. The development of trust and trustworthiness has been deemed essential to collaborative work ([Mayer et al., 1995](#)). However, physical distribution, changing team members, cultural differences and lack of prior history ([Lipnack and Stamps, 2000](#)) can lead to severe difficulties in establishing effective trusting relationships. In particular, trust is regarded as an essential ingredient for cooperation ([Hwang and Burgers, 1997](#)). When engaging in a trusting relationship, parties are more willing to overlook the risk of being taken advantage of and act for collective gain. According to [Hwang and Burgers \(1997\)](#), a trustworthy partner in a relationship will facilitate cooperation by reducing the risk of being exploited and decreasing opportunistic behaviours. Empirical research confirms that mutual trust and trustworthiness among participants is one of the prerequisites for collaboration to occur in a team. It has positive impact on the effectiveness of virtual teams ([Hakonen and Lipponen, 2009](#)) and a significant impact on the GVT's performance ([Henttonen and Blomqvist, 2005](#)). However, the level of trust on a GVT's performance varies based on the conditions within the team. Furthermore, trust development relies on the cultural backgrounds of the members ([Yusof and Zakaria, 2012](#)). [Dulewicz \(2013\)](#) describes research culminating in the design of a scale to measure trustworthiness which has been used in several studies of individuals ([Van Den Assem and Dulewicz, 2014, 2015](#)). He advocates the use of different item sets for measuring relationships with different trustees.

*Commitment* refers to attachment or determination to attain any goal or to extend efforts over time and to be unwilling to abandon a goal. Goal commitment and performance are related positively ([Erez and Arad, 1986](#)). Project teams often experience goal and task difficulty. Expectation has to combine with incentive and motive to determine behaviour ([Andersen, 2009](#)). As commitment declines in response to increasing goal difficulty, performance also declines ([Kotlar and De Massis, 2013](#)).

*Interpersonal communication* is challenging for GVTs, as poor communication could be the source of many problems encountered by team members ([Rosen et al., 2006](#)). Successful interpersonal communication is when message senders and receivers understand the

message. This is critical, especially in international product development teams (Henttonen and Blomqvist, 2005). The literature suggests that every project establishes its own communication patterns (Lin *et al.*, 2008). Therefore, setting rules for communication management at the start of a GVT project is crucial. Furthermore, choosing the right team members with the required interpersonal skills and the ability to deliver within a GVT's fast changing environment is even more important for project success (Martins and Schilpzand, 2011). Wiemann (1977) researched the communication behaviours required to accomplish interpersonal goals and identified five dimensions of interpersonal competence:

- (1) affiliation/support;
- (2) empathy;
- (3) behavioural flexibility;
- (4) social relaxation; and
- (5) interaction management.

These behaviours are important for GVTs to ensure good information flow.

*Cross-cultural communication style* is especially important for global teams. Different cultures may have different ideas about what constitutes good performance. Communication styles may also differ. Furthermore, an understanding of accountabilities can vary according to whether a culture is more collective or more individualistic. Cultural diversity in GVTs has dramatic effects on the performance of the team and gives rise to many serious issues in GVT management (Piccoli *et al.*, 2004). Hofstede (2001) and House *et al.* (2002) confirm the relevance of communication across cultural borders. However, only Hall's work about "context" is explicitly related to culture and communication (Kittler *et al.*, 2011). Hall and Hall (1990, p. 212) offer a communication-oriented perspective on culture and justify this focus: "We believed that culture is communication and no communication by humans can be divorced from culture". Hall (1977; 1983) refers to three interrelated dimensions of time, space and context:

- (1) Time refers to how members of different cultures understand time and the way they perceive it (monochronic vs polychronic).
- (2) Space refers to differing cultural frameworks for defining and organizing space, with frameworks internalized in all individuals at an unconscious level.
- (3) Context refers to the nature of how meaning is constructed differently across cultures using different ratios of information to context.

GVTs must initiate and manage a formal structure of the *communication process* that will guide the ongoing interactions of team members (Jarvenpaa *et al.*, 1998). Managing team social and interpersonal communication, with clear guidelines and structure for team members, affects the efficiency with which other team processes are conducted (Li and Hambrick, 2005). Without defined rules, team members might use different communication technologies; they may resort to trial-and-error when attempting to establish connectivity and waste time trying to establish a working communication medium (Beranek and Martz, 2005). Teams must establish a specific code of conduct, set of norms and process structures at both the communication and the task level (Blackburn *et al.*, 2003). This is even more important within audio communication via phone, owing to the low level of rehearsability, reprocessability and parallelism (Maruping and Agarwal, 2004).

The host company has a defined *communication process and structure* available for GVT members (Company Communication Guidelines, 2008/2012). As a self-proclaimed leader in

communications, the company sees the guidelines as a way to provide “a set of principles to be more successful” by using the tools offered by the company in the most effective way. Best practice includes use of agendas, pre-reading, minutes and roles in a meeting. Guidelines state that an effective and efficient meeting or conference call is when the purpose, decisions, follow-up actions and responsibilities are clear and that it takes only the minimum amount of time needed (calls of 30-60 min duration). These guidelines were developed internally based on “best practice” and managers’ experience. No academic research was incorporated.

Despite the development of several team effectiveness/performance models, the literature shows gaps concerning virtuality and the level used (Salas *et al.*, 2008). Additionally, performance systems that could be tested in different projects, international teams and company size settings have not received enough attention (Ale Ebrahim *et al.*, 2009). Furthermore, GVTs have specific critical success factors that should be researched further (Chang, 2011). These papers provided a foundation on which to build this research study.

### Research questions and model

Three research questions were developed to address issues identified in the literature:

- RQ1. What is the impact of trustworthiness, commitment, interpersonal communication characteristics, context, communication style and communication structure on GVTs’ performance?
- RQ2. How much of team performance can be explained by each specific construct?
- RQ3. What is the behavioural profile of high-performing teams?

Based on the extant business literature, a research model was designed which presents the impact of trustworthiness, commitment, interpersonal characteristics, context communication style and communication structure on the five key performance indicators which make up overall team performance, as shown in [Figure 1](#).

### Method

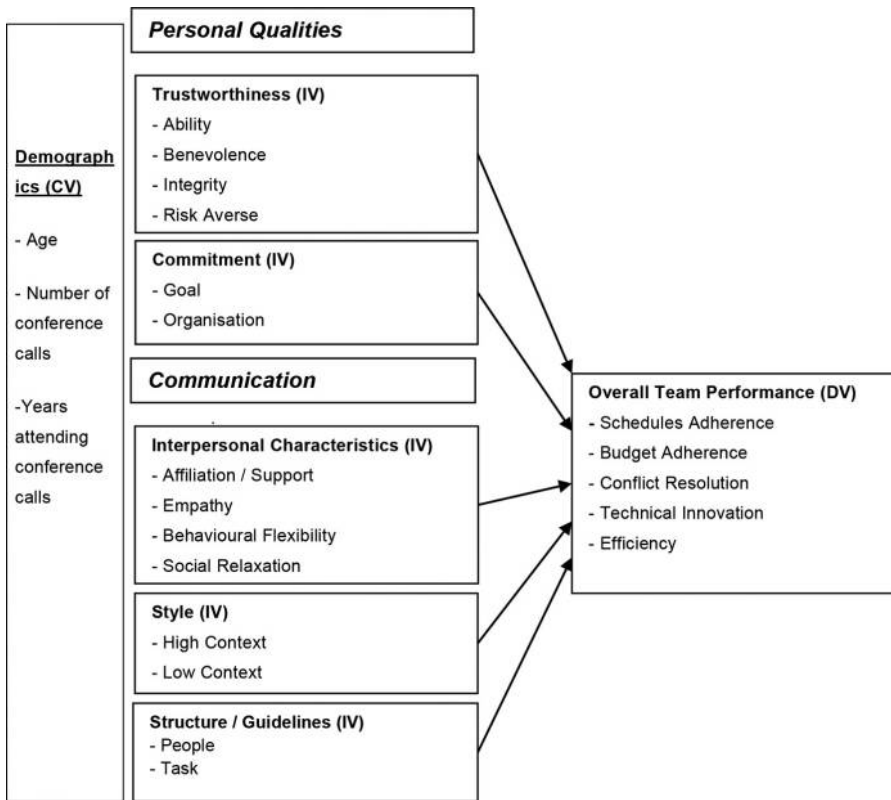
#### *Data collection*

*Team questionnaire.* This contains 96 items and was sent out by e-mail in August 2012 to 510 individuals. The e-mail explained the aim of the research, confidentiality issues and the SurveyMonkey link. Data collection was completed in mid-December, with 293 responses from 122 teams, an individual response rate of 57 per cent.

*Team performance ratings.* Overall team performance has five sub-criteria: schedules adherence, budget adherence, resolving conflicts, technical innovations and efficiency. Data for these variables were collected from the two most senior managers in the area who were also project sponsors. In separate face-to-face meetings in mid-December 2012, they rated each team independently on the abovementioned five criteria. Raters were familiar with the five-point Likert scale which is used in the company’s internal performance review.

#### *Sample*

The research was conducted in a large international telecoms company, operating in 21 countries. The cross-cultural and cross-functional virtual teams were initially identified through an in-company project list and members of 122 teams responded. The  $R_{WG}$  test of inter-rater agreement (James *et al.*, 1984) was conducted on the teams. As 14 teams failed to meet the test requirements, they were excluded from further analysis. The final sample



**Sources:** Model adapted from Mayer *et al.* (1995, p. 715), Wiemann (1977) and Hall and Hall (1990)

**Note:** CV = control variable; IV = independent variable; DV = dependent variable

**Figure 1.**  
Research model

therefore comprised 108 teams with 262 employees, from 14 countries, 18 different physical locations and six managerial levels (management up to head of function). Their mean age was 37.2 years and 63 per cent were male (see Lippert, 2015 for further details). Turning to the  $R_{WG}$  results for the factor scales, the mean for Trustworthiness is 0.84 (ranging from 0.60 to 0.98), Commitment is 0.93 (ranging from 0.66 to 0.99), Interpersonal is 0.98 (ranging from 0.87 to 0.99), Context is 0.90 (ranging from 0.71 to 0.98) and Structure is 0.89 (ranging from 0.71 to 0.99). As all means are above 0.7, the scales are acceptable for these groups.

### Research instruments

Two questionnaires were developed, the first to measure the research constructs, i.e. trustworthiness, commitment, interpersonal, high and low context and structure, and the second to measure team performance. As no existing scale was entirely appropriate for the research model, items had to be designed based on the findings of the literature review. Examples of items appear in Table IV below. A five-point Likert-type scale was used to measure the items, which ranged from never (or virtually never), seldom, sometimes, usually to

always (or virtually always), except for the performance scale (see details below). Factor analysis was conducted on items within each construct, and factor scores were used for the research (see Lippert, 2015, for details). An outline of the scales is provided below.

*Trustworthiness.* The most relevant papers found in the literature on trustworthiness, reviewed above, did not present scales to measure trustworthiness. The scale used here was based on Mayer *et al.*'s (1995) seminal model of trust in business, their review on subsequent research including their own scale (Schoorman *et al.*, 2007) and Dulewicz's (2013) scale. It was necessary to tailor to GVTs the final scale which consisted of 16 items, covering ability/competence, benevolence, risk and integrity. All items formed one Trustworthiness factor which had a Cronbach alpha reliability of 0.97.

*Commitment.* Two factors emerged from factor analysis, Goal commitment with seven items and Organizational commitment with four. Items were derived from the work of Mahony *et al.* (2000) and Funk and Pastore (2000). Scales had alpha reliabilities of 0.97 and 0.88, respectively.

*Interpersonal communication characteristics.* Based largely on the work of Wiemann (1977), this scale was created to assess five dimensions of interpersonal competence: Affiliation/Support (alpha reliability of 0.94), Empathy (0.93), Behavioural flexibility (0.93), Social relaxation (0.66) and Interaction (0.92). There were four items per dimension and each formed a separate factor, with alpha reliabilities shown in parentheses above.

*Context communication style.* No dominant or agreed quantitative measure exists for context (Kittler *et al.*, 2011). Therefore, the relevant literature influenced item selection, which was based on the work of Hall (1977, 1983) and Gudykunst and Matsumoto (1996). The final scales had four low-context items, which formed a single factor with alpha reliability of 0.84, and nine high-context items, which also formed a single factor with a reliability of 0.88.

*Communication structure.* This scale is based on in-company best practice guidelines as well as "the company way" (see above) which explain the attitude, behaviour and way of communication that the company desires to see and which defines the corporate culture. The overriding principles are speed, simplicity and trust. Additionally, there are guidelines on the company website describing the way employees should communicate. The items for this research were derived from these guidelines and "the company way". Fifteen were drafted, covering agenda items, pre-reading, minutes and roles in a meeting. Factor analysis produced two factors. People aspects contained five items and task adherence had six, with alpha reliabilities of 0.82 and 0.80, respectively. Thus, four original items were dropped, as they did not load onto either factor.

*Team performance.* The company's project performance measure (PPM) contains performance criteria and objectives designed to:

- improve efficiency (budget adherence);
- improve production (schedule adherence); and
- deliver high-quality solutions (effectiveness).

These criteria are supported by the project success literature (Cooke-Davies, 2002). The final Team Performance Scale's items covered schedule adherence, budget adherence, efficiency, resolving conflicts and technical innovation. The scale was based on the work of Geoghegan and Dulewicz (2009) and Swink *et al.* (2006), with the last two criteria, resolving conflicts and technical innovation, derived from the PPM. A five-point rating scale was used to measure the items based on the company's PPM form: exceeding, excellent, good, inconsistent and poor. The items had an alpha reliability of 0.96.

### Analysis

As the dependent variable was the performance of teams, mean scores for each team were calculated for all variables. A number of statistical techniques within SPSS were used to analyse the data in this study: factor analysis, hierarchical multiple regression, analysis of variance (ANOVA) and *t*-tests.

## Results

### Testing the research model

Hierarchical multiple regression was used to investigate relationships between independent and dependent variables, after controlling for the effects of demographic variables. These measured the group's mean age and experience – the number of conference calls attended and years spent attending conference calls. Variables in the hierarchical regression were entered in the same order as they appear in the research model in Figure 1 and as shown in the Model column of Table I. ANOVA was applied to test the degree to which the model fitted the data.

The "R Square Change" column in Table I indicates the increase in  $R^2$  resulting from each new variable being entered. The control (demographic) variables contributed 1.7 per cent of the variance ( $R^2 \times 100$ ), trustworthiness an additional 55.0 per cent, commitment 1.7 per cent, interpersonal 8.5 per cent, low context 1.9 per cent, high context 4.5 per cent, structure – people 2.2 per cent and structure – task 0.2 per cent. In total, the model explains 75.7 per cent of the variance in the dependent variable, team performance, and 74.0 per cent once control variables are accounted for. All independent variables apart from structure – task demonstrated statistically significant augmentation to the previous model.

The standardized beta coefficients from the hierarchical regression are also presented in Table I. These betas show the values for when each predictor was first entered into the model. The *t*-values of the betas for all scales (predictors) except structure – task are significant at, at least, the 0.05 level, indicating an association with the dependent variable, team performance.

The ANOVA on the multiple regression data provides a test of model fit. Results are presented in Table II, which reveals that all models apart from the control (demographic) variables are statistically significant at the 0.001 level. Therefore, the data fit the overall model.

Model	Predictor	$R^2$	$R^2$ change	Standardized beta
1	Control variables	0.017	0.017	
	Age			0.137
	Conf. calls experience			-0.031
2	Trustworthiness	0.567	0.550***	0.761***
3	Commitment	0.584	0.017*	0.258*
4	Interpersonal	0.669	0.085***	0.498***
5	Low context	0.688	0.019**	0.385**
6	High context	0.733	0.045***	0.238***
7	Structure – people	0.755	0.022**	0.121**
8	Structure – task	0.757	0.002	0.046

*n* = 108

Notes: \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

**Table I.**  
Hierarchical multiple  
regression predicting  
team performance



TPM	Model	Sum of squares	df	Mean square	<i>F</i>	Significance
	<i>1. Demographics</i>					
	Regression	1.826	1	1.826	1.840	0.178
	Residual	105.174	106	0.992		
	Total	107.000	107			
	<i>2. Trustworthiness</i>					
	Regression	60.690	2	30.345	68.802	0.000
	Residual	46.310	105	0.441		
	Total	107.000	107			
	<i>3. Commitment</i>					
	Regression	62.501	3	20.834	48.690	0.000
	Residual	44.499	104	0.428		
	Total	107.000	107			
	<i>4. Interpersonal</i>					
	Regression	71.562	4	17.891	51.999	0.000
	Residual	35.438	103	0.344		
	Total	107.000	107			
	<i>5. Low context</i>					
	Regression	73.595	5	14.719	44.943	0.000
	Residual	33.405	102	0.328		
	Total	107.000	107			
	<i>6. High context</i>					
	Regression	78.444	6	13.074	46.242	0.000
	Residual	28.556	101	0.283		
	Total	107.000	107			
	<i>7. Structure – people</i>					
	Regression	80.783	7	11.540	44.018	0.000
	Residual	26.217	100	0.262		
	Total	107.000	107			
	<i>8. Structure – tasks</i>					
	Regression	80.975	8	10.122	38.504	0.000
	Residual	26.025	99	0.263		
	Total	107.000	107			

**Table II.**  
ANOVA test of  
model fit

#### *Profile of the high-performing group*

One research question aimed to identify a profile of high-performing teams. A variable was created separating the 108 teams into groups of the top third (33 per cent high-performing) and around the bottom third (36 per cent low-performing). A *t*-test was conducted on these variables to test differences in scores between the high- and low-performing teams on the main constructs in the research. First, all construct factor scores were tested, and results are shown in [Table III](#). It should be noted that standardized factor scores were used in the *t*-tests; therefore, mean scores can be positive or negative. The results revealed that highly statistically significant difference exists between the mean scores for the constructs trustworthiness, commitment, interpersonal, low context, high context and communication style, with high-performing groups attaining higher scores on each. In contrast, significant differences were not found for communication structure for people or tasks.

## Global virtual teams

Scales	Performance	Group statistics			Independent samples test		
		<i>N</i>	Mean	SD	<i>t</i>	df	Significance
Trustworthiness factor	Low	42	-0.833	0.970	-9.957	76	0.000
	High	36	0.845	0.303			
Commitment factor	Low	42	-0.853	0.833	-10.137	76	0.000
	High	36	0.773	0.520			
Interpersonal factor	Low	42	-0.905	0.791	-11.686	76	0.000
	High	36	0.890	0.510			
Low context factor	Low	42	-0.891	0.775	-12.005	76	0.000
	High	36	0.908	0.491			
High context factor	Low	42	-0.278	1.089	-2.679	76	0.009
	High	36	0.339	0.918			
Communication: people factor	Low	42	0.026	0.801	0.135	76	0.893
	High	36	-0.005	1.168			
Communication: task factor	Low	42	-0.089	1.075	-0.969	76	0.336
	High	36	0.140	0.995			

**Table III.**  
*t*-tests on high- and low-performing groups: factor scores

All questionnaire items were compared on the performance dichotomy (high vs low groups) to obtain a detailed profile of the high-performing group. The 52 items with a statistically significant difference between high- and low-performance teams were identified and are shown in [Table IV](#). Detailed results of *t*-tests conducted are presented by [Lippert \(2015\)](#).

All trustworthiness items except one measuring integrity show a statistically significant difference. This suggests that the elements of benevolence, ability/competence, integrity and risk aversion help to create and build trustworthiness. All items covering goal and organizational commitment also differentiated significantly between the high- and low-performing groups. This highlights their importance for team success.

All except one interpersonal item in the sub-sections (affiliation/support, behavioural flexibility, empathy, social relaxation and interaction management) differentiated teams with high and low performance. Finally, the context communication style items differentiated between high- and low-performing groups. In contrast, not one of the people or task structure items significantly differentiated between the performance groups.

## Discussion

The discussion of results will be presented in terms of links to the literature and contribution to management practice. Implications for the telecoms company and virtual team members are also considered.

### *Trustworthiness*

Trustworthiness accounted for a majority of the variance on virtual team performance. Furthermore, 15 items were found in the profile differentiating between high- and low-performing groups. The only exception was the item “team members tell the truth even when they know they would be better off lying”.

The behaviours reflected by items in [Table IV](#) which differentiate between high- and low-performing teams are valuable indicators for personal development. Members of high-performing teams are more likely to be more benevolent (e.g. dealing sympathetically with other people’s problems and acting in good faith), be more competent (e.g. having expert knowledge in their subject area and giving valuable advice), have more integrity

TPM		
	<i>Trustworthiness</i> Benevolence	Team members devote time and energy to support me rather than to serve their own interests are concerned about the problems of the others deal sympathetically with other people's problems act in good faith with people who do the same to them make me feel that they are genuinely interested in my needs
	Competence	demonstrate competence in the decisions they make expertise makes me willing to accept their decisions demonstrate competence by giving me valuable advice have expert knowledge in their subject areas
	Integrity	are demanding because they insist on doing the right thing appear to believe that honesty is the best policy keep promises, no matter how inconvenient they might turn out to be do not leave anything to chance whenever they make plans
	Risk aversion	prefer to think things through very carefully before acting like to take time to consider all the available options before coming to a decision dislike having to take highly risky decisions
	<i>Commitment</i> Goal Commitment	Team members are committed to project goals approach colleagues who seem to be not committed to the project complete their tasks as agreed stay longer at work when a deadline approaches commit to challenging but achievable goals
	Organizational commitment	perceive their service as valuable to the organization perceive their service as valuable to their own careers support each other
	<i>Interpersonal</i> Affiliation/ Support	Team members use language appropriate to their relational status refrain from talking too much at any one time take responsibility for the perceptions they form of the others make an effort to show their affiliation to other persons
	Behavioural flexibility	are capable of monitoring own behaviour in terms of situation change their behaviour depending on who they interact with communications behaviours enable them to develop satisfactory relationships with different people adapt their behaviour depending on the status of the relationship they have with others
	Empathy	put themselves in another's shoes see things the way the others do reflect verbally that they understand what others are saying know each other so well that it is hard to surprise them
	Social relaxation	try to establish a relaxed climate when communicating with each other talk with a deliberate or moderate speech rate show credibility in the way they communicate
	Interaction management	know the rules of interpersonal communication do not interrupt the speaker let the speakers alternate avoid long pauses
	<i>Communication style</i> Low Context	Team members communicate in a direct, precise way talk based on true intentions will clarify ambiguous information use fact-oriented rational arguments to convince others
	High context	use indirect language to avoid confrontations use non-confrontational language to avoid confrontation use vague language to avoid confrontations have to "read between the lines" to fully understand a message can imply a message without uttering it

**Table IV.**  
Item profile of high-  
performing group

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(e.g. insisting on doing the right thing and keeping their promises) and be more risk-averse (e.g. thinking things through carefully before acting and leaving nothing to chance).

Trustworthiness of team members appears to be a key performance factor in the virtual environment, as also found by [Lipnack and Stamps \(2000\)](#). Teams should be well aware of this from the beginning of their project and should ensure they invest enough time for social interaction. Even more important, those responsible for staffing virtual teams should select members who have a higher degree of initial trustworthiness, a quality which can immediately influence project success and team performance. Not only are first impressions important, but information obtained and shared about other team members before the first impression is formed is vital ([Robert et al., 2009](#)). During the project phase, it is then possible to build cognitive trust, based on shared experiences. This can be enhanced by competent and timely actions such as replying promptly to e-mails, following up on confirmed actions, delivering quality, being on time and being prepared for conference calls.

### *Commitment*

Commitment is seen in the literature to have an optimizing effect on organizations, goal achievement, job satisfaction and individual career opportunities ([Meyer and Allen, 1991](#)). All eight commitment items appeared in the high-performing group profile, supporting the importance of member commitment to GVTs' performance. On goal commitment, members of high-performing teams were more likely to be committed to project goals, to approach colleagues who do not seem committed, to complete tasks, to stay longer as deadlines approach and to be committed to challenging, achievable goals. Thus, the effect of increased goal difficulty, i.e. difficult/challenging goals improve performance, is supported. This is in part because development of new products with a fixed delivery deadline can be seen as a challenging and stressful objective, especially when there is uncertainty about decision-making. On organizational goals, high-performing team members were more likely to perceive their services as valuable to the organization and to their own careers and to support each other. Again, these behaviours provide useful guidance for development.

At the team level, a committed team develops the ability to learn from mistakes, creating clarity around direction and priorities, moving forward without hesitation and aligning the team around common objectives ([Kennedy and Nilson, 2008](#)). These behaviours can be achieved through clarity of decisions taken, clear deadlines and open discussion of worst-case scenarios to visualize and understand that mistakes can be compensated for ([Liu, 1999](#)). Finally, these results support the work of [Mahembe and Engelbrecht \(2013\)](#), who developed a team commitment model based on the findings of [Meyer and Allen's \(1991\)](#) three-dimensional organizational commitment model.

### *Interpersonal communication characteristics*

Poor communication resulting in misunderstandings can affect team work negatively ([Rosen et al., 2007](#)). It is critical for project success that team members have the appropriate characteristics and skills to communicate clearly, as it is for each GVT to establish its own communication rules ([Duarte and Snyder, 2006](#)).

The high-performance group profile contains 19 items from the interpersonal scale, making it the largest contributor to the profile. The only item that did not differentiate between the high- and low-performing groups was in the social relaxation subscale "team members avoid their voice sounding stressful". Members of high-performing teams on the affiliation/support subscale were more likely to use language appropriate to their relational status, refrain from talking too much at any one time, take responsibility for the perceptions they form of others and make an effort to show their affiliation to the other person. On

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behavioural flexibility, they were more likely, for example, to monitor their own behaviour in relation to the situation and to adapt behaviour depending on with whom they were interacting. On empathy, members of high-performing teams were more likely, for example, to put themselves in another's shoes and reflect verbally what others are saying. They were also more likely to be socially relaxed, e.g. establish a relaxed climate when communicating and show credibility in the way they communicate. Finally, on interaction management, they were more likely to know the rules of interpersonal communication, let speakers alternate, avoid long pauses and not interrupt. These results support the positive effect of interpersonal communication characteristics and indicate how members can develop their interpersonal skills.

Clear feedback from team members, managers or even customers about how their communication is received is one of the most important actions for performance enhancement within virtual teams. Assessment of the current level of competence and further development through training could increase the impact on team performance. The more frequently people communicate, provided that the other person is willing and able to accept positive and negative feedback, the better the quality and the results of the communication.

#### *Cross-cultural communication style*

It is highly likely that different cultures will be involved when teams are geographically dispersed. Various nationalities with different backgrounds and experiences do not have the same understanding of behavioural norms, organizational cultures, routines and assumptions about teamwork and team performance (Piccoli *et al.*, 2004). The relevance and importance of cross-cultural communication has been noted by several researchers (Hall, 1977; Hofstede, 2001; House *et al.*, 2002).

All four low-context (LC) and five high-context (HC) items differentiated between high- and low-performing groups. On LC, members of high-performing teams were more likely to communicate in a direct and precise way, talk based on true intentions, clarify ambiguous information and use fact-based, rational arguments to convince others. On HC, high-performing teams were more likely to use indirect, non-confrontational and non-vague language to avoid confrontation and to imply a message without uttering it.

Knowledge and understanding of the different cultural communication styles should facilitate the development of virtual teams. Additionally, despite the predominance of one context style, every individual does use both context levels, not only depending on their nationality but also on the relational status between the sender and the receiver of the message. Awareness of being different seems to be critical when teams do not recognize or are insensitive to cultural diversity, resulting in someone being unknowingly offended. Cross-cultural communication is a competence that GVT members have to recognize, learn and understand if they aspire to be successful and cross-functional cultural communication training for GVTs is advocated.

#### *Structure*

Although previous research (Gildorf, 1998) had identified that 20 per cent of communication problems could be avoided through issuing clear written guidelines, the constructs "people structure" and "task structure" showed no relationship with team performance. Not one of the scale items on either construct distinguished between high- and low-performing groups. One possible explanation why the current communication guidelines are not effective is that they do not reflect the company culture. Another is that, despite distribution and reminders, they are unread by the team members. A third is that if

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employees acknowledge the communication guidelines but do not follow them, their use would also be questionable. As the communication policy does not fulfil its purpose, a training programme would be beneficial, with mandatory attendance for all employees.

### *Team performance*

This study can make a significant contribution to performance management. It provides evidence that team performance is affected by social and task-related factors. Our findings provide partial support for the meta-analysis of [Lin et al. \(2008\)](#), who identified that relationship building, cohesion, trust, communication and coordination affected the performance of virtual teams. They concluded that social dimensional factors had a higher impact on the performance than task dimensional factors. Furthermore, this study supports the work of Hay McBer ([Gross, 1995](#)), which provided a list of competencies required by a high-performing team, many of which are confirmed by this study.

### *Contributions to theory*

Analysis of the research model demonstrated good fit. The results of the hierarchical regression provide details of the relative weightings and contribution of the constructs and showed that around three-quarters of the variance in team performance could be explained. Taking account of “noise” within variables, the model explains a very high proportion of the variance on team performance that can be explained. This is supported by the ANOVA results which showed a strong indication of model fit, as all constructs were statistically significant, except for demographical variables. Finally, new or amended scales were devised to measure all constructs, especially performance, tailored to GVTs and could be used in future research.

### *Contributions to practice*

The high-performing group profile provides valuable information for management, as it presents details of behavioural items which differentiate the top third of teams from the bottom third. This profile (see [Table IV](#)) provides valuable guidance for team member selection and development and the management of teams.

For selection, the behavioural items within the components of Trustworthiness – Benevolence, Competence, Integrity and Risk-aversion – provide a useful “person specification” for selecting new members of a team, to determine whether these behaviours have been demonstrated in past work. In addition, Ability/Competence behaviours could be developed if the person is selected.

The Communication style behaviours can also be developed through tailored programmes, while many could also be useful to those who manage teams. In addition, many of the five aspects of Interpersonal behaviours are amenable to development. Programmes could be designed to cover Support, Behavioural Flexibility, Empathy, Social Relaxation and Interaction Management. Furthermore, many of the specific items could be valuable to those who manage GVTs, for appraisal and feedback. This could also apply to Goal and Organizational commitment behaviours.

### *Limitations of study*

As in any research study, there were limitations. First, it was conducted in a single organization within the private sector. GVTs’ tasks were specific to the telecoms industry’s products and services. Secondly, the focus was on teamworking, while leadership, an important dimension, was not covered. The teams had different reporting structures, and in

some cases, it was difficult to identify a single leader. Making comparisons would therefore have been difficult. Moreover, to have added further items to an already long questionnaire (100 items) would have probably reduced the response rate. Thirdly, a commonly agreed benchmark performance scale would have been valuable to compare results across different organizations, but this did not exist and so one had to be devised. Finally, at the outset, it was envisaged that follow-up interviews with a cross-section of teams would be valuable to explore the relationships found and help to explain them. Ultimately, time did not permit this.

#### *Future research*

Further studies are recommended to build on this research. To test generalisability, this study could be replicated in other organizations outside telecoms, including the public sector, and investigating GVTs with different tasks and functions. Leadership of teams could also be incorporated, to test the findings of the model and the high-performance profile. In addition, in-depth interviews could be carried out to explore the findings. Finally, it could be potentially valuable to conduct a longitudinal study to explore the relationships found here over time.

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