Development and validation of a customized competency-based questionnaire

Linking social, emotional, and cognitive competencies to business unit profitability

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Abstract

Purpose – The purpose of this paper is to report data empirically linking competencies of individual leaders to business profitability and demonstrate that competencies are cross-culturally valid.

Design/methodology/approach – Participants in the initial competency study were 15 business unit managers identified as high performing. Data were collected using Critical Incident Interviews that were systematically coded using thematic analysis to identify the presence of competencies. Competencies identified were then adapted into a behaviourally-based questionnaire used in a follow-up validation study. Participants in the validation study ($n = 70$) were managers from North America and two European countries who were participants in a management development program. Boss ratings of competencies were then correlated with business unit profitability.

Findings – A set of competencies was identified as predictive of unit profit growth in managers in both North America and the European Union. Subsequent regression analysis showed that 17 per cent of the variance in business unit profitability could be accounted for by four competencies, specifically team leadership, developing others, achievement orientation, and impact and influence. Cross-cultural validity was demonstrated to the degree that similar competencies predicted performance in both North America and the European Union as evidenced by the correlation between boss rating of subordinate competencies and profit growth.

Research limitations/implications – The initial study using Critical Incident Interviews was conducted with a small sample size and did not employ a comparison group of average performers.

Practical implications – Initial competency research using empirical methods should be used to help focus competency models used for selection, feedback, training, and performance management.

Originality/value – The study is one of the few published studies that link competencies to business unit profitability. The paper demonstrates that competencies have a degree of cross-cultural validity.

Keywords North America, Europe, Competences, Profit, Surveys, Emotional intelligence, Social intelligence, Critical incident interviewing, Competency modeling, Validity study, Cross-cultural validity, European leaders

Paper type Research paper

The term "competency" has come to mean many things within the world of human resource development (HRD) and has led to a proliferation of competing

definitions, applications, and claims related to the utility and validity of the construct. This is also true in the emerging area of social and emotional intelligence which serves to extend traditional competency research with emerging areas of neuroscience. The growth of competency-based human resource applications continues to show signs of growth around the world; however, the academic and applied research literature on competencies in the workplace has trailed application (Boyatzis, 2008). Rapid changes in the business environment demand flexible human resources strategies and constructs which can be applied throughout complex, multi-national organizations. For many organizations, competencies have attempted to address this pressing business need. Changes brought on by globalization, technology, changing organizational structures, and demographic shifts have made modern multi-national organizations increasingly complex and interconnected. As the business world becomes more global and interconnected, the pressure to develop and deploy reliable and valid methods for assessing and developing competencies across national boundaries has become a strategic priority for many organizations.

Legal and ethical concerns can also be seen as a potential driving force in the modern competency movement. The standards for educational and psychological testing, which were prepared by the American Educational Research Association, American Psychological Association, and the National Council on Measurement in Education (1999), require that measures be reliable and valid predictors of outcomes. US and Canadian courts, under civil rights and pay equity laws, have ruled that "any (HR) decision-making process [. . .] that affect an employee's status in an organization are tests and thus subject to scrutiny for adverse impact" (Latham and Wexley, 1981). The effect of these rulings is to extend requirements for statistical reliability and validity to any assessment for selection or promotion, any performance appraisal or any development opportunity that may affect pay or career opportunities. However, in the European Union the issue is less clear, but many observers believe that the trend started in North American will likely become law within the European Union in coming years.

Aside from legal and ethical issues, significant controversy still remains regarding the cross-cultural validity of competency frameworks: are they equally valid in diverse cultures? For example, can models developed and validated in North America be considered useful and valid in the European Union? In applied practice, the process of actually empirically validating competency frameworks against outcome measures is rarely seen; even less attention has been paid to empirically establishing the cross-cultural validity of specific frameworks within multi-national organizations. While such rigorous validations are often overlooked or viewed as an "academic" exercise which is difficult to complete amidst the various competing priorities of senior executives and senior HRD professions, such attitudes and beliefs often seriously undermine the validity and practical utility of competency models. However, in our own applied research and consulting (Ryan *et al.*, 2009; Spencer, 2001; Spencer *et al.*, 2008; Spencer and Spencer, 1993) we have found that taking the time to conduct such research yields much more than merely "academic" benefits. Such applied research provides competency-based applications additional predictive validity, credibility and allows HRD practitioners to better quantify their contribution to their organizations (Spencer, 1986).

In this article we will review key findings from a multi-year applied research project within a European-based firm which sought to better understand the specific competencies which best predicted economic outcomes in their specific organization.

The article describes the process of building and validating a competency-based questionnaire for use in succession planning and management development within North America and Europe. The article will document the organization's efforts to better understand, from an empirical standpoint, the contribution of competencies to business unit profitability as well as efforts made to test the cross-cultural validity of the initial model. This research was used within the organization to build a credible business case in terms of economic value added and potential return on investment for assessing and developing the competencies identified in the research as well as validating the competency model to guide HR applications within the organization.

Defining competencies

With the popularity of competencies has come a myriad of competing definitions which have been associated with the modern competency movement. In our own applied work, we have found that the theory of competency originally put forward by McClelland (1973) and then later refined by Boyatzis (1982) and Spencer and Spencer (1993) to be especially well suited for research and applied practice. In this tradition, competencies are defined as "underlying characteristics of the person that lead to or cause effective or superior performance" (Boyatzis, 1982). To be appropriate for applied practice, these characteristics must be able to be operationalized in a way that allows them to be reliably measured so they can be empirically linked to criterion of interest to client organizations.

Research over the past 40 years has identified several hundred competencies, yet careful scrutiny often finds a good deal of overlap in competency definitions. Research has demonstrated that between 20 and 25 competencies typically account for most of the variance in most jobs (Boyatzis, 1982, 2006; McClelland, 1973, 1998; Ryan *et al.*, 2009; Spencer *et al.*, 2008; Spencer and Spencer, 1993; Spencer, 2001). While always staying open to the possibility that new competencies may be discovered, this initial framework serves as an excellent starting point for applied research.

Scaled competencies in applied practice

In applied practice we have found the use of scaled competencies to be a useful and practical way to organize the behavioural manifestation of competencies. As outlined in *Competency at Work* (Spencer and Spencer, 1993), competencies can be behaviourally scaled along specific dimensions. Scaled competencies can progress from lower to higher levels on four dimensions:

(1) Intensity/completeness of actions taken to carry out an intention.

(2) *Complexity.* Taking more things, people, data, concepts or causes into account.

(3) *Time horizon.* Urgency, duration (or persistence) and horizon: how far into the future a person anticipates, plans or acts to head off problems or seize opportunities.

(4) *Breadth of impact.* Number and position of people impacted, e.g. on a scale from a subordinate or a peer to the CEO of the organization, to national or international leaders; global problems, scientific discoveries, artistic impact, etc.

For example, Table I shows a six-level scale for the competency of achievement orientation. All indicators in the scale relate to the general definition given of the competency achievement orientation. The different levels are descriptions of behaviour

Achievement orientation:	A concern for working well or for surpassing a standard of excellence. The standard may be one's own past performance (striving for improvement); an objective measure (results orientation); outperforming others (competitiveness); challenging goals one has set; or even what has previously not been done before (innovation)	
1. Wants to do job well	Works toward implicit standards of excellence. Tries to do job right or well. May express frustration at waste or inefficiency	
2. Works to meet others'standards	Works to meet a standard set by management	
3. Creates own measures of excellence	Uses his or her own specific methods of measuring outcomes against a standard of excellence (not imposed by management)	
4. Improves performance	Makes specific changes in the system or in own work methods to improve performance (e.g. does something better, faster, at lower cost, more efficiently; improves quality, customer satisfaction, morale, revenues), without setting any specific goal	
5. Sets challenging goals	Sets and acts to reach challenging goals for self or others. "Challenging" means ~ 60 per cent chance of actually achieving the goal – a definite stretch, but not unrealistic or impossible. Or cites specific measures of baseline performance compared with better performance at a later point in time	
6. Makes cost-benefit analyses	Makes decisions, sets priorities or chooses goals on the basis of calculated inputs and outputs: makes explicit considerations of potential profit, return on investment, or cost-benefit analysis	
7. Takes calculated entrepreneurial risks	Commits significant resources and/or time (in the face of uncertainty) to increase benefits, improve performance, reach a challenging goal, or innovate	
8. Persists in entrepreneurial efforts	Takes numerous, sustained actions over time in the face of obstacles to reach entrepreneurial goal; or successfully completes entrepreneurial endeavours	Table I. Achievement orientation– just-noticeable difference scale

Source: Adapted from Spencer and Spencer (1993)

"just noticeably different" in increasing intensity or completeness of action, complexity, breadth of impact, and time horizon.

Scaled competencies serve to provide a more nuanced view of competencies which helps the users of competencies (e.g. HR professionals and line managers) better understand which specific behaviours represent more advanced mastery of competencies. We have found that this way of organizing competencies to be especially well suited and helpful to build both applications and understanding related to competencies.

Validating of emotional and social intelligence competency models
While several competencies have been indentified and can be reliably assessed, links between specific competencies and performance will be heavily dependent on task demands of specific roles. It must be stressed that even the most strongly held beliefs about what "really" drives performance in a given role are, just that, beliefs which must be empirically tested. Competencies as a construct only have meaning to the extent that they empirically predict a criterion level of performance on variables critical to actual business outcomes. Very few competency models developed in most organizations

are subjected to this most basic test of validity. Competency lists or models lacking empirical validation leave much uncertainty about the relative contribution of specific competencies to criterion of interest to organizations. Moreover, role demands and potential cultural differences could potentially make certain competences more or less predictive of specific organizational outcomes than others.

Competency models ideally should be validated before being put into use so as to provide a sound platform upon which various HR applications may be based. Competency models can be validated in a number of ways. Concurrent validation studies statistically tests whether competencies currently correlate with variables of interest to the organization. For example, can specific competencies be correlated with current outcome variables such as current profit levels of business units. Cross-validation or cross-cultural validation statistically tests whether specific competencies that predict success and differentiate in one sample also predict success and differentiate in another sample. The fundamental question of predictive validity is: do competencies measured at time one actually predict some level of performance at a future time – a much sterner and more valuable validity standard. Experimental validation compares performance results of subjects selected, trained, coached or appraised on competencies with those of a randomized control group which have not been the subject of intervention. In the current case, all four types of validity were established during the process of consultation, however for the purposes of this article we will focus on what was done to establish predictive validity and cross-cultural validity.

Deriving empirically valid competency models for applied USE: a case study

While the use of competency modelling techniques has become widespread, the use of empirical methods for linking competencies to specific performance outcomes still remains the exception, not the rule. What is outlined below is an overview of a competency modelling and validation process which took place in the context of a multi-year consulting engagement.

Method
Organizational background

The client was a large multi-national electronic controls business headquartered within the European Union with global offices and operations. The board had identified that there was considerable variation in the profits generated by their several hundred business unit managers worldwide. This was a matter of concern as the business unit operations were essentially similar, regardless of location. Given this variability in business unit profitability, a three-year study was commissioned by the organization to gain a deeper understanding of how the competencies of business unit managers contributed to business unit profitability. This would then allow the organisation to better develop and target HR processes and programs to the specific competencies most related to unit profitability. A competency study was planned so as to develop a first version of a job competency model.

Owing to budget limitations as well as time constraints a hybrid approach was developed. Rather than following the normal method of comparing a sample of superior performing business unit managers with a sample of average performers a two-stage approach was utilized.

In the initial stage critical incident interviews were conducted with a sample of superior performers to develop content for a competency questionnaire. In the second stage responses to the questionnaire items were used to conduct *t*-tests between the responses related to superior performers to those of average performers so as to indentify the differentiating competencies.

Initial competency study using critical incident interviews

Participants. Study participants were business unit managers ($n = 15$) from the client organization. These managers had been identified by the organisation's board as being superior performers. The sample comprised five participants from the USA and ten participants in total from six European countries.

Data collection procedure. Critical incident interview methodology (Spencer and Spencer, 1993) was used to conduct an initial study. The critical incident interview is a flexible data collection protocol with a well-established research which supports its reliability and validity (Boyatzis, 1982, 1998; Spencer and Spencer, 1993). As an operant measure of competencies, the critical incident interview allows researchers the ability to code competencies against established frameworks and dictionaries. In this case, the competencies used were the competencies outlined in *Competence at Work* (Spencer and Spencer, 1993). In our own work, this interviewing methodology has consistently shown good concurrent and predictive validity (Ryan *et al.*, 2009; Spencer, 2001; Spencer *et al.*, 2008).

Critical incident interviewing asks interviewees about the most critical situations they have faced on their job: peak high points and peak low points. Probes are very specific but nondirective and attempt to determine specific competencies and how they were deployed as employees faced their most critical situations on the job. Interviews in this case were between 1.5 and 2 h and covered on average three critical incidents.

Thematic analysis of competencies. The interview recordings were transcribed and coded for the presence of specific competencies and competency levels as documented in *Competence at Work* (Spencer and Spencer, 1993). Once the frequency and level of the competencies coded in the interviews was known an additional calculation, referred to as value, was made. The value was calculated by multiplying the average frequency by the average level for the sample of 15 participants. For example, in the current study of 15 superior business unit managers the average level of impact and influence coded from the critical incident interview for all participants was 4.5 and the average frequency demonstrated was 4.9 per interview making the average value 22.05.

In addition to coding the frequency and level in the interview transcripts, tasks that were being worked upon when the competency was displayed were also coded from the interview transcripts.

Results

Competency model development. Competencies were then ranked by value and the top 12 selected to form a competency model. These results were reviewed by the study participants in a two-day workshop and final modifications made to the model. The findings of the analysis of the competency behaviours coded from the critical incident interviews revealed 12 competencies which accounted for 83.5 per cent of the total number of behavioural indicators displayed by the 15 study participants.

These 12 competencies were ranked by value, i.e. average frequency multiplied by average level to form the competency model as shown in Figure 1.

Task analysis. In addition to coding competencies from the critical incident interview transcripts, the task being worked on when specific competencies were demonstrated was also noted. In total, 46 different tasks were identified from the interview data and were then categorised into nine broad task groups on the basis of task similarity. This allowed a task group/competency matrix to be developed, which had the task groups on one axis and the competencies, as coded from the interviews, on the other. The cells of the matrix were populated with the total frequencies of the individual competencies that appeared in relation to each task group from 15 business unit managers that were interviewed in the initial study. The competencies themselves were clustered into six general themes; managing tasks and process, relating to others, leading others, managing others, thinking and solving problems, and managing self. The clustering strategy closely follows the original competency clusters as outlined in *Competence at Work* (Spencer and Spencer, 1993). For the purpose of the task analysis all 20 original competencies are included for the purpose of illustration, although the actual competency model implemented within the client organization only included the 12 "highest value" competencies. The task group/competency matrix is shown in Table II.

As can be seen in the table some of the more frequently demonstrated competencies included achievement orientation (69), impact and influence (71), team leadership (58), interpersonal understanding (50), analytical thinking (50), teamwork and collaboration (46), and initiative (45), all of which were included in the competency
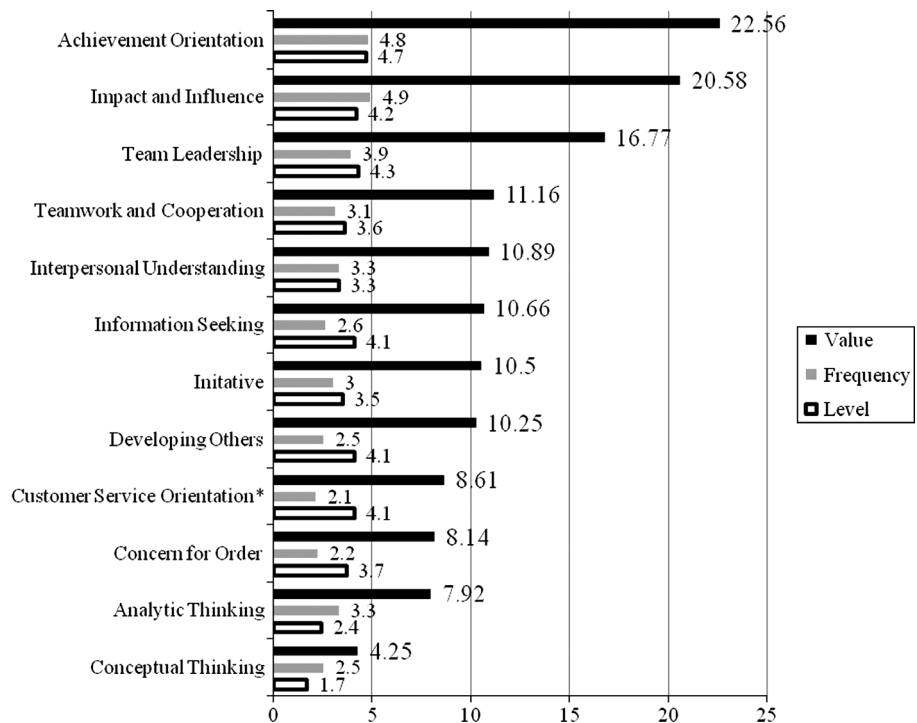

Figure 1.
Emotional, social and cognitive competencies ranked by value

Competency cluster	Competency	T1	T2	T3	T4	T5	T6	T7	T8	T9	Total
Managing tasks and process	Achievement orientation	1	2	18	5	6	2	29	4	2	69
	Concern for order	1	1	7	4	4	3	9	3	1	33
	Initiative	0	2	11	4	8	1	14	1	4	45
	Information seeking	2	1	11	4	4	3	11	1	2	39
Relating to others	Interpersonal understanding	1	1	17	8	9	2	8	2	2	50
	Customer service orientation	0	0	11	1	1	4	9	1	5	32
Leading others	Impact and influence	1	3	23	5	4	10	20	1	4	71
	Organizational awareness	0	1	9	2	1	2	7	0	0	22
	Relationship building	0	0	0	0	1	2	2	0	2	7
Managing others	Developing others	0	0	14	6	8	0	5	4	0	37
	Directiveness	1	1	13	4	4	1	1	3	0	28
	Teamwork and cooperation	1	3	21	4	8	1	7	1	0	46
Thinking and solving problems	Team leadership	0	3	35	2	9	1	8	0	0	58
	Analytical thinking	0	8	10	6	7	3	9	3	4	50
	Conceptual thinking	4	2	14	7	2	0	7	1	0	37
	Use of expertise	0	1	1	0	2	0	0	0	1	5
Managing self	Self-control	0	0	1	0	0	0	0	0	0	1
	Self-confidence	1	2	11	2	3	2	6	0	1	28
	Flexibility	0	0	2	0	2	2	5	0	1	12
	Organizational commitment	0	0	6	0	1	0	2	0	0	9
	Total indicators	13	31	235	64	84	39	159	25	29	

Notes: T1, monitoring plans and performance; T2, developing plans and strategies; T3, managing change; T4, dealing with problems; T5, developing, coaching and team building; T6, communicating; T7, selling-related activities; T8, quality control; T9, managing environment

Table II.
Task group/competency matrix

model implemented within the organization. What also stands out in the table is the frequency with which business unit managers were engaged in tasks related to managing change (234), selling-related services (159), and developing, coaching and team building (84). This understanding of how frequently specific competencies were demonstrated while business unit managers went about specific job-related tasks provided the client organization with additional insight into how the organizations best performers went about their job.

Follow-up validation study competency questionnaire
Competencies identified from the initial research were adapted into a questionnaire that could be used to evaluate all business unit managers globally. The first practical application of this competency-based questionnaire was for use in the organization's Management Development Workshop program. The workshop was run over a three-day period for all business unit managers. Its purpose was to develop the overall capability of business unit managers to a world class standard so that they could perform optimally in their role as value drivers within the organization. The first

objective was to provide a framework within which they could position or align the actions of their unit with those of the larger organization. A second objective was to provide specific guidance as to how to apply the findings of the competency model research to their own tasks as behaviours. For each of the 12 competencies identified in the initial competency study, four questionnaire items were developed. The items represented the most frequently demonstrated levels for each competency. The definitions of these levels were used as the basis of the item wording. This wording was supplemented in each case with an illustration of how the item (competency level) would or could look like in practice. These supplementary examples were taken from the original critical incident interviews of initial sample 15 superior business unit managers. The questionnaire utilised a five-point scale and also gave the definition of the particular competency at the beginning of the relevant four questions. The questionnaire was then translated into several different languages for use in a series of Management Development Workshops within the client organization. An example of an item for initiative is shown in Table III.

Concurrent validation study. A validation study was authorized by the client organization using a sample of questionnaire data which was available from the workshops run in the various countries and where criterion data of interest to the client organization, in this case financial performance data, was also available.

Sample. The sample selected included questionnaire data from three countries, 43 participants from North America, 18 participants from European country I and 9 participants from European country II, to give a total of $n = 70$. The 70 participants in study represent the total population of business unit managers in those three geographic regions.

Competency questionnaire. The questionnaire data used for the sample were the boss rating of the business unit managers in relation to the 12 competencies as the predictor/independent variable using the average rating over the four equally weighted competency levels.

Performance measure. The performance measure used was the profit growth calculated using a line of best fit to actual profit data for three years in the case of the US data and two years for the European countries. The results were standardised within each country, to allow for variations in accounting practices, and to give a standardized profit growth score within each country. Subsequently, a percentile conversion of the standardized profit growth measure was produced to be used as the dependent variable in the regression analysis.

Rate the business unit manager on the following behaviours
Acting up to two months ahead, creating opportunities and minimizing potential problems by making a unique extra effort (for example, providing a mock-up to a client in order to avoid the possibility of later expensive changes to their order)

1	2	3	4	5

Notes: Initiative: takes independent or self-directed action to address critical problems or issues, as well as opportunities, before being required to; does more than expected in the job; scoring key: 1 – unacceptable (little or no capability); 2 – improvement required (low capability); 3 – adequate (average capability); 4 – fully meets the needs of the job (good capability); 5 – exceptional (mastery or total capability)

Table III.
Example of an item from the competency-based questionnaire initiative

Screen of predictors. Before entering the regression the predictors were screened in two ways. First the competency rating scores for each participant on each of the 12 competencies from the questionnaire data were correlated with the standardised profit growth scores within the three countries on a continuous basis. In addition, the questionnaire data were correlated with the percentile conversion of the standardized profit scores with outliers removed.

T-tests were also conducted to determine the differences in means for each of the 12 competencies between two groups. The first group was comprised of all those participants whose standardized profit growth score was 1 standard deviation above the mean in their respective countries $n = 13$. The second group for comparison purposes was the remainder of the total sample $n = 57$.

A screening value was set for each of the 12 competencies correlations with profit growth measures at R^2 0.05. Similarly a significance level of $p < 0.05$ was considered reasonable for testing the difference between means of each of the competencies for the superior performing group, i.e. $+ 1\,SD$ above the mean $n = 13$ (eight from the USA, three from European country I and two from European country II) and the means of the 12 competencies for the rest of the sample $n = 57$ (35 USA, 15 Europe I, and seven Europe II).

Results

The results of the screening are shown in Table IV. As can be seen seven of the 12 competencies (achievement orientation, impact and influence, developing others, teamwork and cooperation, analytical thinking, concern for quality and order, and conceptual thinking) had correlations of R^2 of 0.05 and above with the continuous standardized score for profit growth measure. For the profit growth measure expressed as a percentile rank, information seeking also correlated at R^2 0.05 in addition to the seven competencies listed above. Thus, there was little difference between the strength of the relationship with the profit growth measure expressed as a continuous standardized score or when shown as a percentile rank with outliers removed.

The *t*-tests showed that eight competencies (achievement orientation, impact and influence, developing others, initiative, interpersonal understanding, teamwork

Competency	R^2 continuous standardized score profit growth	R^2 percentile rank with outliers removed	*t*-test $+1\,SD$ standardized profit growth vs all others
Achievement orientation (ACH)	0.14	0.13	$p < 0.00$
Team leadership (TL)	0.03	0.03	$p < 0.15$
Impact and influence (IMP)	0.10	0.09	$p < 0.00$
Developing others (DEV)	0.13	0.13	$p < 0.03$
Initiative (INT)	0.03	0.04	$p < 0.05$
Interpersonal understanding (IU)	0.03	0.04	$p < 0.01$
Teamwork and cooperation (TW)	0.09	0.09	$p < 0.02$
Analytical thinking (AT)	0.07	0.09	$p < 0.08$
Customer service orientation (CSO)	0.01	0.00	$p < 0.14$
Information seeking (INFO)	0.03	0.05	$p < 0.07$
Concern for order (CO)	0.08	0.06	$p < 0.00$
Conceptual thinking (CT)	0.12	0.11	$p < 0.01$

Table IV.
Screening of
12 competencies

and cooperation, concern for order and quality, and conceptual thinking) differentiated the superior performing group of $n = 13$ from the rest $n = 57$. Table IV also shows that two competencies, team leadership and customer service orientation did not meet the preset screening values. However, there was a fairly strong trend for team leadership in relation to its correlation with profit growth.

Multiple regression analysis. After conducting the screening and reviewing the results it was decided that all 12 competencies should be entered into the regression. A backward stepwise procedure was used in SPSS for exploratory model building and then forced entry as a confirmatory test of the best model. The results are shown in Table V. As can be seen, the highlighted best result comprised four competencies: team leadership, developing others, achievement orientation, and impact and influence. These competencies explained about 17 per cent of the variance in the dependent variable of percentile rank financial performance at the highly significant level of $p < 0.007$.

The regression results were generally in line with the initial competency study in that team leadership, achievement orientation, and impact and influence were ranked highly based on the value statistic. Developing others was not as highly ranked but still seen as important in terms of value.

Discussion

The main focus of the research reported here was to establish the predictive validity of the initial competency model established using operant data gathered from critical incident interviews. A secondary objective was to see if competencies measured using a respondent measure (i.e. questionnaire) could predict performance in a North American sample as well as in two separate countries in the European Union. The research documented here serves as a limited validation of both points. The research also demonstrates that empirical competency research methods which identify reliably measurable competencies which statistically predict business economic results have significant utility to multi-national organizations. Such research gives HR applications (e.g. staffing, training, performance appraisal, succession planning, selection, and compensation) based on competency models enhanced credibility with organizational

Model	R	R^2	Adjusted R^2	SE of the estimate	R^2 change	Change statistics F change	df1	df2	Sig. F change
1	0.412(a)	0.170	0.089	0.27620	0.170	2.105	7	72	0.054
2	0.412(b)	0.170	0.102	0.27433	0.000	0.010	1	72	0.920
3	0.412(c)	0.169	0.113	0.27253	0.000	0.037	1	73	0.849
4	*0.410(d)*	*0.169*	*0.124*	*0.27085*	*− 0.001*	*0.075*	*1*	*74*	*0.786*
5	0.407(e)	0.166	0.133	0.26954	− 0.003	0.271	1	75	0.604
6	0.402(f)	0.162	0.140	0.26838	− 0.004	0.335	1	76	0.564
7	0.370(g)	0.137	0.126	0.27054	− 0.025	2.260	1	77	0.137

Notes: Dependent variable, percentile rank standardized profit growth; independent variable, competencies; predictors: (constant): 1 – CT, TL, CO, DEV, TW, ACH, IMP; 2 – CT, TL, DEV, TW, ACH, IMP; 3 – CT, TL, DEV, ACH, IMP; 4 – TL, DEV, ACH, IMP ($p < 0.007$); 5 – TL, DEV, ACH; 6 – DEV, ACH; 7 – ACH; 8 – dependent variable: percentile

Table V.
Regression analysis

stakeholders and those individuals that are the subject of specific HR applications. While typical competency models in applied use tend to include 20 or more specific competencies, the relative contribution of individual competencies to a specific criterion is often unknown. While such lists often provide detailed descriptions of desired leadership or managerial behaviour they often lack a method to highlight the distinguishing competencies which account for significant amounts of variance in outcome variables. The additional precision offered by the methods described in this article help to provide more strategic direction to programs intended to assess, select or develop key talent. For example, targeting specific competencies known to be related to superior performance can reduce both time and cost while also improving the validity of selection procedures.

The use of operant assessment using critical incident interviews also provides an opportunity to identify new competencies or detect subtle differences between how competencies manifest in different cultural contexts. By contrast, survey instruments tend to be somewhat limited in that they can only gather data on the specific items which make up a given instrument. Moreover, the actual content from interviews provides compelling material for development, training and coaching. Organization-specific case studies, role-plays and simulation exercises based on what an organization's best performers actually do in the most difficult situations they face in their jobs can be easily adapted from interview content. Specific vivid stories provide powerful examples for communication of what situations and competency behaviours are like in an organization's specific environment and can also serve to highlight any potential cultural differences in how competencies manifest across cultures. This approach was used to develop content for the firm's leadership development program which was then implemented in three major regions North America, Europe, and Asia Pacific as reported in Spencer *et al.* (2008).

While the current research did not demonstrate significant differences between competencies in Europe and North America, it should be noted, that other researchers (Chong, 2008) have found that cultural effects can impact upon the general applicability of models of managerial and leadership behaviour. For example, Chong (2008) refers to the work of Boutet *et al.* (2000) wherein it was found that adjustments had to be made to a set of managerial competencies used by a multi-national company, particularly in their Asian operational regions so as to account for cultural differences. Interestingly, four competencies in the current study also appeared in the Boutet *et al.* (2000) study, making allowances for differences in how the competency was defined in the Boutet *et al.* (2000) study which also related to a single multi-national organization.

For the competencies of leadership (equivalent to team leadership) influencing skills (equivalent to impact and influence), people development (equivalent to developing others) and achievement (equivalent to achievement orientation) Boutet *et al.* (2000) reported either compatibility across Northern Europe and North America or no significant incompatibility for these regions. They did find, however, that for the competencies of influencing skills and people development that significant incompatibility did exist with Asia. As the current study relates only to managers in the USA and two major Western European countries there would appear to be a degree of support for the cross-cultural applicability of certain competencies in certain specified regions. Additional research will be needed to validate and better understand any cultural differences which may exist between Western and Eastern cultures as they relate to competencies.

Another study (Spencer *et al.*, 2008), using competency data for managers from the same organization as the current study, also found that there were statistically significant difference in boss ratings of managers'competencies in the Asia-Pacific region from those in North America and Europe. Specifically, for influencing skills (impact and influence) and people development (developing others) as in the Boutet *et al.* (2000) study. Unfortunately, financial performance data were not available for the Asia-Pacific sample and only available for some of the managers in the other two regions. Therefore, it was not possible to test as to whether the differences in rating were to do real differences in managers'performance or cultural differences or some combination of these. This is an issue that multi-national/global organizations should be aware of and address in developing and implementing competency-based programs.

Although in other cases, as discussed, it has been found that cultural effects can impact on the general applicability of managerial and leadership behavioural characteristics, this was not found to be an issue in the current analysis. One possible explanation is that the participants all came from the same major multinational company with its own long-term well-established culture which encouraged similar behaviour in the regions involved. Another possible factor is that the product/service mix was very similar and the customer base was essentially the same irrespective of region. Also the job task structure was very similar which could account for the use of similar competency behaviours. An additional factor could be that the three countries involved all had highly advanced industrial economies which could help account for a degree of commonality of their managerial behaviours.

Finally, it may be that competencies such as achievement orientation are not culturally specific as McClelland (1961) found in his early work, and are used widely across multi-national enterprises. The current analysis is clearly limited in scope in that only three countries were involved. However, in an applied sense, being able to predict a significant proportion of the variance in profit growth from a small set of competencies did add value to the HR strategy.

While competencies continue to be applied across the globe, including the emerging and developing area of social and emotional intelligence competencies, cross-cultural validation research will continue to be needed to further develop our understanding and enhance our ability to fully realize the potential of competencies to contribute to our understanding of work performance.

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