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Abstract

This article examines the link between competencies and organizational performance. It reviews and critiques the existing evidence, arguing that demonstrating a direct link between competencies and organizational performance is too high a hurdle to ever resolve the debate over the appropriate use of competencies. It provides new evidence from a case study on the mechanisms through which rewarding competencies can influence executives' behavior in ways that ultimately may impact organizational performance. It concludes with some implications for the design of professional competency models in general and HR competency models in particular.

The debate over competencies

A lot has been written about competencies from both the positive and negative perspectives. While the development of competencies is data-based (see below), the competency debate itself has been driven by logic more than empirical evidence. This is where we start: the logical arguments for and against competencies.

Advocates of competencies have some compelling arguments on their side. First, under the broadest definition, the realm of competencies includes knowledge, skills/ability, attitudes/values, and motives (Spencer and Spencer, 1993) – essentially anything related to differences among individuals that might help explain why some people perform better in a job than others. Viewed this way, it is virtually impossible to argue with the claim that competencies are better than intelligence tests for predicting job performance – one of the initial arguments for competencies (McClelland 1973).

Competencies typically are identified by comparing the traits of successful incumbents in a job with other incumbents who are less successful (Spencer and Spencer, 1993). For jobs where there is a close link between technical abilities and job performance, this approach can be quite effective at identifying job candidates who will be successful (Hollenbeck & McCall 2003). If there are traits that can be connected to the business strategy, including them in a competency model can be quite valuable (Spreitzer, McCall & Mahoney 1997).

The arguments against competencies, however, can be just as compelling. One concern is that there are different routes to effectiveness in many jobs, so specifying a single set of competencies for such jobs can be inappropriate (Drucker, 1966; Hollenbeck & McCall, 1999; McKenna, 2002). Second, most competency models are static and thus susceptible to changing job requirements (Hollenbeck & McCall, 1999). This is closely related to the critique that

competencies are typically specified as "end state" characteristics which take the perspective that the people in question have developed as far as they are going to (McCall, 1998); in contrast, the competencies that truly predict future performance might be those that represent abilities to learn and deal with situations that have not yet been experienced (McCall, 1998). Third, competency identification efforts often produce similar competencies across organizations, particularly for managerial jobs (Zingheim, Ledford, & Schuster, 1996; Hollenbeck & McCall, 1999), which limits their ability to be a source of competitive advantage (Lawler, 2000).

The conflict between the arguments for and against competencies is greatest for jobs that are more complex, in particular higher level professional and managerial jobs. The advocates argue that competency models are the most cost effective way to select for such jobs, precisely because of their complexity (Spencer & Spencer, 1993). The critics argue that cost-effective selection does not equate with nor guarantee superior performance (Hollenbeck & McCall, 2003). Both sides may be correct. Even if competencies are better than selection methods based on intelligence, task-related skills, or credentials (Spencer & Spencer, 1993), they do not tell us how, if at all, people with a given set of competencies translate that foundation into superior performance. Competency models that screen for pre-existing skills may exclude candidates who will develop the skills over time while in the job – and who may end up being the highest performers (McCall 1998).

The competency advocates in essence rely on a statistical argument that if certain traits are associated with better prior performance, on average, then selecting on the basis of those traits should lead to better future performance. A problem arises, however, if the factor that distinguishes superior performance is not having the trait so much as knowing when to apply it. Everyone can agree that, all things equal, having better communication skills in a leader should

set the stage for better leadership. This is not the same, though, as knowing when to apply a given communication method to improve the performance of a leader's team. Taking the time to communicate critical information effectively is a positive; taking too much time to communicate, in contrast, can be a negative. This is a main concern with managerial or leadership competency models (Drucker, 1966; Hollenbeck & McCall, 2003).

Thus, one way to reconcile the arguments is to consider the notion that context matters. Consider the critique that most managerial competency models are the same across organizations (Zingheim, Ledford, & Schuster, 1996; Hollenbeck & McCall, 1999). One possibility is that such models are so simple they represent the bare minimum of managerial traits that all managers must have to be successful. This, however, would run counter to the spirit of competencies, that they should differentiate superior from average performance (Spencer & Spencer, 1993). Thus one alternative possibility is that competencies help differentiate superior from average performance in certain situations that are not universal. Under this interpretation, competency models may represent a sort of "big tent" that is so large as to encompass the vast majority of traits needed for successful performance across all situations – and that what matters for distinguishing performance in a given situation is only a subset of the competencies.

Thus there is sound logic behind the arguments both for and against competencies. While additional arguments can and have been made on both sides of the debate, what is missing from our discussion is the empirical evidence on competencies and how they are applied within organizations. We now turn to examine the evidence.

The evidence on competencies and performance

There is very little empirical evidence on the performance impacts of competencies at the individual, unit or organizational levels. To our knowledge, only five studies have addressed

future performance impacts – performance differences that are predicted by differences in competencies.

Spreitzer, McCall, & Mahoney (1997) found that certain competencies predicted subsequent performance ratings by supervisors. Bray, Campbell, & Grant (1974) and Dulewicz & Herbert (1996) found that competencies predicted career advancement, which presumably means they predicted performance as well. Russell (2001) showed a link between competencies used for selection of general managers and the subsequent performance of their units. Levenson, Van der Stede & Cohen (2005) found a link between competencies used for rewards for first-line and middle managers and unit performance.

Competency advocates might look at these results and conclude that competencies are playing their role precisely as intended. However, we believe that some methodological issues need to be addressed before reaching such a conclusion. First, this is a very small number of studies, relative to the very large number of organizations that use competencies. The empirical evidence supports the conclusion that competencies *can* improve performance in these cases. But the evidence neither supports nor refutes the claim that competencies *do* improve performance the way they are typically implemented in organizations.

Unfortunately, it likely will never be the case that the scientific research community will be able to provide enough evidence to sway the debate in one direction or the other. The difficulty in collecting the data needed to conduct scientific studies ensures that at most only a minute fraction of competency models ever will be tested for their performance impact. An additional problem is the setting required to show a real link to organizational performance: sufficient within-sample variation in competency system characteristics (e.g. a large cross-company study, or significant within-organization variation) to enable differentiation of the

impacts of competency systems vs. other factors including technology, organization design, and HR systems.

Second, the results from these studies are consistent with a contingency or context-specific interpretation of the ability of competencies to predict performance (Youndt, Snell, Dean & Lepak, 1996). In the Spreitzer, McCall, & Mahoney (1997), Dulewicz & Herbert (1996) and Russell (2001) studies, only a subset of the competencies differentiated subsequent performance or career advancement. In the Levenson, Van der Stede & Cohen (2005) study, there was a link between competencies and unit performance in the middle and large units, but not the small units. These results are consistent with the "big tent" approach to building competency models: include a large number of competencies because of either uncertainty regarding which competencies lead to better performance in general (small number of competencies matter, regardless of the setting), a desire to anticipate a range of performance scenarios requiring different sets of competencies (which competencies matter depend on the setting), or both.

Assuming this "big tent" interpretation is correct, it raises the issue of how to use such far-reaching models in practice. If only a subset of the competencies predict performance, is it possible to know ahead of time which ones will be indicative of future performance? Given the way competency models are constructed – comparing the traits of incumbents with superior performance to the traits of incumbents with average performance – one would expect that there should be a very strong correlation between all identified competencies and subsequent performance when applied to a new sample (as the studies cited above did). The fact that only a subset of the competencies appear to matter and/or matter only in certain settings suggests that the typical method for identifying competencies does not have a lot of predictive validity vis-à-vis future performance – *some* validity, but not an overwhelming amount.

Given the tendency to use competencies to select among a set of candidates for a particular job and competencies' less-than-ideal validity for predicting future job performance, one must wonder about the candidates who are screened out by a competency-based selection process. If candidates are screened on the basis of meeting a minimum level of competence for every single competency in the model, yet only a subset of the competencies predict future performance, might suitable candidates be inaccurately screened out? Specifically, candidates who score low on the competencies that do not predict future performance but high on the competencies that do may be excluded improperly from the pool of suitable candidates. Note that this likely is the case even if competencies are more predictive of job performance than intelligence tests; the argument is that the rate of false negatives (rejecting suitable applicants) is lower under a competency approach than intelligence test approach – but not zero. This may be legally acceptable, but not necessarily operationally acceptable.

Of course one reason why the traditional approach to building competency models may not yield the best predictors of future performance is because competency requirements change over time (Hollenbeck & McCall, 1999). If competencies are not sufficiently forward-looking, then they will not be tied closely enough to strategy, and thus will be imperfect predictors of future performance – if they predict future performance at all. This is consistent with McCall's (1998) concern that the competencies that should matter are much more forward-looking than those that typically appear in competency models used by organizations.

If not performance, then what?

We have argued that it is methodologically difficult or impractical to demonstrate a link between competencies and performance in most settings. We have further shown that the competency-future performance link may be weak. This raises the issue: How can researchers

and practitioners ascertain whether competencies contribute to organizational performance, particularly if a direct link cannot be shown? The answer is to focus on intermediate outcomes that ultimately can or should impact performance, specifically constructs that differ at the individual and group levels and which have the potential to help attain individual or group objectives. Examples include trust, fairness/justice, commitment, organizational citizenship behaviors, intention to turnover, collaboration, and leadership. The analysis would first identify which constructs are more critical lynchpins for attainment of individual, group, and, ultimately, organizational objectives. The analysis would then test whether features of the competency system either aided or impeded development of those critical constructs.

One example is the relationship between performance management and development. There is an inherent tradeoff: development involves tackling tasks at which the person is not proficient, which should mean lower performance compared to those who are already proficient on the tasks. Thus a strong emphasis on performance management could interfere with development and vice versa. On the flip side, development is intended to improve future performance. People who desire to grow in their careers may need development in order to achieve those aspirations. If this is the case for those who are the top performers in their current roles, organizations may have no choice but to provide the right opportunities for development or risk losing those top performers. Thus providing development opportunities may help improve future performance and retain current top performers – albeit at the cost of lost productivity while the developmental activities are underway.

The challenge that organizations face is how to strike the right balance between performance management and development. Competencies have the potential to do so if they are structured with two features in mind. First, linking rewards and promotions to competency

demonstration should help motivate people to attain the competencies. Second, the competencies should accurately reflect important strategic issues facing the organization. If both of these conditions are met, competencies have the potential to promote development and counteract the short-term focus of the performance management system.

Using competencies to balance performance management with development: A case study

We illustrate this example using a case study from a Fortune 500 technology company. The data for this analysis were collected in 2003 as part of a larger study of managerial effectiveness at the company. In the years leading up to the study, the company had experienced a boom-bust cycle that corresponded roughly to the rapid U.S. economic growth in the mid- to late 1990s, followed by a contraction that started with the bursting of the stock market bubble in 2000. In response the company downsized operations in many of its divisions and redoubled its focus on improving execution, efficiency, margins and profits – all short-term performance oriented goals. One of the concerns that emerged in the course of the study was whether this strong emphasis on performance management was hurting the company's ability to develop the leadership talent it knew it needed for future growth.

Years before the study, the company had introduced a managerial competency system that was loosely tied to rewards and promotions. Every manager is rated yearly using a 360 degree feedback tool that assesses a broad range of competencies. There is no explicit link between the competency system and the performance management system. However, there is an explicit expectation that candidates for promotion need to demonstrate sufficiently high competency ratings to ensure maximum consideration of their candidacies. There also is an implicit understanding that the competency ratings may be used by supervisors when determining performance ratings, though such decisions are at the supervisors' discretion.

Based on interviews with senior line and HR leaders, a survey of the managers was designed to measure, among other things, the extent to which the managers perceived that their rewards and promotions depended on demonstrating the competencies, the extent to which they perceived a supportive environment for their development, and their willingness to take developmental risks by taking on assignments in a struggling division or in a high profile assignment. The appendix lists the different constructs used and their alphas. Note that three of the outcome variables (willingness to take an assignment in a struggling division; willingness to take a high profile assignment; likelihood of getting aspirational job at the company vs. elsewhere in the next 5 years) are single item measures. Table 1 contains the summary statistics and correlations for the main variables included in the analysis.

The specific hypotheses considered are that people who perceive they are rewarded for demonstrating competencies will also:

H1: Perceive greater organizational support for their development.

H2: Will be willing to take career risks by assuming a role in a struggling business unit.

H3: Will be willing to take career risks by assuming a highly visible role, that is a role in which the organization's performance can be helped or hurt a lot by an individual's performance.

H4: Will be more likely to see career opportunities for themselves within the organization.

H5: Will have greater satisfaction with their work and careers.

H6: Will have greater intention to stay with the organization.

H7: Will have greater trust in the organization's leadership.

Tables 2, 3, 4 and 5 present the tests of H1, H2, H3, and H4, respectively. Table 6 presents the tests of H5, H6 and H7. The specific competencies considered are the subset of the competencies addressed by the survey that factored together as part of an exploratory factor analysis. Note that the construct in this case represents the extent to which people feel they are rewarded for demonstrating the competencies in question, not whether they view the competencies as distinct from each other (which, undoubtedly, many are). The fact that so many of the competencies investigated via the survey factor together (8 of 11) suggests consistency in how the competencies are included in the performance management and promotion processes.

It is worth noting that an objective of the competency system was to promote managerial behavior that supports the business strategy. For example, the organization's leadership felt that traditionally there had been too much competition and not enough collaboration between business units, that decisions within business units were made too much by consensus and not quickly enough, and that there was a tendency to suppress information that reflected poorly on product decisions (until it was too late to correct such decisions before incurring significant sales losses). In addition, there was a concern that the performance management system overly emphasized short-term results to the possible detriment of longer-term growth. Each of the competencies below, all included in the construct used in the analysis, addresses these issues:

- Be an agent for change
- Take appropriate risks for the organization
- Act to succeed in terms of both short-term results and long-term strategy
- Collaborate with peers in other sectors / functions / regions
- Communicate openly and honestly / do not hide bad news
- Make decisions quickly to take advantage of business opportunities

Thus, the competencies were designed to address forward-looking issues of strategic importance, as recommended by McCall (1998).

The results in Table 2 provide evidence in favor of H1: there is a strong correlation between perceptions of support for development and perceptions that rewards and promotions depend on demonstrating the competencies. This relationship between the competencies and a supportive environment for development does not, however, translate into a strong willingness for people to take risks with their careers. The results in Table 3 indicate that being rewarded for the competencies does not increase people's willingness to put their bonuses and careers at potential risk by taking on roles in struggling business units, contrary to H2. The results in Table 4 provide some support for H3: those who perceive competency-based rewards and promotions are slightly more willing to take on highly visible roles. However, the relationship is significant only at the $p<.10$ level, and the incremental increase in the adjusted R^2 is negligible. Thus tying competencies to rewards and promotions in this organization makes managers happier about the environment for development, but does little to encourage them to take developmental risks.

The results in Table 5 are a little more encouraging: tying competencies to rewards and promotions increases the likelihood that managers believe they will be able to find the job to which they aspire without leaving the organization. This is consistent with the results in Table 6 that such managers have greater job and career satisfaction, and are more inclined to stay with the organization. Thus we find support for H4, H5 and H6. Rewarding competencies also leads to greater trust in the senior leadership of the organization (Table 6), consistent with H7.

In summary, we found in this organization that tying competencies to rewards and promotions encourages retention, fosters trust and satisfaction, and creates a supportive environment for development. Yet doing so does not encourage managers to take developmental

risks. We view these results as consistent with the limited previous evidence on the performance impacts of competencies reviewed above: some positive impacts but hardly overwhelming evidence that competencies can greatly improve organizational outcomes.

Implications for designing professional and HR competency models

Is the glass half empty or half full? On the positive side, we have suggested a framework that should be usable by most organizations to test whether competencies have positive impacts, even when a direct test of performance impacts is impractical. On the negative side, we view the mixed results from this case study as consistent with the critics' concerns about the way competency models are designed and implemented in organizations: better than some of the alternatives, but hardly the ideal for predicting future performance.

Given all this, are there implications that can be drawn for the design of professional competency models in general and HR competency models in particular? The first point to note is that professional roles in organizations (finance, marketing, engineering, legal, IT, HR, etc.) by design contribute to organizational performance, but individual professionals typically never drive performance entirely on their own. There are instances when individual professionals' direct contribution to performance is both clear and measurable, but those exceptions tend to prove the rule that establishing such causation is typically infeasible – or at least impractical. This puts the debate in the realm of the framework demonstrated above: looking for intermediate impacts of competencies that ultimately *should* support the organization's strategy.

Given the difficulty of showing performance impacts of competencies for individual professionals, it is doubly important to design and use competencies appropriately. On the design side, making them as forward-looking and linked to strategy as possible is critical. On the usage side, competencies can be used as one factor for selection and rewards – but they should never be

the only factor, and perhaps not even a primary factor. Competencies may help raise the average quality of incumbents in a job. But they appear to be insufficient on their own to identify those who will produce exceptional performance for the organization.

This perspective is particularly salient when considering the design and usage of HR competency models. One of the biggest challenges that HR faces today is figuring out how it adds value strategically. Despite the calls for HR to be more strategic (e.g. Jamroq and Overholt, 2004), research suggests that HR is not making much progress toward becoming a strategic partner (Lawler and Mohrman, 2003a; 2003b). In such an environment, how would we expect traditional competency identification approaches to fare in unearthing true strategic competencies? Based on the logic and evidence discussed above, unfortunately not very well. If current HR leaders and professionals are having difficulty figuring out how to contribute strategically to their organizations, then the traditional approach to defining competencies should be wholly ineffective at identifying competencies that matter.

The answer should lie in models that will enable HR to make strategic contributions in the future. While the writing in this area is too new to validate with empirical analysis of organizational practices, there is a promising stream emerging. The writings of Boudreau and Ramstad (in press a-d) in particular offer a potential template for how strategic HR competency models can and perhaps should be built. For example, the ability to understand and apply analytics (Lawler, Levenson & Boudreau, 2004; Levenson, in press) is one possible component of such models, one that is not a focus of most HR functions or roles today.

Even if such forward-looking models are accurately identified and built, however, care must taken to not apply them dogmatically. The experience with competency models outside of HR suggests that, at most, HR competencies should play a role alongside other factors in the

selection, promotion and performance management of HR professionals. Only time will tell which competencies ultimately will produce strategic future performance in HR. The challenge for today's HR professional is to take advantage of competencies where appropriate and not allow the simplistic logic of competencies to outweigh a healthy dose of skepticism with respect to how they are applied.

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Table 1: Summary statistics and correlation matrix

	Mean	Std. Dev.		Impact of competencies on rewards & promotions	Organization support for development	Willingness to take on role in struggling business unit	Willingness to take on highly visible role	Likelihood of getting aspirational job in next 5 years at the company	Job / career satisfaction	Intention to stay	Trust in senior management	Whether formal development courses were taken and had big impact	Importance of coaching, mentoring, feedback received	Importance of developing others
Impact of competencies on rewards & promotions	5.25	.88	Pearson Significance N											
Organization support for development	4.26	1.17	Pearson Significance N	.521*** .000 1249										
Willingness to take on role in struggling business unit	5.25	1.50	Pearson Significance N	.050 .077 1235	.041 .147 1265									
Willingness to take on highly visible role	5.88	1.05	Pearson Significance N	.071* .012 1237	-.046 .101 1269	.425*** .000 1265								
Likelihood of getting aspirational job in next 5 years at the company	2.87	.96	Pearson Significance N	.327*** .000 1235	.460*** .000 1266	-.002 .934 1247	-.092*** .001 1251							
Job / career satisfaction	4.91	1.38	Pearson Significance N	.475*** .000 1244	.641*** .000 1276	.094*** .001 1258	.024 .394 1262	.476*** .000 1262						
Intention to stay	4.75	1.49	Pearson Significance N	.352*** .000 1246	.417*** .000 1277	.087** .002 1258	-.018 .533 1262	.407*** .000 1265	.552*** .000 1274					
Trust in senior management	4.05	1.40	Pearson Significance N	.395*** .000 1247	.592*** .000 1277	.067* .018 1259	.047 .094 1262	.332*** .000 1264	.559*** .000 1274	.408*** .000 1276				
Whether formal development courses were taken and had big impact	.54	.50	Pearson Significance N	.136*** .000 1249	.207*** .000 1286	.064* .023 1265	.115*** .000 1269	.102*** .000 1266	.127*** .000 1276	.114*** .000 1277	.155*** .000 1277			
Importance of coaching, mentoring, feedback received	4.54	1.65	Pearson Significance N	.267*** .000 1243	.365*** .000 1272	.023 .408 1257	.033 .238 1259	.198*** .000 1255	.233*** .000 1265	.186*** .000 1266	.201*** .000 1267	.294*** .000 1272		
Importance of developing others	4.98	1.62	Pearson Significance N	.188*** .000 1241	.139*** .000 1272	.123*** .000 1256	.122*** .000 1259	.041 .144 1255	.122*** .000 1266	.180*** .000 1266	.128*** .000 1266	.144*** .000 1272	.384*** .000 1265	
Need for challenging assignments	3.59	1.16	Pearson Significance N	.058* .044 1220	-.005 .851 1250	.274*** .000 1233	.361*** .000 1235	-.116*** .000 1233	.006 .841 1244	.026 .352 1243	.089** .002 1244	.197*** .000 1250	.163*** .000 1241	.224*** .000 1242

* Correlation is significant at the .05 level. ** Correlation is significant at the .01 level. *** Correlation is significant at the .001 level.

Table 2: Perceived organization support for development			
Formal development courses taken, had big impact	.294 *** (4.52)	.228 *** (3.93)	.203 *** (3.28)
Importance of coaching, mentoring, feedback received	.248 *** (11.88)	.176 *** (9.20)	.159 *** (7.78)
Importance of developing others	.001 (0.07)	-.029 (1.54)	-.020 (1.02)
Need for challenging assignments	-.083 *** (3.05)	-.081 *** (3.29)	-.056 ** (1.97)
Impact of competencies on rewards & promotes		.605 *** (18.55)	.583 *** (16.90)
Additional controls included?	No	No	Yes
N	1236	1209	1067
Adjusted R^2	.156	.339	.372

t-statistics in parentheses. The additional controls include job level, years of experience, perceived business environment, and job aspirations.

* p<=.10

** p<=.05

*** p<=.01

Table 3: Willingness to take on role in struggling business unit, putting bonus at risk			
Formal development courses taken, had big impact	.056 (0.64)	.074 (0.85)	.050 (0.53)
Importance of coaching, mentoring, feedback received	-.052 * (1.86)	-.057 ** (1.99)	-.062 ** (2.01)
Importance of developing others	.083 *** (2.97)	.077 *** (2.72)	.075 ** (2.47)
Need for challenging assignments	.334 *** (9.06)	.343 *** (9.28)	.279 *** (6.43)
Impact of competencies on rewards & promotes		.055 (1.11)	.079 (1.51)
Additional controls included?	No	No	Yes
N	1221	1196	1058
Adjusted R^2	.080	.084	.080
t-statistics in parentheses. The additional controls include job level, years of experience, perceived business environment, and job aspirations. * p<=.10 ** p<=.05 *** p<=.01			

Table 4: Willingness to take on highly visible role			
Formal development courses taken, had big impact	.122 ** (2.05)	.113 * (1.89)	.065 (1.08)
Importance of coaching, mentoring, feedback received	-.047 ** (2.47)	-.049 ** (2.51)	-.051 ** (2.55)
Importance of developing others	.042 ** (2.22)	.031 (1.58)	.029 (1.51)
Need for challenging assignments	.314 *** (12.50)	.313 *** (12.41)	.180 *** (6.43)
Impact of competencies on rewards & promotes		.063 * (1.89)	.071 ** (2.10)
Additional controls included?	No	No	Yes
N	1223	1198	1060
Adjusted R^2	.135	.133	.187
t-statistics in parentheses. The additional controls include job level, years of experience, perceived business environment, and job aspirations. * p<=.10 ** p<=.05 *** p<=.01			

Table 5: Likelihood of getting aspirational job in next 5 years at the company vs. elsewhere			
Formal development courses taken, had big impact	.155 *** (2.76)	.113 ** (2.08)	.099 * (1.73)
Importance of coaching, mentoring, feedback received	.117 *** (6.45)	.082 *** (4.59)	.067 *** (3.53)
Importance of developing others	-.002 (0.09)	-.020 (1.16)	-.006 (0.31)
Need for challenging assignments	-.135 *** (5.70)	-.135 *** (5.92)	-.050 * (1.90)
Impact of competencies on rewards & promotes		.328 *** (10.81)	.301 *** (9.43)
Additional controls included?	No	No	Yes
N	1220	1196	1062
Adjusted R^2	.065	.148	.180
t-statistics in parentheses. The additional controls include job level, years of experience, perceived business environment, and job aspirations. * p<=.10 ** p<=.05 *** p<=.01			

Table 6: Impacts of perceived environment for development and competency system rewards						
	Job / career satisfaction		Intention to stay at org		Trust in senior management	
Perceived good environment for development	.754 *** (29.34)	.646 *** (21.78)	.545 *** (16.81)	.419 *** (11.04)	.696 *** (25.99)	.632 *** (19.96)
Competencies positively impact rewards & promotions		.293 *** (7.41)		.309 *** (6.11)		.153 *** (3.63)
N	1276	1244	1277	1246	1277	1247
Adjusted R^2	.417	.448	.202	.220	.385	.387
t-statistics in parentheses. All regressions include controls for years of experience, current level, and whether in business unit or corporate role. * p<=.10 ** p<=.05 *** p<=.01						

Appendix: Variable definitions

1. Perceived impact on rewards/promotions of competency system: *7 point scale (1 = Very negative impact; 4 = No impact; 7 = Very positive impact)*
   What is the impact on your rewards and promotions from demonstrating each of the following behaviors?
   - Coach / mentor / develop others
   - Be an agent for change
   - Take appropriate risks for the organization
   - Act to succeed in terms of both short-term results and long-term strategy
   - Collaborate with peers in other sectors / functions / regions
   - Communicate openly and honestly / do not hide bad news
   - Collaborate effectively with people who are different from yourself
   - Make decisions quickly to take advantage of business opportunities

   Alpha = .8704

2. Perceived organization support for leadership development: *7 point scale (1 = Strongly disagree; 7 = Strongly agree)*
   - The leadership team is committed to developing future leaders for <company>
   - I have the opportunity to get the developmental assignments I need to earn promotions
   - Training and developmental opportunities at <company> help build critical general manager skills
   - <Company> has an excellent leadership planning process
   - The Leadership Team is responsive to the need to develop future leaders for <company>
   - My manager coaches me on how to succeed in my career development
   - Movement is possible within and across sectors/regions at <company> to allow managers to increase their general manager competencies
   - Managers today are encouraged to develop themselves through stretch assignments more than they were five years ago

   Alpha = .8843

3. Importance of having taken formal development courses: indicator for whether the person took one or more of the following formal development courses and rated them as "important" or "extremely important" for their development as a leader in the last 2-3 years (responses 5-7 on 7 point scale).
   - Company-designed course for more senior leaders
   - Company-designed course for middle management leaders
   - Other company-funded training / executive education courses
   - Tuition reimbursement courses

   Coded as [0,1]

4. Importance of receiving coaching/mentoring/feedback: *7 point scale (1 = Not at all important; 7 = Extremely important)*
   How important have the following been to your development as a leader in the last 2-3 years?

- Being mentored
- Being coached
- Feedback on my performance

Alpha = .7986

5. Importance of coaching/mentoring others: *7 point scale (1 = Not at all important; 7 = Extremely important)*
   How important have the following been to your development as a leader in the last 2-3 years?
   - Mentoring someone else
   - Coaching someone else

   Alpha = .8277

6. Importance of having challenging/stretch assignments: *7 point scale (1 = Not at all critical; 7 = Extremely critical)*
   To what extent are the following critical for you to successfully achieve your career goals?
   - Work in a startup situation (new plant / business)
   - Work in a take-down situation (closing of operations)
   - Work on an integration (merger / acquisition / takeover of an external business, or combination of two internal businesses into one)
   - Inherit a project or part of the organization that is broken and fix it
   - Lead part of the organization through a change management situation
   - Work outside the U.S. for a substantial amount of time
   - Manage a (rapidly) growing part of the business
   - Work in another sector/region
   - Work in another function

   Alpha = .8524

7. Job/career satisfaction: *7 point scale (1 = Strongly disagree; 7 = Strongly agree)*
   - This is a company where I can have a successful career
   - All in all, I am satisfied with my job

   Alpha = .8186

8. Intention to stay: *7 point scale (1 = Strongly disagree; 7 = Strongly agree)*
   - I would not leave <company> right now because I have a sense of obligation to its people
   - I would choose to leave <company> only under exceptional circumstances

   Alpha = .7340

9. Trust: *7 point scale (1 = Strongly disagree; 7 = Strongly agree)*
   - When the senior leadership team in my sector / region says something, you can really believe it's true
   - My peers feel they can trust <company's> corporate senior leadership team (CEO, COO, and the sector presidents)

   Alpha = .7277

10. I am willing to take a new assignment in a struggling business unit, even though it might lower my bonus payment due to poor business performance or because my job might be tougher: *7 point scale (1 = Strongly disagree; 7 = Strongly agree)*

11. A highly visible (highly leveraged) role is one through which the organization's performance can be helped or hurt a lot by one's individual performance. I would be willing to take on a highly visible role: *7 point scale (1 = Strongly disagree; 7 = Strongly agree)*

12. To determine the person's aspirational job, the respondents were asked "To what role/title do you aspire in the next 5 years." They then were asked "Are you more likely to get that job at <company> or somewhere else?" *5 point scale (1 = Definitely somewhere else; 2 = More likely somewhere else; 3 = Unsure; 4 = More likely at <company>; 5 = Definitely at <company>)*