

CEO Leadership, Top Team Trust and the Combination and Exchange of Information¹



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INTRODUCTION

Organisational learning research suggests that organisations that have the ability to acquire, integrate and exploit new knowledge are more likely to be successful in the knowledge era. Two of the key processes through which this can occur are the combination and exchange of information. It would seem that the organisation's ability to enhance their management of the processes that underpin organisational learning is perhaps the only viable safeguard against corporate extinction.

Relatively little empirical research has addressed the factors that underpin organisational learning and even fewer researchers have considered the contribution of leadership and the top management team (TMT) to the organisational learning process. Argote and Ophir (2002), in a recent summary of research on organisational learning, confirmed the need for further research into how the 'member' or human component of organisations influences organisational learning. They concurred that the most influential members within any organisation are its leadership. This paper aims to explore the connection between leadership and organisation learning by focusing on the

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impact of CEO transformational leadership and top team trust on the ability of the firm to combine and exchange information and thus enhance the learning capability of the firm.

THEORY AND HYPOTHESES

Transformational Leadership and the TMT

The TMT is 'the relatively small group of the most influential executives at the apex of an organisation' (Finkelstein and Hambrick, 1996: 8) and is usually comprised of the Chief Executive Officer (CEO) and the organisation's most senior managers. While the contribution of the CEO to the effective functioning of the TMT would appear self-evident, studies investigating this relationship are relatively rare, perhaps due to the difficulties associated with research access to such senior managers. Hambrick (1994) notes that the strong team focus of TMT research has neglected the role of the CEO and many researchers have tended to view the CEO as just another member of the team (Jackson, 1992). However, emerging research focused on the disproportionate impact the CEO has on TMT performance and the dominating influence they exert on the group's operations and outputs (Finkelstein, 1992; Flood et al., 2000; Haleblian and Finkelstein, 1993). This study focuses on one type of leadership, namely transformational leadership, and its association (if any) with conditions for organisational learning. Most of the current theories of transformational leadership were strongly influenced by Bass (1985), who developed the Multifactor Leadership Questionnaire, which is designed to measure the transformational, transactional and *laissez faire* leadership concepts. This questionnaire is utilised in our study, focusing on the transformational style of leadership. According to Bass, transformational leadership has four dimensions.

The first dimension is charisma. The charismatic leader provides a collective vision, instils pride and arouses and inspires their staff. The second dimension of transformational leadership is the inspirational dimension, where the leader gains support for their vision. The third dimension is individual consideration. This dimension focuses on facilitating followers in achieving their full potential and involves part coaching, part mentoring. The final dimension is intellectual stimulation. Here the leader provides subordinates with challenging new ideas and encourages them to rethink old ways of doing things. This framework, incorporating the four dimensions outlined above, has made an important contribution to the development of the concept of transformational leadership (Den Hartog et al., 1997).

Leadership and Intra-Group Trust

When investigating top team trust, this study utilises a framework developed by Mayer et al. (1995) which highlights three important attributes of trust that appear consistently in the literature and encapsulate many of the different typologies. These are ability, benevolence and integrity. Together these three facets provide a solid framework for studying trust in an organisational setting.

Ability

To trust in an individual's ability would be to trust in their skills and competencies to do their job. The domain of the ability is specific because the trustee might be very capable and skilled in a certain area, affording that person trust in that area (Mayer et al., 1995).

Benevolence

Benevolence or the expectancy that the trustee will behave in a positive way towards the trustor is cited by many theorists as central to the definition of trust. Benevolence suggests goodwill and attachment on the part of the trustee towards the trustor.

Integrity

The relationship between integrity and trust 'involves the trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable' (Mayer et al., 1995: 719). Ring and Van de Ven (1992) refer to the importance of moral integrity, as does Butler (1991). The trustor needs to perceive the trustee as having principles.

Transformational leadership, it is argued, leads to enhanced trust within the group. Pillai, Schriesheim and Williams (1999) maintain that inspirational motivation and idealised influence, both core components of transformational leadership, are central to the creation of trust. They suggest that mutual trust is developed within the team through the creation of a common goal with which the team can identify. The link to benevolence-based trust is clear. If a top team's desires and intentions are fused and are focused on a common vision, members will be less likely to feel open to opportunism at the hands of others. The exhibition of individualised concern for followers, another facet of transformational leadership, has been found to foster the development of high levels of trust within the team (Podsakoff, MacKenzie and Bommer, 1996) and this is supported by Hall, Schneider and Nygren (1970) and Hogg (2001) whose research indicated that there is a positive relationship between the process of identification and the satisfaction of higher-order needs such as self-esteem and self-fulfilment. Abrams and Hogg (1988) also argue that increased self-esteem motivates identification with collective interests, as positive self-esteem is at the heart of the drive for positive social identity (Hogg, 2001).

Although the leader's ability to foster follower identification with the organisation is key, equally important is the transformational leader's ability to encourage participation from followers. One way in which a transformational leader does this is through the use of intellectual stimulation. Intellectually stimulating leaders actively encourage new ways of looking at technical and human relations problems among others (Bass and Avolio, 1994) and encourage critical debate. It also follows that where a culture of creativity and participation is encouraged, team members are more likely to suggest new ideas without the fear of personal criticism. Harvey (1988) adds that the develop-

ment of a culture of trust is strongly linked to the leader's ability to recognise success and give encouragement after failure. By recognising failure and mistakes as developmental, the transformational leader helps to develop trust within the top team. Korsgard et al. (1995) also found that when team leaders adopt a more participatory approach, team members see the process as fairer and they have greater commitment to the decision, greater attachment to the team and greater trust in the leader. Research carried out by Eisenhardt and Bourgeois (1988) further indicates that a more democratic participative leadership style may help foster trust within management teams. Therefore, by developing a strong social identity and the creation of a climate that encourages participation, the transformational leader positively influences levels of trust within the team.

H1: CEO transformational leadership will be positively related to intragroup trust.

Transformational Leadership and Information Combination and Exchange

Many researchers have acknowledged the importance of organisational learning for competitive advantage and firm survival (Kiernan, 1993; Nahapiet and Ghoshal, 1998; Schultz, 2001). Indeed, a growing body of empirical research exists to indicate that organisational learning or the ability of the firm to create, combine, exchange and exploit knowledge and information is a prerequisite to the successful organisational performance of the firm (Calantone, Cavusgil and Zhao, 2002; De Geus, 1997; Ellinger, Ellinger, Yang and Howton, 2002; Stata, 1989).

There are many perspectives on how organisational learning happens (Nonaka, Toyama and Byosiore, 2001; Schutlz, 2001). Nahapiet and Ghoshal (1998) provide a simple but convincing model depicting organisational learning as occurring primarily in two ways – through the *combination* and *exchange* of knowledge (Nahapiet and Ghoshal, 1998; Schultz, 2001). Combination describes the process by which prior knowledge is combined to create new knowledge. This can happen in two ways, either by combining knowledge that was previously unconnected or by finding new ways of connecting knowledge that had been previously associated. The second mechanism identified by Nahapiet and Ghoshal (1998) is the exchange of knowledge. They note that the combination of knowledge often depends on the exchange of information, especially where resources are held by different parties. In order to gain access to the information, the transfer of information from one party to another is required.

Moran and Ghoshal (1996) identified three conditions that must be satisfied in order to facilitate organisational learning. The first condition is access. It is imperative that the opportunity to combine and exchange information exists. This means access to the different parties and also the ability to draw

upon the different knowledge bases of these parties. Secondly, in order to continue with these learning activities, it is important that the participants perceive the outcome to be of value, even though they may not be sure of what the outcome will be. The different parties must envisage the exchange and combination of knowledge as a worthwhile activity. The third condition necessary for learning is motivation. It is not enough that the parties involved anticipate that value will be created as a result of the learning process, but also that the value will be appropriable to them even if they are not certain of what that newly created value will be. A fourth condition added by Nahapiet and Ghoshal (1998) is combination capability. Even when all three conditions discussed above exist, the combination and exchange of knowledge cannot take place unless parties are capable of doing so.

We argue that these four components of transformational leadership play an important role in the encouragement of information combination and exchange. Here also, the development of a strong identity plays no small part in this process. Nahapiet and Ghoshal (1998) focus on identification with the collective (Lewicki and Bunker, 1995) as a source of motivation in the combination and exchange of information. 'Identification is the process whereby individuals see themselves as one with another person or group' (Nahapiet and Ghoshal, 1998: 252). Members of the collective adopt the values and standards of the entire group and use them as a comparative frame of reference (Merton, 1968). Research suggests that identification with the collective enhances concern for collective processes and outcomes. Through the use of idealised influence and inspirational motivation, transformational leaders encourage and inspire followers to link their self-concepts to the collective interest of the group, its values and vision (Sosik, 1997). This increases follower motivation to work collectively (Shammir, House and Arthur, 1993) and influences both follower motivation to combine and exchange information and followers' anticipated value to be achieved through this process.

Previous research has posited that the transformational chief executive plays a key role in the leadership of learning (Gillen, 2000; Stata, 1989) at organisational level. At the heart of this process is the development of a climate of participation. Transformational leaders use intellectual stimulation to enhance followers' capacity to develop new ideas and to question operating rules and systems. This is likely to enhance investigative thinking. Followers are encouraged to share their knowledge or new ideas with other team members without the fear of public criticism, leading to an expanded source of knowledge and information for group members to use. Thus transformational leaders use intellectual stimulation to encourage the generation of new ideas which are shared with team members leading to creativity, innovativeness and organisational learning (Gillen, 2000; Howell and Higgins, 1990; Stata, 1989).

Related research also suggests that the more egalitarian styles of leadership enhance organisational learning (King and Anderson, 1990). Woodman, Sawyer and Griffin (1993) concur, arguing that autocratic leadership can infringe on the creation of new information, suffocating creativity and pre-

venting innovation. West and Anderson (1996) contend that participation in decision making implies a high level of interaction which leads to the cross-fertilisation of perspectives and exchange of ideas and information. Using intellectual stimulation and individualised concern, transformational leaders foster follower empowerment and development by encouraging involvement in decision making in the top team. Again social identity and climate of participation are highlighted as important mechanisms in understanding the following hypothesised relationship:

H2: CEO transformational leadership will be positively related to the combination and exchange of information.

Transformational Leadership, Intra-Group Trust and the Combination and Exchange of Information

Nahapiet and Ghoshal (1998) argue that when a relationship is characterised by trust, parties are more willing to engage in cooperative relations and will thus be more inclined to share or exchange information. Several other researchers share the belief that when trust levels are high people are generally more likely to engage in social exchange and co-operative interaction (Fukuyama, 1995; Gambetta, 1988; Klimsoki and Karol, 1976; Tyler and Kramer, 1996). In a study of 53 teams, Edmondson (1999) similarly found that psychological safety was a consistent predictor of team learning. Psychological safety stems from mutual trust among team members. According to Edmondson (1999), team members will only engage in learning and risk-taking behaviour where they trust each other. Team leadership is key to the process of building a climate of trust and safety in the organisation, elements which are central to the combination and exchange of information. Thus we propose that CEO transformational leadership will impact the combination and exchange of information through their ability to foster trusting relationships.

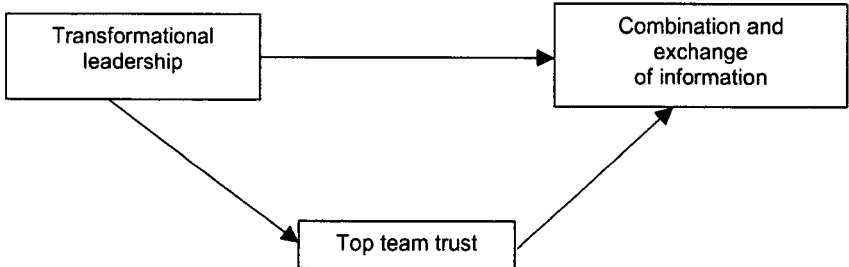
H3: Intragroup trust will mediate the relationship between transformational leadership and the combination and exchange of information.

In summary, this paper proposes that transformational leadership has a direct impact on the level of information combination and exchange within an organisation. It also predicts that transformational leadership will have a direct impact on top team trust. Finally, it is hypothesised that the relationship between transformational leadership and the combination and exchange of information is mediated by top team trust.

RESEARCH METHODOLOGY

The focus of this study was small to medium Irish software companies. The sample for this study consisted of the TMT and core workers in these companies.

Figure 2.1: Hypothesised Relationships between CEO Transformational Leadership, Top Team Trust and Information Combination and Exchange



We chose to study the software industry because of the importance of intellectual capital in that industry. Three criteria were used to assess the suitability of participant firms in an effort to exclude exogenous influences from our results. All firms targeted were 1) involved in the software business 2) Irish owned and 3) had over 30 employees. The latter criterion was specifically set in order to ensure that the firms targeted had a management structure in place.

Over 1,000 firms were contacted to assess their suitability for inclusion in the study. The majority of the firms contacted were excluded due to their size (i.e. less than 30 employees). Out of these 1,000 firms only 150 met all three criteria listed. All eligible firms were then invited to participate. From this, 47 companies agreed to participate. Those choosing not to participate did so for a variety of reasons (for example not enough time, no interest etc.).

The core data in this study were collected using a survey questionnaire. During a semi-structured interview the CEO of each company identified the TMT members and core workers who were to receive the study questionnaire. Core workers were identified by the CEO in each firm as employees, other than members of the TMT who were responsible for developing, defending and maintaining the firm's key strategic resources. Core workers were included in the study as the focus of the research was organisational level measures of the combination and exchange of information not one based solely on the top team which would potentially introduce a single source bias to the results. Results of a series of correlations between firm size and spread of responses (using the James Demaree and Wolf (1984) $rwg(j)$ coefficient as a measure of spread) provided evidence to suggest that core workers were not selected solely because they would respond positively.

Due to incomplete or non-returned data, the final number of firms in the sample for analysis purposes was 38. This represents quite a strong response rate considering the difficulties associated with getting access to managers at the upper echelons of the organisation. At a disaggregated level it represents 123 top team members, an average response rate of 3 top team members per firm and 150 core workers, representing an average response rate of 4 per firm.

The TMT response rate per company varied from 25 per cent to 100 per cent. The core worker response rate per company varied from 16 per cent to 100 per cent with only 5 of the companies having a core response rate of less than 50 per cent. The companies that agreed to participate did not differ significantly in terms of employee numbers to those who chose not to participate ($t_{140} = 1.585$, ns). It was not possible to obtain employee number information for ten of the non-respondents.

Research Measures

Leadership Variable

Transformational leadership style was measured using form 5X of Bass' (1985) Multi-factor Leadership Questionnaire (MLQ). Bass' model of transformational leadership is based on four core dimensions (the four I's). They are idealised influence, inspirational motivation, individualised consideration and intellectual stimulation. These sub-dimensions were measured using 20 Likert-type items in the TMT questionnaire. Respondents were asked to rate how often their CEO displays the behaviour described in each item. The four constructs underpinning transformational leadership all had alpha coefficients above the accepted threshold (Idealised influence $\alpha = .87$, Inspirational motivation $\alpha = .85$, Intellectual stimulation $\alpha = .74$, Individualised consideration $\alpha = .70$). The James' coefficient for inter-rater reliability for the leadership sub-factors was then computed (James, Demaree and Wolf, 1984). The $rwg(j)$ represents within-group agreement. Mean values for each of the four I's were acceptable (Idealised influence = 0.87, Inspirational motivation = 0.95, Intellectual stimulation = 0.95, Individualised consideration = 0.94).

Trust Variable

This study utilised Mayer et al.'s (1995) three components of trust: competence, benevolence and integrity. This measure was chosen because it was specifically designed to measure perceived trustworthiness and was found to be the strongest component of trust (Costa, 2003). It has also obtained 'excellent psychometric properties ... and this scale parsimoniously captures the key aspects of the expectations about others' intentions and behaviours' (Becerra and Gupta, 2003: 37). Each member of the TMT completed the trust measures. Factor analysis was conducted on the trust measures using principal axis factoring with oblimin rotation. This revealed two clean factors in the data relating to trust. These two factors related to competence-based trust ($\alpha = .81$) and benevolence-based trust ($\alpha = 0.82$). Appendix 2.1 lists the item content of the trust measures. The $rwg(j)$ values were as follows: trust competence = 0.90; trust benevolence = 0.89.

Combination and Exchange of Information

Our dependent variable was measured using items developed by the authors in an attempt to operationalise Ghoshal and Nahapiet's (1998) theoretical framework, which describes how organisational learning happens. According

to their research four processes underlie the combination and exchange of information. These four processes are: 1) access 2) motivation to combine and exchange 3) anticipated value and 4) combination capability. Items were derived from this conceptual framework with different items measuring each of the four core processes facilitating the sharing of information. For example, the item 'Employees of this organisation meet frequently to discuss work related ideas and new developments' is one of the items measuring access to knowledge. A complete list of items can be found in Appendix 2.2, which also contains the results of the factor analysis. As the results indicate, only two key factors emerged from the analysis, which after review of the item loadings were renamed motivation to combine and exchange (factor 1; $\alpha = .84$; $\text{rwg} = .92$) and ability to combine and exchange (factor 2; $\alpha = .81$; $\text{rwg} = .91$). Although it is acknowledged by the authors that the use of these measures is exploratory, the items in question do appear to have face validity and the results of the statistical analysis suggest they also have predictive validity.

RESEARCH RESULTS

Table 2.1 contains the means, standard deviations and inter-correlation matrix of the study variables.

Predictably the four transformational leadership sub-factors are strongly correlated. Strong inter-correlations also exist between competence-based trust and benevolence-based trust ($r = .72$, $p < .001$). In order to avoid collinearity, which can cause problems for multivariate analysis, it was decided to combine the subscales, computing the overall scales of leadership and trust for use in regression analysis. Results of the Cronbach's alpha test of reliability indicated that the summated scales of leadership and trust are reliable ($\alpha = .93$ and $\alpha = .81$ respectively).

In order to test the model, a number of regression analyses were carried out. The results of these analyses are presented in Table 2.2. The results of regression (a) suggest a direct and positive relationship between transformational leadership and top team trust with 35 per cent of the variance in trust explained by transformational leadership. These findings provide support for hypothesis 1.

Regression (b) deals with the relationship between transformational leadership and organisational learning. Results indicate that transformational leadership accounts for 18 per cent of the variance in the ability to combine and exchange and 11 per cent of the variance in the motivation to combine and exchange. The relationship between transformational leadership and each dimension of information combination and exchange is positive. This finding provides support for hypothesis 2.

Regression (c) is concerned with whether top team trust is related to the combination and exchange of information. The results of regression (c) indicate that trust accounts for a significant 16 per cent of the variance in the ability to combine and exchange information. However, regression (c) also

Table 2.1: Means, Standard Deviations and Correlations of Study Variables

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Size	97.6	84.21	1.000										
2. Idealised influence	2.81	.583	-.143	1.000									
3. Inspirational motivation	3.23	.624	-.149	.739***	1.000								
4. Intellectual stimulation	2.69	.471	-.114	.764***	.451**	1.000							
5. Individualised consideration	2.44	.587	-.277	.848***	.567***	.764***	1.000						
6. Competence-based trust	3.68	.464	-.015	.489**	.395*	.704***	.488**	1.000					
7. Benevolence-based trust	3.27	.344	-.101	.488**	.193	.621***	.504**	.716***	1.000				
8. Ability to combine and exch.	3.56	.288	-.215	.388*	.384*	.443**	.413**	.369*	.421**	1.000			
9. Motivation to combine and exch.	3.59	.202	.086	.371*	.206	.276	.281	.076	.307	.305	1.000		
10. Transformational leadership	2.79	.496	-.198	.958***	.806***	.830***	.905***	.579***	.501**	.462**	.322*	1.000	
11. Top team trust	3.48	.375	-.055	.527**	.333*	.720***	.534*	.947***	.902***	.421**	.188	.561***	1.000

*p < .05, **p < .01, ***p < .001

Table 2.2: The Determinants of the Combination and Exchange of Information

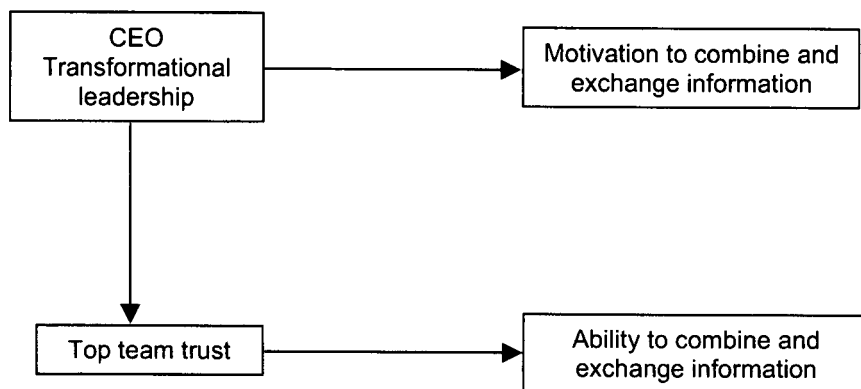
Regression Dependent Variable	A Trust	B Combination and Exchange of Information		C Combination and Exchange of Information		D Combination and Exchange of Information	
		Ability	Motivation	Ability	Motivation	Ability	Motivation
Step 1 – control variables							
Size	-0.06	-0.22	0.09	-0.22	0.09	-0.22	
Change in R²	0.00	0.05	0.01	0.05	0.01	0.05	
Step 2 – process variable Top team trust							
Change in R²				0.35 0.16**	0.19 0.04	0.41 0.16**	
Step 3 – leadership variable	0.60	0.44	0.35			0.29	
Transformational leadership Change in R²	0.35***	0.18**	0.11*			0.06	
Final R²(Adjusted R²)	0.35(0.31)**	0.23(0.19)**	0.12(.08)*	0.21(0.17)**	0.05(-.008)	0.27(0.20)**	

* p < .05, **p < .01, ***p < .001, N= 38

indicates that trust does not account for a significant amount of variance in the motivation to combine and exchange ($\Delta R^2 = .04$).

Finally, regression (d) tests whether top team trust mediates the relationship between transformational leadership and the combination and exchange of information. As the results of regression (c) indicate, trust is not significantly related to the motivation to combine and exchange, trust cannot mediate the relationship between leadership and the motivation to combine and exchange. Regression (d) tests the relationship between transformational leadership and the ability to combine and exchange information controlling for top team trust. Adding leadership to the equation in step three does bring about a small change in the ability to combine and exchange ($\Delta R^2 = 0.06$). However, this increase in variation is not significant, which, according to Baron and Kenny (1986), indicates that trust is the main mediator of the relationship between transformational leadership and the ability to combine and exchange. Overall these results provide partial support for hypothesis 3. Figure 2.2 depicts the results of the regression analysis.

Figure 2.2: The Actual Relationships between CEO Transformational Leadership, Top Team Trust and the Combination and Exchange of Information



DISCUSSION AND CONCLUSIONS

This research examined the relationships between CEO transformational leadership style, TMT trust and the combination and exchange of information which underpins organisational learning. The results are interesting from both a theoretical and practical point of view. Results of the statistical analysis indicated support for each of the hypotheses proposed.

Transformational Leadership and Trust

The results of the regression analysis indicate that transformational leadership is positively and significantly related to TMT trust, supporting similar results by Korsgard et al. (1995) and Podsakoff et al. (1996). The transformational CEO assumes a mentoring role not only towards the individual members of the team

but also towards the top team as a whole, encouraging the members of the team to tackle problems from different angles. Another way in which the transformational leader acts as coach is by helping them to identify and develop their strengths as they progress in their careers. The members of the TMT trust that, because the CEO shows interest in helping them to progress towards their goals, they will act in a way that is agreeable to them. Furthermore, the coaching role of the transformational CEO results in the development of competence-based trust. By helping the team to develop its strengths and by removing the 'road blocks' they encounter (Bass and Avolio, 1990), the transformational CEO can generate team members' confidence in the ability of the team. In short, transformational CEOs influence the development of top team trust by expressing confidence in the ability of the team to achieve their goals, mentoring team members and instilling team members with a heightened sense of self-efficacy.

Transformational Leadership and Information Combination and Exchange

The findings suggest that transformational leadership is positively related to both the combination and exchange of information. This finding is not surprising, considering that the intellectual stimulation of followers is a core attribute of the transformational leader (Bass, 1985). Transformational CEOs stimulate followers' efforts to be creative and innovative by questioning their assumptions and by getting them to approach old problems in new ways. By encouraging team members to come up with and share new ideas and ways of tackling problems the transformational CEO can help to facilitate the combination and exchange of information. Furthermore Bass (1985) notes that transformational leaders articulate a core vision of where the organisation is headed. In so doing the transformational leader provides followers with a frame of reference to the extent that they have a similar understanding of their goals and objectives. This shared understanding of where the organisation is headed provides an overlap in knowledge that facilitates the processes of information combination and exchange (Nahapiet and Ghoshal, 1998).

The findings reported here concur with the literature that suggests that the intellectual stimulation of employees coupled with a participative approach and the articulation of the importance of organisational learning with which team members can identify all combine to positively influence the extent to which they will engage in the combination and exchange of information.

Transformational Leadership, Trust and Organisational Learning

The results of the study indicate that trust mediates the relationship between transformational leadership and the ability to combine and exchange but does not mediate the relationship between transformational leadership and the motivation to combine and exchange. The fact that trust should act as a mediator between transformational leadership and the ability to combine and exchange information is not surprising. Unless parties trust each other they are unlikely to make themselves available to combine and exchange information. Furthermore competence-based trust may also influence whether or not a person will

perceive their colleagues as being able to share information. As such, trust or distrust influences the number of opportunities for combination and exchange. Transformational leadership seems to positively influence the ability of the organisation to combine and exchange by putting in place conditions that encourage employees to be more trustful in their working relationships. Such conditions include the provision of a forum where employees can offer contributions without the fear of criticism, the provision of a common goal or vision and the development of the self-efficacy of employees.

While the finding that trust does not mediate the relationship between transformational leadership and the motivation to combine and exchange did not support our hypothesis, upon reflection, it is not such a surprising finding. The motivation to combine and exchange information measures team members' motivation during the activity, not their motivation to start the activity. While the findings suggest that trust is necessary in order to start the process of combining and exchanging knowledge, it appears that it is not sufficient in maintaining this activity. The results indicate that it is transformational leadership style that directly impacts upon team members' motivation to continue combining and exchanging knowledge. One of the core attributes of transformational leaders is their ability to motivate followers to perform beyond expectations. By articulating a clear vision of where the organisation is headed and by expressing confidence in followers' ability to achieve this vision, transformational leaders can motivate employees towards higher performance. In so doing, the transformational CEO raises follower aspirations so that the goals of the leader and follower are fused. This research suggests that the transformational leader's ability to motivate employees towards the achievement of the organisation's goal has a direct effect on the level of organisational learning. By extolling the virtues of combination and exchange and by articulating a vision that is reflective of the organisational learning ethos, transformational leaders use inspirational motivation and idealised influence to motivate employees towards behaviours that will help achieve this vision. This suggests that it is the transformational leader's creation of a trusting environment and more importantly their ability to motivate employees towards the organisation's goals that make the adoption of this leadership style a *sine qua non* for CEOs interested in developing behaviours associated with the organisational learning.

The authors acknowledge a number of limitations to the study. The size of the population was less than what might have been desired. Nonetheless the size of the sample represents quite a strong response rate considering the senior level of the respondents, the demands placed on their time and the pace of change in the industry. Another limitation concerns the extent to which the results reported here are generalisable to other industries. Furthermore, although there is a general consensus in the literature that organisational learning is an invaluable intangible asset for companies in the knowledge era, expanding the model to include hard performance indicators would provide an interesting and important perspective to the study.

Additionally since much of the data came from a single source, self-report questionnaires filled in by members of the TMTs, it was recognised that

common method variance could be a problem. However, results of confirmatory factor analysis indicate that common method bias is not a major problem.

These research findings have important implications for practice. The results indicate that transformational leadership can strongly contribute to organisational learning. In the knowledge era, where organisational learning provides a valuable source of competitive advantage, understanding the factors that influence its development is a priority for the strategic leadership of the firm. The importance of pro-learning behaviours such as mentoring, openness to ideas, avoidance of blame, encouraging participation in decision making and engaging in open and frank discussion with team members can all positively encourage organisational learning throughout the firm. This implies that companies should seek to attract and appoint leaders exhibiting the transformational style and also develop existing leaders so that they learn to adopt these behaviours.

Overall the findings suggest that the ability of the transformational leader to elicit the expert knowledge of organisational members and to motivate employees towards behaviour that facilitates organisational learning make this style of leadership the most appropriate for the CEOs of knowledge-intensive firms in the 21st century.

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Appendix 2.1: Factor Analysis of the 12 Trust Items

Item	Factor 1	Factor 2
TMT know to be successful at the things they do	-0.097	0.694
Feel confident about TMT member skills	0.076	0.756
TMT members are capable of performing their jobs	-0.027	0.690
Sound principles seem to guide the behaviour of this TMT	0.315	0.553
<i>TMT members have much knowledge about work they need to do</i>	<i>0.114</i>	<i>0.407</i>
<i>Never worry whether TMT members will stick to their word</i>	<i>0.438</i>	<i>0.257</i>
Members of the TMT will go out of their way to help me	0.663	0.033
My needs/desires are important to other TMT members	0.612	0.005
Managers in TMT try hard to be fair in their dealings with others	0.554	0.310
Members of the TMT have a strong sense of justice	0.605	0.103
TMT members are very concerned about my welfare	0.889	-0.165
TMT members look out for what is important to me	0.503	-0.006
Factor eigenvalues	5.13	1.41
% of variance explained	42.78	11.74
Cronbach's alpha	0.82	0.81

Appendix 2.2: Factor Analysis of the 17 Items Measuring the Combination and Exchange of Information

Items	Factor 1	Factor 2
Employees meet frequently to discuss ideas and new developments (access)	0.063	0.546
Employees are always available to discuss new ideas/developments (access)	-0.077	0.712
Employees have difficulty getting together to exchange new ideas (access)	-0.109	0.695
Employees feel free to contact anyone inside the company to discuss new ideas or developments (access)	-0.035	0.540
Employees learned to pool ideas and knowledge (combination capability)	0.142	0.590
Employees are proficient at combining and exchanging ideas to solve problems/create opportunities (combination capability)	0.189	0.521
Employees are capable of sharing expertise to bring new projects to fruition (combination capability)	0.180	0.513
Employees believe that by combining and exchanging information they create value for the organisation (anticipated value)	0.558	0.118
Employees believe that exchanging ideas moves new projects faster (anticipated value)	0.602	0.143
Employees find exchanging ideas with members of this firm one of the most motivating parts of their jobs (motivation to combine and exchange)	0.880	-0.201
Employees feel working with other employees to develop new ideas for the organisation is one of the most enjoyable aspects of their jobs (motivation to combine and exchange)	0.745	-0.018
Employees find it exciting to work with others to develop new ideas (motivation to combine and exchange)	0.527	0.155
Employees gain personal satisfaction from working with others on new ideas (motivation to combine and exchange)	0.620	0.110
Employees believe discussion of new ideas is critical to success in this business (anticipated value)	0.403	-0.011
Most valuable ideas seem to come when our employees pool their efforts (anticipated value)	0.486	-0.021
Difficult to keep up with new ideas being exchanged and combined (combination capability)	-0.125	-0.036
Employees see benefits from exchanging and combining ideas with each other (anticipated value)	0.182	0.456
Factor eigenvalues	5.78	1.76
% of variance explained	34.02	10.33
Cronbach's alpha	0.84	0.81

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