



Journal of Strategy and Management

Competency models for assessing strategic thinking

Ellen Goldman, Andrea Richards Scott,

Article information:

To cite this document:

Ellen Goldman, Andrea Richards Scott, (2016) "Competency models for assessing strategic thinking", Journal of Strategy and Management, Vol. 9 Issue: 3, pp.258-280, <https://doi.org/10.1108/JSMA-07-2015-0059>

Permanent link to this document:

<https://doi.org/10.1108/JSMA-07-2015-0059>

Downloaded on: 17 February 2019, At: 16:30 (PT)

References: this document contains references to 72 other documents.

To copy this document: permissions@emeraldinsight.com

The fulltext of this document has been downloaded 1761 times since 2016*

Users who downloaded this article also downloaded:

(2015), "Organizational practices to develop strategic thinking", Journal of Strategy and Management, Vol. 8 Iss 2 pp. 155-175 <<https://doi.org/10.1108/JSMA-01-2015-0003>><https://doi.org/10.1108/JSMA-01-2015-0003>

(2013), "A new model of strategic thinking competency", Journal of Strategy and Management, Vol. 6 Iss 3 pp. 242-264 <<https://doi.org/10.1108/JSMA-10-2012-0052>><https://doi.org/10.1108/JSMA-10-2012-0052>

Access to this document was granted through an Emerald subscription provided by emerald-srm:478531 []

For Authors

If you would like to write for this, or any other Emerald publication, then please use our Emerald for Authors service information about how to choose which publication to write for and submission guidelines are available for all. Please visit www.emeraldinsight.com/authors for more information.

About Emerald www.emeraldinsight.com

Emerald is a global publisher linking research and practice to the benefit of society. The company manages a portfolio of more than 290 journals and over 2,350 books and book series volumes, as well as providing an extensive range of online products and additional customer resources and services.

Emerald is both COUNTER 4 and TRANSFER compliant. The organization is a partner of the Committee on Publication Ethics (COPE) and also works with Portico and the LOCKSS initiative for digital archive preservation.

*Related content and download information correct at time of download.

Competency models for assessing strategic thinking

Ellen Goldman and Andrea Richards Scott

Department of Human and Organizational Learning,

George Washington University, Washington, District of Columbia, USA

258

Received 28 July 2015

Revised 26 November 2015

Accepted 17 December 2015

Abstract

Purpose – The purpose of this paper is to investigate the competency models used by organizations to assess the strategic thinking ability of their leaders, managers, and other employees.

Design/methodology/approach – A basic interpretive study was conducted with human resource executives across a broad range of large organizations. Participants were interviewed, and competency models in use were shared, reviewed, and discussed. The model development process was also explored in depth. Findings were verified via member checks and triangulation.

Findings – Models in use either identify strategic thinking as a stand-alone competency, or embed it under three different areas. Most cover one or more executive levels, stating varying expectations for strategic thinking by job title or level, or differentiating strategic thinking performance levels. The models include descriptions of strategic thinking behaviors that cross seven categories of strategy development, implementation, and organizational alignment.

Research limitations/implications – The study provides indications of potential generalizations that should be considered with more organizations across sectors.

Practical implications – The findings provide practitioners with format and content examples to enhance the assessment of strategic thinking in existing competency models, as well as process considerations for model development/revision. The findings also identify how competency model components are used across the spectrum of talent management activities.

Originality/value – The study fills a gap in the literature by providing empirically based identification of the strategic thinking behaviors organizations consider essential competencies and how they are assessed. In so doing, the study provides a glimpse of how strategic thinking is used in practice and across a range of strategic management activities. In addition, the study links strategic thinking to the competency development literature, illustrating details of competency model development for strategic thinking, and identifying opportunities for related theory development in both domains.

Keywords Strategic thinking, Competency modelling, Strategic thinking competency

Paper type Research paper

Introduction

For at least the past 30 years, the literature has admonished organizational leaders and managers for their lack of strategic thinking and urged its development to improve organization performance (Bonn, 2001, 2005; Essery, 2002; Liedtka, 1998; Mason, 1986; Mintzberg *et al.*, 1998; Tovstiga, 2010; Zabriskie and Huellmantel, 1991). Identifying strategic leader characteristics, actions, and behaviors – the basis of competencies – is noted as essential for understanding why and how organizations behave and perform (Hambrick, 1989). Yet the identification of strategic thinking competencies and tools to measure them remains somewhat elusive (Steptoe-Warren *et al.*, 2011).

Our study in the June 2015 issue of the *Journal of Strategy and Management* found some solid programs but also many deficits in current organizational practices to develop strategic thinking: unclear objectives, limited participation, a narrow range of approaches, and limited program evaluation (Goldman *et al.*, 2015). Despite these limitations, most organizations identified competency models or frameworks they use to assess strategic thinking, among other competencies. These models are the subject of this paper.



The models were discovered during the above-mentioned study, through in-depth interviews with human resource (HR) executives responsible for leadership development across a broad range of industries. The research question that guided the study was:

RQ1. What practices do organizations engage into facilitate the development of the ability to think strategically in leaders, managers, and others employed by the organization?

Participants were asked to consider strategic thinking as thinking that is broad, big picture, and anticipatory in nature, and can occur at multiple organizational levels. This cut across its conceptualizations in the literature as a set of analytical techniques, ways of mental processing, or engaged behaviors (Goldman *et al.*, 2015).

While the interviews were semistructured, we specifically queried the assessment of strategic thinking as a part of development programs, in annual performance reviews or at other times. Many participants provided their organization's competency models; others discussed them in depth. This paper recognizes the range of approaches used in organizing competency models and identifies their behaviorally specific descriptions of strategic thinking. To ensure readers of the validity of these models, details of their development is also provided.

The study findings contribute to the strategy literature by suggesting a broadening and integration of strategic thinking behaviors across organizational processes. The findings also suggest additional areas to be developed as theory related to competency modeling generally, and specifically in relation to strategic thinking. Finally, the study findings offer a number of suggestions for practitioners interested in developing or enhancing competency assessment related to strategic thinking.

Literature review

The initial study, focussed on practices to develop strategic thinking, was informed by three major streams of literature: strategic thinking, leadership development, and minimally, competency models. This literature review emphasizes the purposes and uses of competency models, model components, and the model development process. Where relevant, literature related to strategic thinking is interwoven: theoretical and empirical work specifically related to strategic thinking is presented and compared to the requirements of competency models.

Competency modeling

A competency model has been described as a behaviorally specific and detailed description of the skills and traits needed to be effective in a job (Mansfield, 1996). Others consider such models as descriptive tools (Lucia and Lepsinger, 1999) or validated decision tools (Buford and Lindner, 2002).

Purposes and uses. Competency-based approaches have a clear presence in the strategy literature. Hambrick (1989) suggested that identifying strategic leader characteristics, actions, and behaviors is essential for understanding why and how organizations behave and perform. Prahalad and Hamel (1990) extended the concept of competency to organizations, suggesting that "core (organizational) competencies" could result in competitive advantage. To support organizational initiatives, Lawler (1994) advocated the use of a competency-based methodology in organizing and managing human capital. Competency models have also been proposed as a tool for

organizational change (Vakola *et al.*, 2007) and as a communication tool to translate vision into behavioral terms employees can implement (Sanchez and Levine, 2009).

Today, competency models are widely used as the basis for talent management systems in organizations for recruitment, selection, performance appraisal, development, high potential identification, and succession planning (Stone *et al.*, 2013). The use of competency models is also increasingly popular with professional organizations across a variety of fields to determine accreditation-related educational requirements, provide frameworks for continuing training and development programs, and credential individuals (Kaslow, 2004; March and Bishop, 2014). Despite the proliferation of competency-based approaches, and the generation of a large body of literature concerning models, instruments, and metrics over the past several decades, defining a competency has remained a “vexing” issue (Morgeson *et al.*, 2004, p. 676).

Competency model components. The term competency is widely attributed to McClelland (1973), whose research suggested that individual characteristics and competencies – abilities to put skills and knowledge into practice – and not just academic aptitude and familiarity were predictors of high performance. A plethora of definitions of competency followed, to include the following: knowledge, skills, abilities, characteristics, motives, traits, attitudes, values, beliefs, interests, work habits, and aspects of self-image or social role (Boyatzis, 1982; Fleishman *et al.*, 1995; Green, 1999; Guion, 1991; Mirabile, 1997; Mumford *et al.*, 2000; Spencer and Spencer, 1993; Weinert, 2001). These potential components of competency reflect two streams of competency theory literature: functionalist, in the management science community, and social-interactionist, in the social and situated learning communities.

Referring to individuals responsible for strategy, Garavan and McGuire (2001) defined competency as “a holistic concept [which] consists of technical, management, people, attitude, values and mental skill components” (p. 152), which in combination is the basis of behavior and performance. Steptoe-Warren *et al.* (2011) noted these abilities as applicable to management generally, suggesting that core competencies for strategic thinking could be more specifically developed to fit Garavan and McGuire’s (2001) six clusters of competencies: technical competencies, business competencies, knowledge management competencies, leadership competencies, social competencies, and intrapersonal competencies.

Using an approach that combines components is reasonable, given that the concept is defined in various ways in the strategy literature, and differing assessment tools are found in the strategy, psychology, and leadership literatures. These literatures vary in their considerations relative to strategic thinking, with the strategy literature defining the concept, but mainly concerned about the tools, techniques, and processes used to develop strategy (Mintzberg, 1994; Pettigrew *et al.*, 2002; Tovstiga, 2010); the psychology literature focussing on personality and other factors affecting mental processing (Dragoni *et al.*, 2011; Hambrick and Mason, 2001; Steptoe-Warren *et al.*, 2011), and the leadership literature concentrating on inspirational and communication behaviors associated with involving others to develop and execute organizational direction (Kouzes and Posner, 1988; Sashkin and Sashkin, 2003; Yukl, 2012).

The review of the various conceptualizations of strategic thinking in the prior publication noted that strategic thinking is recognized as an individual activity; is a distinct form of abstract mental processing (conceptual, system oriented, directional, and opportunistic); involves a set of recursive activities (scanning, questioning, conceptualizing, and testing) to identify (planned) organizational strategy and/or make sense of patterns that infer (emergent) organizational strategy (Goldman *et al.*, 2015).

Further review across the strategy, psychology, and leadership literatures found a rich array of approaches to assessing strategic thinking, indicating possible components of competency. Such measures include proxies from personality and leadership indices or application of scales and tests developed for measuring other abilities such as critical thinking, crystallized intelligence, creative thinking, risk-taking, autonomy (Bates and Dillard, 1993; Dagher and Al Zaydie, 2005; Hughes and Beatty, 2005; Pellegrino, 1996; Pisapia *et al.*, 2005; Rosche, 2003). Many of these measures were not based on a definition of strategic thinking found in the literature. In the few cases where weak correlations were established, different conclusions with respect to their significance were reported across studies, leaving questions regarding what abilities and traits should be measured in combination, and with what relative weights.

Other scholars have taken a more descriptive approach. Hanford (1995) contrasted strategic and operational thinking, generating lists of terms that apply to each. A study of business leaders of successful companies led to the identification of a “model of strategic thinking competency” presented as a list of seven characteristics: conceptual thinking ability, visionary thinking, creativity, analytical thinking ability, learning ability, synthesizing ability, and objectivity (Nuntamanop *et al.*, 2013). As noted above, some of these have been tested elsewhere with lackluster results. Other characteristics could be associated with many activities in addition to strategic thinking. Behaviorally specific descriptions considered essential to competency models as indicated above, were not provided. However, this study does support the notion of strategic thinking as a combination of clusters of competencies, which may provide a way forward for future investigation.

The practitioner literature contains several self-assessment tools (Atkins and Cone, 2014; Haines, 2011; Schoemaker *et al.*, 2013) that may be useful in identifying competency model components for strategic thinking. While these tools are not theoretically based, they do focus on behaviors and are moderately descriptive. Included components are looking at the environment, gathering information, building theory, visioning, generating multiple alternatives, engaging in a group process, and communicating (Atkins and Cone, 2014; Haines, 2011).

Competency model development. Despite the extensive use of competency models, there is a lack of agreement regarding the methodology for developing them (Pearlman and Barney, 2000). There are, however, several common steps involved, including gathering information regarding job tasks and performance effectiveness criteria (e.g. growth goals, profits, productivity measures, customer, and employee satisfaction); identifying superior performance; specifying characteristics of people who do the job well (e.g. competencies); developing the measurement; and conducting validation tests (Boyatzis, 1982, 2008, 2009; Hollenbeck *et al.*, 2006; Kunnanatt, 2008; Rajadhyaksha, 2005; Sandberg, 2000; Sherman *et al.*, 2007).

Early directions for identifying competencies are credited to McClelland (1973) who admonished the need to analyze actual performance rather than relying on performance evaluation-based judgments of what supervisors think. Boyatzis' (1982) popularized the use of behavioral event interviews in his five step job competence assessment method. These interviews asked outstanding and typical or poor performers to describe critical incidents where they felt they were effective vs ineffective. Analyzing the actions they took allowed for the construction of specific competencies that reflect effective job performance.

Over time, alternatives to behavioral event interviewing that are less costly and less time-consuming have been advised. These include the use of expert panels, focus groups, or interviews with peers, supervisors, and incumbents observation and simulation to identify competencies needed for successful performance in a particular position (Boyatzis, 2009; Caldwell and O'Reilly, 1990; McClelland, 1998). Individuals may be rated on the degree to which they show the competencies judged to be required, and the extent of the job-person match can be used to select, assess, or promote people. These procedures have face validity and is often used across a variety of settings.

A final difference noted how the competency models are developed relates to the view of competency as a fixed set of abilities or abilities that change as individuals accomplish the work. Sandberg (2000) found support for the more interpretive approach, arguing that the worker's conception of the challenges in accomplishing the work alters the competencies required.

Applying the general steps involved in developing a competency model to strategic thinking involves a number of challenges. Chief among these is the initial step, the identification of effective performance and successful strategic thinkers. This has been done using both real and simulated performance. Nuntamanop *et al.* (2013) used top line growth to identify "successful" leaders and then interviewed them. The limitations of this approach include the assumption that growth indicates success and actual performance is attributable to the strategic thinking of the leader. These could be addressed by using a wider range of performance measures; interviewing peers and subordinates, and comparison to average or even unsuccessful leaders (Boyatzis, 2009; Caldwell and O'Reilly, 1990; McClelland, 1998). Dragoni *et al.* (2011) trained psychology consultants to judge simulated decision making. The limitations to this approach are that simulated performance may not match real-world performance and brief training of consultants is not likely to make them effective judges of an individual's strategic thinking. An alternative method for identifying those who are expert at strategic thinking is to use the "social labeling" (Shanteau, 1988; Sternberg, 1994) of strategy consultants and industry association executives (Goldman, 2005). The obvious consideration in using others to identify strategic thinkers or judge strategic thinking is that they have a common understanding of what it is and consistently apply it.

The general limitations of competency models and modeling have been noted to include a lack of theoretical grounding; dependence on incumbents (whose performance may not be superior) to describe superior performance; assumptions of generalizability; and a lack of situational specificity (Hollenbeck *et al.*, 2006). At the same time, the strength of competency models has been noted as the potential to link performance appraisal to business goals and strategies. Hollenbeck *et al.* (2006) advocated enhancing models by including the interactions between competencies, situations, and outcomes. Campion *et al.* (2011) concretized these ideas and addressed many other developmental criticisms in their identification of a 20-step set of best competency modeling practices. Discussing the three main components of analyzing competency information, organizing and presenting competency information, and using competency information, Campion *et al.* (2011) suggested context- and organization-specific considerations for determining competencies. These included determining future-oriented job requirements, defining levels of proficiency and using diagrams and heuristics to communicate models to employees, using competencies to align HR systems (e.g. hiring, appraisal, compensation, development, promotion), and maintaining the currency of the competencies over time.

In sum, competency models offer many benefits to organizations. If based on performance criteria, they can provide an outcome-focussed structure to the recruitment, organization, and assessment of human capital by identifying expected, as well as superior behaviors. Accordingly, the development of competency models requires considerable effort in identifying, describing, and validating actual performance behaviors. The discussion of strategic thinking competencies found in the literature possesses few of the suggested elements of effective competency models: most are based only on academic literature; few provide behaviorally specific and detailed descriptions, and none distinguish levels of performance or are situationally specific. It has been noted that research on competency models generally, has lagged behind the practice of using such models in organizations (Schippmann, 2010). During our first interview of the previously reported study (Goldman *et al.*, 2015), we surfaced a rather sophisticated competency model that included measurement of strategic thinking and was central to talent development in that organization. We realized that Schippman's observation could apply to competency models for strategic thinking and thus expanded the inquiry to identify such models, and analyze their design and components so as to inform future theorizing about the development of strategic thinking competency.

Research methods

The recruitment and data collection methods used in this study are described in detail in the previous article (Goldman *et al.*, 2015); a short synthesis is provided here with additional description of how the competency models were analyzed.

The study followed a basic interpretive design using semistructured interviews (Creswell, 2013; Merriam and Associates, 2002). Participants included 13 HR/HR development leaders in their current positions for at least one year and responsible for leadership development in an organization of at least 250 employees. The organizations collectively employed close to two million people across a wide range of sectors. The inquiry was general in nature, concerning the work experiences, work environments, professional development and education strategies, and other techniques utilized by the organization to develop individual strategic thinking ability. As noted above, we did not specifically set out to inquire about the existence of competency models; the term surfaced during the first interview in response to our question regarding practices to assess strategic thinking. Thereafter, we specifically asked if there was a competency model in use that included assessment of strategic thinking, what its components were, whom it applied to, and if it could be shared.

In the process of preparing this manuscript, we were challenged as to the developmental soundness of the participants' organizations' competency models. Since our interviews had focussed on the models' use rather than its development, we conducted follow-up interviews with the participants from the organizations with behaviorally descriptive models: the five organizations using more than a single (undefined) list of competencies. We used an interview protocol that was based on the competency model literature (Boyatzis, 1982, 2009; Luthans *et al.*, 1988; McClelland, 1973, 1998), we inquired about the process of developing the performance criteria; identifying and describing the specific behaviors; validating the behaviors and descriptions, and where used, differentiating proficiency levels. In addition, we re-reviewed the uses of the competency models and asked the participants about any limitations they had experienced as well as any advice they would suggest to those developing such a model.

The data analysis occurred in three different ways. First, we analyzed the competency models in use against the optimal components, uses, and ways of presenting competency models described in the literature (Campion *et al.*, 2011; Hollenbeck *et al.*, 2006; Mansfield, 1996; Mirabile, 1997). Next, all of the behavioral descriptions used in the models were coded using a grounded theory approach, constantly comparing one unit of data with another and developing clusters from the codes (Merriam and Associates, 2002). Finally, data from the interviews were used to provide further clarification and descriptive quotes. The data from the five follow-up interviews with the participants from organizations with behaviorally descriptive models was analyzed for consistency with competency model development practices outlined in the literature. One participant could not provide certainty of how their organization's model was developed due to personnel turnover, so the behavioral descriptors from that model were not included in the relevant table.

The data analysis was performed jointly, as this was found to best illuminate the details across the competency models and interviews. Trustworthiness was ensured by triangulation of multiple researchers, purposive sampling to obtain diverse results, member checks of transcripts for accuracy, comparison of interview data with materials provided, and the use of devil's advocate and negative case discussion in building consensus around findings (Creswell, 2013; Merriam and Associates, 2002; Merriam, 2009; Miles and Huberman, 1994).

It should be noted that attempts were made to compare the content of the competency models to models and measures identified in the literature. This proved difficult, as the seven characteristics identified by Nuntamanop *et al.* (2013) as a model of strategic thinking competency and the 12 associated subprocesses were much less detailed than the behaviors in the competency models in use, and the habits and practices identified by Atkins and Cone (2014) and Haines (2011) did not align with the competency categories found in the data. Thus, any attempt to compare these sources with the competency models in use would have required significant assumptions that may have not aligned with the original studies. Therefore, we concluded that a comparison of competency models in use to the existing literature provided no further illumination.

Findings

Nine organizations provided or described their competency models. Features of the models are summarized in Table I, arrayed according to the four ways the models considered strategic thinking: either as a stand-alone competency or a competency embedded in one of three different areas. The industry of the participants' organization is also identified. Where embedded under "change," the term "strategic thinking" was specifically mentioned in the category, but the participant was emphatic that strategic thinking was not the required skill:

Leading change is broken up into competencies like creativity, innovation, external awareness, strategic thinking, and vision [...]. The skill is not strategic thinking; it's leading change.

Where embedded under "leadership," strategic thinking was placed under sub-categories such as "business acumen," "decision making," and "managing for results." Where embedded under "strategy," strategic thinking was not specifically mentioned as a term, but identified by the participants as part of competency categories labeled "strategy development," "strategic direction," "strategy knowledge," or "strategy execution."

		Consideration of strategic thinking					
Variables	Embedded under leadership	Embedded under change	Embedded under strategy	Automotive	Defense	Knowledge	Identified as a stand-alone competency
Industry	Transportation	Government services	Healthcare	Hospitality	Management consulting	Automotive	Retail
Organization of competency model	By competency, then by job level	List of 5 competencies; short definitions	List of 12 competencies; no definitions	By job title	List of 4 roles related to the communication of strategy	Lists term as one of 4 leadership competencies; no definitions	By job level
Titles/levels covered by model	Two top executive levels	Senior executives	Top 45 executives	Directors, vice presidents, officers	Top leaders	Leadership	Assistant vice presidents, vice presidents
Nature of components related to strategic thinking	Knowledge Skills Abilities	Knowledge Skills Abilities	Abilities	Knowledge Skills Abilities	Skills Abilities	None	Senior officers Knowledge Skills Abilities
Inclusion of behaviorally specific descriptions	Detailed behaviors by job level	Limited to formulating objectives and implementing plans	Limited to creating and articulating a future state	Detailed behaviors by job title; differentiates average vs. superior performance	Limited to a few words for each role	None	Detailed behaviors by job title
Use of model	Appraisal Development Programming	Appraisal Development	Appraisal	Hiring Appraisal Promotion Development Programming	Appraisal Development	Appraisal	Hiring Feedback Appraisal Promotion Development Programming

Table I.
Features of competency models

Model organization, components, and use

The models generally covered one or more top executive levels; one included a broad span of job levels beginning with supervisors. The models are organized in a variety of ways, some reflecting highly sophisticated formats. Examples of the various formats are diagramed in Figure 1. Format 1 illustrates a simple listing of competencies – strategic thinking being one – for all senior-level officers in a company. Format 2 illustrates a competency model also organized by job level, where strategic thinking is embedded under other terms, in this case under both “leadership” and “managing execution” and then further under “strategy development” and under “strategy execution.” Format 3 illustrates a more detailed competency model organized by job title, with both descriptive phrases and behaviors related to strategic thinking. Format 4 illustrates a model organized by competency and then proficiency level. A variation on Format 4 (not shown) is the organization of a model by competency across different job levels (i.e. supervisor to executive). One participant described how the differences in competency behaviors would be portrayed across levels:

At the supervisory level [the category] has gnat’s eyelash kind of behaviors [...] compared to a vice president level, which has different behavioral anchors.

As noted on Table I, most of the models include knowledge, skills, and abilities related to strategic thinking. Other categories of competency model components mentioned in the literature, such as individual motives, values, attitudes, beliefs, work habits, and self-image, were not found in any of the models, although some included behaviors related to coaching others.

The models varied their specificity. Those that provided robust descriptions of behaviors did so by job level, title or by performance proficiency. These models were used broadly for performance appraisal, to focus individual development and/or determine promotion potential, and to determine training and development programs. A few were also utilized in hiring. The remaining models offered little or no behaviorally specific descriptions and were used more restrictively only for individual appraisal and/or development.

Of note is the identification within the competency models of different levels of performance expectations by job title (Format 2 in Figure 1) or proficiency level (Format 4 in Figure 1). Contents of one organization’s model are paraphrased below and include illustrations of how each proficiency level might be obtained:

Level 1 (lowest):

Proficiency level definition (partial): Assesses unit’s capabilities to create opportunities and manage risks.

Proficiency level illustration (partial): Conducts quarterly reviews to monitor unit’s progress in meeting goals.

Level 5 (highest):

Proficiency level definition (partial): Strategizes new direction to meet major organizational goals.

Proficiency level illustration (partial): Creates a 10-year plan for major area.

Another organization identified derailers related to desired behaviors in its competency model (Format 3 in Figure 1). Derailers such as lacking a clear vision or constantly changing direction were provided as cautionary aids for desired behaviors related to strategic thinking: developing new insights into situations, questioning conventional

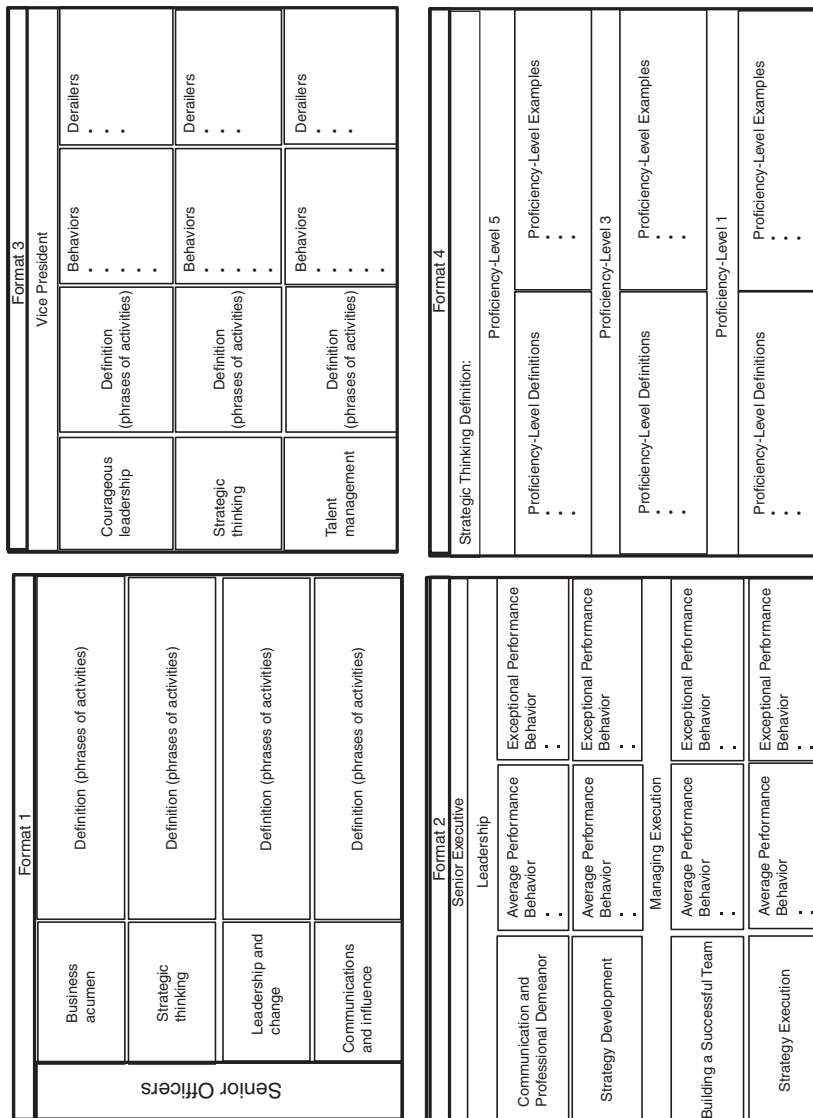


Figure 1. Formats of competency models

approaches, and creating and implementing initiatives. The organization provided the derailers as prompts for supervisors in initiating discussion of why the desired behaviors may not have been met.

As shown in Table I, the more detailed models are present in organizations that considered strategic thinking as a stand-alone as well as those that treated it as an embedded one. However, in tying the findings to those in the previous article, the most detailed competency models were found in organizations that offered programs specifically focussed on the development of strategic thinking (vs general leadership development) and/or organizations that formally evaluated their developmental approaches using return on investment criteria.

Model development

Nearly all of the participants were personally involved in the development or recent revision of their organization's competency models. Participants reported developing the models internally or using a combination of internal and external experts; most required at least one year to complete the development process. None of the participants indicated using the strategy literature or other literature to guide the development of the portion of their competency model related to strategic thinking. One of the participants whose model specifically considered strategic thinking as a competency described their process:

We've spent a lot of energy developing competency models. We developed [the competencies] in 2006/2007 [...]. We looked at the importance factor of those competencies now [and] in the crystal ball, how important are these competencies likely to be in the future [...] and the validity and all that [...]. We are starting the process of refreshing the entire leader competency model because that's a best practice [...]. We periodically go in and refresh.

Participants with the five models that detailed behaviorally specific components provided the details of their most recent model development process outlined in Table II. All had a model in place, but chose to revise the competencies to reflect the organization's updated strategy and goals. In one case, the most recent revision also aimed to reduce perceived similarity of competencies across levels. Participants reported a serious, methodical development process, stressing the attention to corporate culture when selecting methods of gaining input. Several organizations made extensive use of focus groups, noting they tried to be as inclusive as possible.

Compared to the competency model development steps advised in the literature, the processes followed by the participants were based on performance criteria that accomplished the organization's strategy (vs the achievement of numerical targets) and used methods that would assist in the results getting accepted and used internally (i.e. extensive surveys, interviews and focus groups vs behavioral event interviews which involve relatively small numbers of people). In addition, most of the organizations conducted large scale tests of their models, across levels, geographies, and functional areas, as they thought appropriate.

The participants noted the following limitations experienced with the development and/or use of their competency models over time: too many levels making behaviors difficult to distinguish; difficulties assessing values (i.e. integrity) when previously included in models; training programs developed narrowly for specific "behaviors" vs broader "competencies;" and the lack of comprehensive linkage to other talent management initiatives.

A few of the participants (including one from an organization that purchased the initial model and then enhanced it) noted that "many aspects of these models are

generic [...] it's not rocket science; don't re-invent the wheel." At the same time, they all stressed the importance of the models working across the organizations' functional areas and lines of business, and the associated necessity for a defensive development process to ensure buy-in. Finally, the participants noted that the longer a model is in place, the more difficult it is to change. That being said, they also indicated changing business requirements require changes to their competency model; most revised their models at least every five years.

Steps	Transportation	Hospitality	Defense	Knowledge	Retail
<i>Identified job performance criteria</i>					
Model in place	Developed in house	Purchased	Developed in house	Developed in house	Developed in house
Aligned model to reflect strategy/goals	HR/OD, operations, corporate	HR/OD, operations, corporate	HR/OD, operations, corporate	HR/OD, senior leaders	HR/OD, operations, corporate
Conducted survey to refine skills (revised model)	Management employees: cross-functions/levels				
<i>Listed and described possible characteristics</i>					
Surveys	Leaders across functions and levels (large scale)				
Interviews	Top management, department managers	Top management, supervisors, high performers	Senior management Supervisors, peers, high performers		
Focus groups	Top management, cross-functional groups	Managers at multiple levels			By job titles/levels
<i>Determined competencies</i>					
Coding/thematic analysis	Reviewed by cross-functional groups, business units (by job level)	Reviewed by HR/OD, corporate	Statistical model	External organization	Reviewed by cross-sectional levels using focus groups
Proficiency level determination	Focus groups by management level	Interviews with operations, HR/OD, high performers	Survey results, literature, benchmarking	HR/OD analysis, senior leader discussion	Cross-level focus groups
<i>Tested against job performance criteria</i>					
Initial model	Large scale pilot	Tested on a regional market	Large scale survey, subject matter focus groups	Every few years	Card sort with cross-sectional groups
Periodic review	7 years	Every few years	5 years	Every few years	5 years
Note: Data in cells reflects who was involved					

Table II.
Development of behaviorally specific competency models

Behaviorally specific descriptions of strategic thinking

Table III arrays 46 behaviors related to strategic thinking that were identified in the five detailed competency models (all of which followed developmental steps to ensure validity). Behaviors identified in models where strategic thinking was considered a stand-alone competency are highlighted.

The seven-category grouping of the behavioral descriptions emerged from the analysis based on what the behavior is mostly about. The stated behaviors indicate strategic thinking includes conceptual, creative, analytical, and interactive activities which are both re-active (being aware of the impact of external issues and trends) as well as proactive (actively influencing the environment), and occur at the individual, group, organizational, and environmental levels. In addition to stating the behaviors, the descriptive statements include the rationale for them (e.g. assess the organization's future capabilities to manage risk) or their desired results (e.g. drive creation and execution of strategy for profitable revenue growth). As a result, many of the statements include elements across more than one of the seven categories (e.g. creation and implementation). This also indicates the multifaceted nature of behaviors associated with strategic thinking as a combination of conceptual, creative, analytical, and/or interactive.

The behavioral descriptions stop short of detailing how to carry them out: there is little to no mention of specific processes or techniques to be utilized, and the people to be coached or guided are not specified beyond identification in a few statements as direct reports or stakeholders. However, nuances related to specific industries are apparent. For example, "regulatory issues" frequently appear in statements of companies dealing across state and national boundaries; "brand" in multi-product entities, and "global" in international concerns (Note: participants gave permission to use the contents of their competency models but asked that specific statements not be associated with their industry identification to protect organizational confidentiality).

Within each of the seven categories, a range of behaviors is reflected, but there are also many similarities. The descriptions of behaviors related to "visioning" indicate that it is a collaborative effort; the difference in the two statements relates to when the collaboration occurs, in developing the vision or achieving it. Descriptions of behaviors related to "environmental awareness" concern external business, governmental, and competitive trends; they range from awareness of the trends, to understanding the impact of the trends on current strategies, to actions taken to influence the external environment. Descriptions of behaviors categorized as "assessment and evaluation" largely concern the use of data, but also mention differing perspectives to identify and compare opportunities and anticipate issues. There is no specific mention of weaknesses or threats. Behaviors related to "strategy creation" concern development, creation of buy-in, and/or execution of strategies to achieve financial and other related goals. Most included creation and implementation of strategies in the same descriptor. Descriptions of "plan development" include the specifications of priorities and objectives, some from the translation of previously developed strategies, others directly from environmental data. A few statements included plan development and implementation in the same descriptor. "Implementation" behaviors varied widely, including general statements reflecting the achievement of objectives or plans, to specific mention of communication of strategies to others. A few of the statements include consideration of resource limitations and risks; one mentions climate. The final category of "alignment" includes a wide range of behaviors reflecting plan and goal coordination and coaching related to resources, compliance with external requirements, and monitoring.

Category	Description
Visioning	<p><i>Takes a long-term view and builds a shared vision with others</i></p> <p>Sets the vision for the company, brand, and discipline and makes sure direct reports collaborate to achieve that vision (also alignment)</p>
Environmental awareness	<p><i>Understands and keeps up-to-date on local, national, and international policies and trends that affect the organization and shape the stakeholder's views</i></p> <p><i>Displays awareness of external business influences and how business will respond or be affected</i></p> <p>Anticipates external business and regulatory issues and their influence on strategy development</p> <p><i>Identifies how internal and external influences and trends impact goals and priorities that are related to the strategic plan</i></p> <p>Describes the interaction between strategies, positioning, target markets, and competitor strategies</p> <p><i>Is aware of the organization's impact on the external environment</i></p> <p>Influences external business and regulatory issues that have an impact on the business</p>
Assessment and evaluation	<p><i>Assesses organization's future capabilities to create opportunities and manage risk</i></p> <p>Uses economic, financial, industry, and customer data to identify strategic business opportunities</p> <p>Uses data to thoroughly evaluate opportunities and coaches others on focussing on those with the strongest business impact</p> <p><i>Sorts through information to determine what is accurate and relevant when making decisions; takes timely action</i></p> <p><i>Anticipates issues and considers downstream impact before making decisions; looks at issues from a cross-functional perspective</i></p> <p><i>Develops new insights into situations and questions conventional approaches</i></p>
Strategy creation	<p>Develops global strategies that maximize competitive advantage, customer/stakeholder satisfaction, and profitability</p> <p><i>Strategizes new direction for major mission areas to meet evolving goals and objectives</i></p> <p>Applies broad business and management expertise to drive the strategic direction of enterprise financial and operational performance</p> <p><i>Creates and implements company initiatives affecting multiple teams successfully</i> (also implementation)</p> <p>Sets company, brand, and continent strategies and holds others accountable for applying these to discipline and program strategy initiatives (also implementation)</p> <p>Develops strategies that consider the welfare of the enterprise beyond that of one's own function or business unit</p> <p>Drives creation and execution of enterprise strategies for profitable revenue growth (also implementation)</p> <p>Drives business strategies based on sound financial analysis and understanding of the external business environment</p> <p>Develops strategies to drive innovation</p> <p>Uses data to build program strategies and make the business case for stakeholder commitment</p>
Plan development	<p><i>Ascertaines and uses information regarding the national and global environment to develop strategic plans</i></p> <p><i>Formulates objectives and priorities and implements plans consistent with the long-term interests of the organization</i> (also implementation)</p> <p><i>Develops plan to implement new direction for major mission areas to meet evolving goals and objectives</i></p>

(continued)

Table III.
 Descriptions of strategic thinking in behaviorally specific competency models

Category	Description
	<i>Identifies and uses information regarding internal and external influences and trends to set organizational priorities that meet goals established in the strategic plan</i>
	Adapts global company and brand strategies into plans that can be implemented within the business to maximize customer/stakeholder satisfaction and profitability
	Leads brand, discipline, and program-level strategic planning, budgeting, and goal setting
	Sets enterprise priorities and develops multi-year plans for execution
Implementation	Translates enterprise priorities into actionable objectives and manages execution of associated plans (also implementation)
	<i>Translates and implements plan with new direction to meet evolving goals and objectives</i>
	Works toward achieving long-range business objectives, taking into account available resources and constraints
	<i>Capitalizes on opportunities and manages risks</i>
	Communicates strategies and business cases to influence senior stakeholders and manage their expectations
	Clearly communicates complex strategies or concepts verbally and in writing
Alignment	<i>Fosters a climate of experimentation and innovation</i>
	<i>Seeks information from multiple parties and team members, ensuring the work is aligned with company goals</i>
	<i>Ensures that proposed solutions can support current state and future growth</i>
	Determines strategic business requirements and coordinates with internal and external partners to secure resources needed to complete the work
	Ensures compliance with contractual, legal, and regulatory requirements
	Coaches and guides others in business financial analysis, planning, and forecasting to support key business goals and strategic direction
	Shows, and coaches others to develop, a strong understanding of the operating principles, resource needs, terminology, and interdependence of all relevant business functions to inform company strategy and enterprise-wide platforms
	Determines when and how strategies need to be revised to produce desired results
Note: Behaviors in italics were identified in models that considered strategic thinking a stand-alone competency	

Table III.

Table IV shows the attention each of the categories received in all of the models, those that detailed behavioral descriptions provided in Table III, as well as those which did not (the automotive model provided no details and thus is not shown on Table IV). The category of behaviors included across almost all the models is “implementation,” which included the broadest range of behaviors as noted above. With one exception, models with detailed behavioral descriptions also included behaviors in the categories of “environmental awareness,” strategy creation,” and “plan development.” Detailed behavioral descriptions were less consistently provided in the categories of “visioning,” “assessment and evaluation,” and “alignment” across the models.

Discussion

The findings reported in this paper indicate that part of the answer to the research question “What practices do organizations engage into facilitate the development of the ability to think strategically in leaders, managers, and others employed by the organization?” is that they develop and use competency models, at least for top management. The models facilitate the development of strategic thinking by identifying specific desired behaviors which are the basis for performance appraisal

Behavioral descriptions Category of behaviors included	Models with detailed behavioral descriptions			Models with limited or no descriptions			
	Transportation	Hospitality	Defense	Retail	Government services	Healthcare	Management consulting
Visioning		X		X		X	
Environmental awareness	X		X				
Assessment and evaluation		X	X	X			
Strategy creation	X	X	X				X
Plan development	X	X	X	X	X		
Implementation	X	X	X		X		X
Alignment	X			X			

Notes: X, descriptor in this category (at top level if more than one level). X, category receives significant attention in model (multiple descriptors or at multiple levels)

Table IV.
Presence of behavioral descriptions across competency models

and individual development, and determine the content of training and development programs. Well-developed, valid models are based on the behaviors required to achieve the organization's overall strategy; these may present as a specifically identified competency in strategic thinking or be embedded under more general categories of leadership, change, or strategy. The most sophisticated of the models differentiate required strategic thinking behaviors by job title or level, and may also include descriptors of varying levels of proficiency.

Competency model development is described as a highly time-intensive process necessary to ensure the end result (the model) is accepted within the organization. Participants indicated the development process must reflect the organization's unique culture and took great care to select model development methods that were consistent but also produced valid results. The traditional technique of behavioral event interviews (Boyatzis, 1982) was either not used or was not used in isolation. Participants saw this as too narrow an approach for the complexity of their organizations, favoring more recently publicized methods such as surveys and focus groups (Boyatzis, 2009; Caldwell and O'Reilly, 1990; McClelland, 1998) that allow for large numbers to provide input and also going to great length to test models across the organization. Participants also indicated the content of competency models may be somewhat generic and thus not require as much time as is being spent to identify-specific behaviors. This is inconsistent with the recent calls in the competency literature for contextual and situationally specific model components (Campion *et al.*, 2011; Hollenbeck *et al.*, 2006). The participants are basing their models on the organization's strategy and adjusting the models as the strategy changes; indicating their comments regarding generic components may reflect their real or naïve view of the similarity of strategies being undertaken across sectors.

The differences between the literature and practice of competency model development noted above are fairly significant and may indicate the need for theory development regarding competency model initiation, use, and revision. A variety of social organizational theories (i.e. institutional theory, practice theory, structuration, sensemaking) could be used to explore the approaches to competency modeling in organizations. In addition, research that explores linkages of competency model content and use to other practices, such as organizational learning and knowledge management, may help advance the understanding of these key organizational processes and their related outcomes.

The behaviorally specific descriptions of strategic thinking include all aspects of the strategic management process, from visioning to implementation. Emphasis is on behaviors categorized as "environmental awareness," strategy creation," "plan development," and "implementation" regardless of whether or not the model identifies strategic thinking as a distinct competency or embeds it under others. The descriptions of the behaviors include why they are necessary and the desired results, which cause the descriptions to cross the categories. This is a departure from the limited literature on strategic thinking which presents competencies as single words such as "visionary," "creative," and "analytical," focussing on thinking-related skills and separating them from strategy formulation and implementation (i.e. Hanford, 1995; Nuntamanop *et al.*, 2013). The descriptions align most closely with literature that discusses strategy in practice (Tovstiga, 2010), where strategic thinking is ongoing.

While the behavioral descriptions represent a broad spectrum of activities and are integrated, they largely ignore the technical skills and tools of strategic thinking in analyzing and synthesizing information; there is no mention of how information is considered, just that it is. This fosters an assumption that if data is used and strategy developed, it is done so correctly. Similarly, behaviors related to the inclusion of others and

the management of knowledge in process of strategy development are scant save for comments regarding the communication of strategy to others and coaching and guiding them in achievement alignment. Again, there may be an assumption that if the outcome is achieved, the process was appropriate. The heavy focus on implementation is consistent with the leadership literature's attention to the communication of strategy and the focus in the business literature on financial results. Strategic thinking analytical techniques and processing are housed in the strategy literature with which the participants admitted a lack of familiarity. Some of these same issues were identified in the previous article where the content of development programs was discussed. Collectively this points to the need for enhanced education of HR executives on strategic thinking. It also reinforces the need for theory related to competency model development as discussed above.

Addressing the deficiencies in competency modeling related to strategic thinking provides an opportunity for scholars in strategy, leadership development, and measurement and HR practitioners and consultants to combine their expertise. It is clear that no single discipline or practice has all of the needed "competencies" to effectively address the development of a competency model for strategic thinking. Given the range of behaviors related to strategic thinking identified in the models in use, Steptoe-Warren *et al.*'s (2011) suggestion that core competencies for strategic thinking could be more specifically developed to fit Garavan and McGuire's (2001) six clusters of competencies (technical competencies, business competencies, knowledge management competencies, leadership competencies, social competencies, and intrapersonal competencies) has merit. The literature, the previous work of other strategy scholars, and the list contained in Table II provides a starting point for cluster content. While it could be argued that certain situations require specific features of strategic thinking, the relative commonality of identified behaviors across the industries interviewed suggests that a foundational model can be developed.

Limitations and implications

Limitations to this study include the possibility that the models may not be representative of those used across each industry. However, most participants were active in professional organizations and indicated that they thought their organization was "typical" in its approach to competency model development. Some had also used "best practices" from other models used in their industry in the most recent revision of their organization's model. More detailed studies should be undertaken between and within industries to compare competency models and related practices. These studies should consider potential differences in model development, components, and use. Given the concern of the participants about the development process matching the organization's culture, future studies should ensure that findings are considered across not only organizational, but national and social cultures.

Since the identification of the behaviors related to strategic thinking in the embedded models was subject to the judgment of the participants and their discussions with the researchers, some behaviors may have been missed. The possibility of this is small, given that all but two participants shared their entire models, but it is possible that strategic thinking behaviors were specified in these competency models below the job levels given to us. Given the need for strategic thinking at multiple levels in organizations (Bennis, 1994; Liedtka and Rosenblum, 1996; Zabriskie and Huellmantel, 1991), the research called for above should also inquire as to the inclusion (or lack thereof) of strategic thinking competencies at multiple organizational levels. Specifically, the assessment of strategic thinking related to the identification of high-potentials should be queried.

A novelty this study brings to the field of strategic management is the empirically based identification of how strategic thinking is assessed in organizations. We have identified the organization, uses, and content of competency models in use for assessing for strategic thinking, filling a gap in the literature deemed essential over 25 years ago for understanding why and how organizations behave and perform (Hambrick, 1989). These models advance the identification of strategic thinking competency beyond single words by detailing what behaviors are associated, why, and how they contribute to organizational outcomes. The models also point to the potential for the creation of a collective foundational competency model for strategic thinking.

The models also have implications for the further development of strategy theory. Descriptions of the behaviors suggest the integration of strategic thinking throughout the strategic management process, as part of planning and implementation, as well as on-going alignment. This offers extended opportunities for future theory development to consider the role of strategic thinking across organizational processes and over time.

In addition to contributing to the strategy literature, the study makes suggestions regarding the literature related to competency and competency development. Specifically, theory regarding competency model initiation, use and revision is noted as lacking and various considerations to its development noted. Similar to the recommendations regarding strategic thinking, opportunities are identified to link competency modeling with other organizational theories and practices.

The study contributes to the practitioner literature by identifying how competency models related to strategic thinking are developed and used across the spectrum of talent management activities. The various formats uncovered offer ideas for arraying and communicating competency model specifics in organizations. The details of the development process and related advice provide practitioners with options to consider in developing or refining existing models. Finally, the identification of model content as well as content gaps provides ideas for behaviorally specific statements that reflect the broad range of use of strategic thinking in organizations.

Competency modeling has been discussed in the literature for the past 40 years. During most of that time, the strategy literature has called for improvements to the strategic thinking of organizational leaders. Competency models in use to assess strategic thinking identify the behaviors organizations consider essential; exploring them opens a door of understanding why gaps in strategic thinking exist and provides a framework for improving the practice of strategic thinking.

References

- Atkins, A. and Cone, J. (2014), "Strategy by design", *Rotman Management*, January, pp. 111-114.
- Bates, D.L. and Dillard, J.E. Jr (1993), "Generating strategic thinking through multi-level teams", *Long Range Planning*, Vol. 26 No. 5, pp. 103-110.
- Bennis, W. (1994), *On Becoming a Leader*, Persus, Reading, MA.
- Bonn, I. (2001), "Developing strategic thinking as a core competency", *Management Decision*, Vol. 39 No. 1, pp. 63-71.
- Bonn, I. (2005), "Improving strategic thinking: a multilevel approach", *Leadership and Organizational Development Journal*, Vol. 26 Nos 5-6, pp. 336-354.

- Boyatzis, R.E. (1982), *The Competent Manager: A Model for Effective Performance*, John Wiley and Sons, New York, NY.
- Boyatzis, R.E. (2008), "Competencies in the 21st century", *Journal of Management Development*, Vol. 27 No. 1, pp. 5-12.
- Boyatzis, R.E. (2009), "Competencies as a behavioral approach to emotional intelligence", *Journal of Management Development*, Vol. 28 No. 9, pp. 749-770.
- Buford, J.A. Jr and Lindner, J.R. (2002), *Human Resource Management in Local Government: Concepts and Applications for HRM Students and Practitioners*, South-Western College Publishing, Cincinnati, OH.
- Caldwell, D.F. and O'Reilly, C.A. (1990), "Measuring person-job fit with a profile-comparison process", *Journal of Applied Psychology*, Vol. 75 No. 6, pp. 648-657.
- Campion, M.A., Fink, A.A., Rugegeberg, B.J., Carr, L., Phillips, G.M. and Odman, R.B. (2011), "Doing competencies well: best practices in competency modeling", *Personnel Psychology*, Vol. 64 No. 1, pp. 225-262.
- Creswell, J.W. (2013), *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 4th ed., Sage, Los Angeles, CA.
- Daghir, M.M. and Al Zaydie, K.I.M. (2005), "The measurement of strategic thinking type for top managers in Iraqi public organizations – cognitive approach", *International Journal of Commerce & Management*, Vol. 15 No. 1, pp. 34-46.
- Dragoni, L., Oh, I., Vankatwyk, P. and Tesluk, P.E. (2011), "Developing executive leaders: the relative contribution of cognitive ability, personality, and the accumulation of work experience in predicting strategic thinking competency", *Personnel Psychology*, Vol. 64 No. 4, pp. 829-864.
- Essery, E. (2002), "Reflecting on leadership", *Works Management*, Vol. 55 No. 7, pp. 54-57.
- Fleishman, E.A., Wetrogan, L.I., Uhlman, C.E. and Marshall-Mies, J.C. (1995), "Abilities", in Peterson, N.G., Mumford, M.D., Borman, W.C., Jeanneret, P.R. and Fleishman, E.A. (Eds), *Development of Prototype Occupational Information Network Content Model*, Utah Department of Employment Security, Salt Lake City, UT, pp. 10.1-10.39.
- Garavan, T.N. and McGuire, D. (2001), "Competencies and workplace learning: some reflections on the rhetoric and the reality", *Journal of Workplace Learning*, Vol. 13 Nos 3-4, pp. 144-163.
- Goldman, E.F. (2005), "Becoming an expert strategic thinker: the learning journey of healthcare CEOs", ProQuest Dissertations and Theses Database, UMI No. 3181551, Washington, DC.
- Goldman, E.F., Scott, A.R. and Follman, J.M. (2015), "Organizational practices to develop strategic thinking", *Journal of Strategy and Management*, Vol. 8 No. 2, pp. 155-175.
- Green, P.C. (1999), *Building Robust Competencies*, Jossey-Bass, San Francisco, CA.
- Guion, R.M. (1991), *Personnel Assessment, Selection and Placement*, Consulting Psychological Press, Palo Alto, CA.
- Haines, S. (2011), "Best practice assessment", available at: www.hainescentre.com/stt/stt-assessment.html (accessed July 25, 2015).
- Hambrick, D. (1989), "Putting top managers back in the strategy picture", *Strategic Management Journal*, Vol. 10 No. S1, pp. 5-15.
- Hambrick, D.C. and Mason, P.A. (2001), "Upper echelons: the organization as a reflection of its top managers", *Academy of Management Review*, Vol. 9 No. 2, pp. 193-206.
- Hanford, P. (1995), "Developing director and executive competencies in strategic thinking", in Garratt, B. (Ed.), *Developing Strategic Thought: Reinventing the Art of Direction-Giving*, McGraw-Hill, London, pp. 157-186.

- Hollenbeck, G.P., McCall, M.W. and Silzer, R.F. (2006), "Leadership competency models", *The Leadership Quarterly*, Vol. 17 No. 4, pp. 398-413.
- Hughes, R.L. and Beatty, K.C. (2005), *Becoming a Strategic Leader: Your Role in Your Organization's Enduring Success*, Jossey-Bass, San Francisco, CA.
- Kaslow, N.J. (2004), "Competencies in professional psychology", *American Psychologist*, Vol. 59 No. 8, pp. 774-781.
- Kouzes, J.M. and Posner, B.Z. (1988), *The Leadership Challenge*, Jossey-Bass, San Francisco, CA.
- Kunnanatt, J.T. (2008), "Emotional intelligence: theory and description: a competency model for interpersonal effectiveness", *Career Development International*, Vol. 13 No. 7, pp. 614-629.
- Lawler, E.E. (1994), "From job based to competency-based organizations", *Journal of Organizational Behavior*, Vol. 15 No. 3, pp. 3-15.
- Liedtka, J.M. (1998), "Strategic thinking: can it be taught?", *Long Range Planning*, Vol. 31 No. 1, pp. 120-129.
- Liedtka, J.M. and Rosenblum, J.W. (1996), "Shaping conversations: making strategy, managing change", *California Management Review*, Vol. 29 No. 1, pp. 141-157.
- Lucia, A.D. and Lepsinger, R. (1999), *The Art and Science of Competency Modelling*, Jossey-Bass, San Francisco, CA.
- Luthans, F., Hodgetts, R.M. and Rosenkrantz, S.A. (1988), *Real Managers*, Ballinger, Cambridge, MA.
- Mansfield, R.S. (1996), "Building competency models: approaches for HR professionals", *Human Resource Management*, Vol. 35 No. 1, pp. 7-18.
- March, S.J. and Bishop, T.R. (2014), "Competency modeling in an undergraduate management degree program", *Business Education & Accreditation*, Vol. 6 No. 2, pp. 47-60.
- Mason, J. (1986), "Developing strategic thinking", *Long Range Planning*, Vol. 19 No. 3, pp. 72-80.
- McClelland, D.C. (1973), "Testing for competence rather than for 'intelligence'", *American Psychologist*, Vol. 28 No. 1, pp. 1-14.
- McClelland, D.C. (1998), "Identifying competencies with behavioral-event interviews", *Psychological Science*, Vol. 9 No. 5, pp. 331-339.
- Merriam, S.B. (2009), *Qualitative Research: A Guide to Design and Implementation*, Jossey-Bass, San Francisco, CA.
- Merriam, S.B. and Associates (2002), *Qualitative Research in Practice: Examples for Discussion and Analysis*, Jossey-Bass, San Francisco, CA.
- Miles, M.B. and Huberman, A.M. (1994), *Qualitative Data Analysis: An Expanded Sourcebook*, 2nd ed., Sage, Thousand Oaks, CA.
- Mintzberg, H. (1994), "The fall and rise of strategic planning", *Harvard Business Review*, Vol. 72 No. 1, pp. 107-114.
- Mintzberg, H., Ahlstrand, B. and Lampel, J. (1998), *Strategy Safari: A Guided Tour Through the Wilds of Strategic Management*, Free Press, New York, NY.
- Mirabile, R.J. (1997), "Everything you wanted to know about competency modeling", *Training & Development*, Vol. 51 No. 8, pp. 73-77.
- Morgeson, F.P., Delaney-Klinger, K., Mayfield, M.S., Ferrara, P. and Campion, M.A. (2004), "Self-presentation processes in job analysis: a field experiment investigating inflation in abilities, tasks, and competencies", *Journal of Applied Psychology*, Vol. 89 No. 4, pp. 674-686.

- Mumford, M.D., Marks, M.A., Connelly, M.S., Zaccaro, S.J. and Reiter-Palmon, A. (2000), "Development of leadership skills: experience and timing", *Leadership Quarterly*, Vol. 11 No. 1, pp. 87-114.
- Nuntamanop, P., Kauranen, I. and Igel, B. (2013), "A new model of strategic thinking competency", *Journal of Strategy and Management*, Vol. 6 No. 3, pp. 242-264.
- Pearlman, K. and Barney, M.F. (2000), "Selection for a changing workplace", in Kehoe, J.G. (Ed.), *Managing Selection in Changing Organizations*, Jossey-Bass, San Francisco, CA, pp. 3-72.
- Pellegrino, K.C. (1996), "Strategic thinking ability: cognitive and personality effects", ProQuest Dissertations and Theses Database, UMI No. 9627285, Ruston, LA.
- Pettigrew, A., Thomas, H. and Whittington, R. (Eds) (2002), *Handbook of Strategy and Management*, Sage, London.
- Pisapia, J., Reyes-Guerra, D. and Coukos-Semmel, E. (2005), "Developing the leader's strategic mindset: establishing the measures", *Leadership Review*, Vol. 5 No. 1, pp. 41-68.
- Prahalad, C.K. and Hamel, G. (1990), "The core competence of the corporation", *Harvard Business Review*, Vol. 68 No. 3, pp. 79-91.
- Rajadhyaksha, U. (2005), "Managerial competence: do technical capabilities matter?", *Vikalapa*, Vol. 30 No. 2, pp. 47-56.
- Rosche, A.L.H.W. (2003), "Personality correlates of strategic thinking in an organizational context", ProQuest Dissertations and Theses Database, UMI No. 3088944, San Francisco, CA.
- Sandberg, J. (2000), "Understanding human competence at work: an interpretative approach", *Academy of Management Journal*, Vol. 43 No. 1, pp. 9-25.
- Sanchez, J.I. and Levine, E.L. (2009), "What is (or should be) the difference between competency modeling and traditional job analysis?", *Human Resource Management Review*, Vol. 19 No. 2, pp. 53-63.
- Sashkin, M. and Sashkin, M.G. (2003), *Leadership that Matters*, Berrett-Koehler, San Francisco, CA.
- Schippmann, J.S. (2010), "Competencies, job analysis, and the next generation of modeling", in Scott, J. and Reynolds, D. (Eds), *Handbook of Workplace Assessment*, John Wiley & Sons, San Francisco, CA, pp. 197-231.
- Schoemaker, P.J.H., Krupp, S. and Howland, S. (2013), "Strategic leadership: the essential skills", *Harvard Business Review*, Vol. 91 Nos 1-2, pp. 131-134.
- Shanteau, J. (1988), "Psychological characteristics and strategies of expert decision makers", *Acta Psychologica*, Vol. 68 No. 1, pp. 203-215.
- Sherman, R.O., Bishop, M., Eggenberger, T. and Karden, R. (2007), "Development of a leadership competency model", *Journal of Nursing Administration*, Vol. 37 No. 2, pp. 85-94.
- Spencer, L.M. Jr and Spencer, S.M. (1993), *Competencies at Work: Models for Superior Performance*, John Wiley & Sons, New York, NY.
- Steptoe-Warren, G., Howat, D. and Hume, I. (2011), "Strategic thinking and decision making", *Journal of Strategy and Management*, Vol. 4 No. 3, pp. 238-250.
- Sternberg, R.J. (1994), "Cognitive conceptions of expertise", *International Journal of Expert Systems*, Vol. 7 No. 1, pp. 1-12.
- Stone, T.H., Webster, B.D. and Schoonover, S. (2013), "What do we know about competency modeling?", *International Journal of Selection and Assessment*, Vol. 21 No. 3, pp. 334-338.
- Tovstiga, G. (2010), *Strategy in Practice: A Practitioner's Guide to Strategic Thinking*, John Wiley, Chichester.

- Vakola, M., Soderquist, K.E. and Prastacos, G.P. (2007), "Competency management in support of organisational change", *International Journal of Manpower*, Vol. 28 Nos 3-4, pp. 260-275.
- Weinert, F.E. (2001), "Concept of competence: a conceptual clarification", in Rychen, D.S. and Salganik, L.H. (Eds), *Defining and Selecting Key Competencies*, Hogrefe & Huber, Göttingen, pp. 45-65.
- Yukl, G. (2012), *Leadership in Organizations*, 8th ed., Prentice Hall, Upper Saddle River, NJ.
- Zabriskie, N.B. and Huellmantel, A.B. (1991), "Developing strategic thinking in senior management", *Long Range Planning*, Vol. 24 No. 6, pp. 25-33.

Corresponding author

Ellen Goldman can be contacted at: egoldman@gwu.edu

This article has been cited by:

1. TehseenShehnaz, Shehnaz Tehseen, AhmedFarhad Uddin, Farhad Uddin Ahmed, QureshiZuhaib Hassan, Zuhaib Hassan Qureshi, UddinMohammad Jasim, Mohammad Jasim Uddin, T.Ramayah, Ramayah T.. Entrepreneurial competencies and SMEs' growth: the mediating role of network competence. *Asia-Pacific Journal of Business Administration*, ahead of print. [[Abstract](#)] [[Full Text](#)] [[PDF](#)]
2. GhasemiSasan, Sasan Ghasemi, ShahinArash, Arash Shahin, SafariAli, Ali Safari. 2018. Proposing an improved economic value model for human resource valuation. *International Journal of Productivity and Performance Management* 67:9, 2108-2125. [[Abstract](#)] [[Full Text](#)] [[PDF](#)]
3. GoldmanEllen F., Ellen F. Goldman, SchlumpfKaren S., Karen S. Schlumpf, ScottAndrea Richards, Andrea Richards Scott. 2017. Combining practice and theory to assess strategic thinking. *Journal of Strategy and Management* 10:4, 488-504. [[Abstract](#)] [[Full Text](#)] [[PDF](#)]
4. 2016. How to enhance strategic thinking. *Human Resource Management International Digest* 24:7, 38-40. [[Abstract](#)] [[Full Text](#)] [[PDF](#)]
5. Süleyman Ağraş. The Role of Strategic Thinking Capability of Leaders in Solving Organizational Conflicts 131-147. [[Crossref](#)]