

# Building Foresight Capacity: Toward a Foresight Competency Model

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## Abstract

This article introduces the Foresight Competency Model, which addresses the basic question of what one ought to be able to do as a professional futurist. It describes how other fields have used competency models to define what their professionals do, documents how the Association of Professional Futurists (APF) developed this model, explains the interrelated features of the model, and suggests ways that organizations can use the model to enhance the foresight capacity of their talent.

## Keywords

foresight, competency, professional, futurist, capability

## Introduction

How *competent* are you in anticipating and shaping the future? How *competent* are you in helping teams do the same, as a manager or a consultant? Nearly three decades ago, the futures field began to ask itself these questions related to individual, organizational, social, and national foresight (Slaughter 1990, 1996). After a decade of downsizing and reengineering, others began to ask if business was ready to compete for the future. If so, then it would need to focus on its core *competence* (Hamel and Prahalad 1994; Prahalad and Hamel 1990). This came to be known as a resource-based view, or how well a firm combines its internal resources to create a sustainable advantage (Barney 1991, 1997). The most important resource that any organization has to create the future is its intangible assets—its human capital. As well, information and communication technology (ICT)–supported foresight, from big data to complex modeling, is effective to the degree it is applied by competent practitioners (Keller and von der Gracht 2014). Following this premise, some argue that *foresight* itself is a core

competence to manage the future in our knowledge economy (Major et al. 2001; Tsoukas and Shepherd 2004).

In this sea of competence thinking, futurists began to consider if they were building the foresight capacity of leadership within the public and private sector. Some began to refine “managerial foresight” or “foresight style” instruments (Amsteus 2008, 2011a, 2011b; Gary 2009; van der Laan and Erwee 2013), others documented “corporate foresight” practices (Daheim and Uerz 2008), while still others developed organizational foresight maturity models (Grim 2009; Rohrbeck 2011). By 2012, many applied-futures

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consultancies had moved beyond providing trends to government or business to building *foresight capacity* among client teams through participatory and experiential futures (Candy 2010; Miller 2008; Raford 2012).

In this context, where empowering foresight capacity has been established, the Association of Professional Futurists (APF) released a “Foresight Competency Model” (Hines 2016). The model is a product of a task force of twenty-three futurists from four continents working on issues in professionalizing foresight that had been identified in Delphi studies and competitive industry analysis (Gary and von der Gracht 2015; Hines and Gold 2013).

Beyond stimulating further discussion among its nearly five hundred members on what it takes to be a professional futurist, APF intends to use the model to shape its internal approach to career and professional development. The purpose of this multicluster model is to shape how futurists view their own knowledge, skills, and abilities as they serve others as professionals.

The Foresight Competency Model addresses the basic question of what one ought to be capable of doing as a professional futurist. Most practicing futurists could probably tick off a list of skills, tools, methods, concepts, and processes that they would consider useful. There have also been more formal, but piecemeal efforts to describe the characteristics of futurists and what constitutes good futures work (Coates 2000; Grim 2009; Hines 2009). Various academic programs also have their perspectives on what should be taught to futurists, and have identified concepts in common (Bishop 2016). The Foresight Competency Model builds on this prior work, and recognizes its model cannot be static or fixed, but must likewise evolve along with the field it describes.

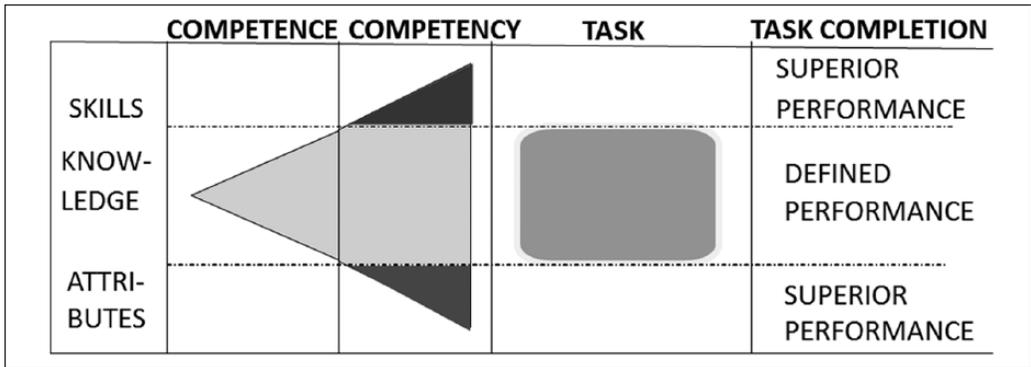
This article describes how other fields have used competency models to define what professionals do, documents how APF came to develop this model, explains the interrelated features of the model, and suggests ways that organizations can use the model to enhance their talent’s foresight capacity.

## What Is Professional Competence?

“Professions” can be broadly defined as occupations that are at least nominally self-governing, require a level of knowledge, and have traditions of autonomy, ethics, and independent judgment (Parkinson and Chew 2016). In return for the advantages of being a profession, there is an assumption that professionals are adequately proficient and that they exercise this proficiency in a fair and ethical manner (Lester 2016). Professional associations are, therefore, concerned with, among other things, the conditions for recognizing members as fit to practice and with maintaining a minimum standard of ongoing competence (Sutton 2016). Associations have traditionally fulfilled this function by stipulated education and training routes, with a more recent trend toward defining the competencies for practice (Lester and Costley 2010). While the futures field is not yet a profession in any formal sense, there is a widespread concern that those who engage in this practice raise their level of professionalism or competence. This section, therefore, defines professionalism in foresight by turning to the literature to define professional competence, foresight competence, and competency models.

### Competences and Competencies

The literature is elusive in its definition of the concept of competence and its distinction from competency and capability. The notion of competence was first described as “enduring personal characteristics which best predict on-the-job performance as opposed to education and intelligence measures in use at that time” (McClelland 1973, 7). In terms of the theory of action and job performance, which is the basis of the concept of competency, performance is optimized when a person’s abilities match the responsibilities and tasks of particular job demands and the context of the organizational environment (Boyatzis 2008). “Job demands” are the responsibilities of a role and the tasks that need to be performed to fulfill it.



**Figure 1.** Individual competence/competency typology (van der Laan 2010).

Hirsch and Strebler (1994) provide a typology that illustrates three features occurring in the context of competences: (1) its association with a role and the organization within which it exists, (2) its association with performance, and (3) specific behaviors that can be observed. This typology remains a reference point for current research that associated these features with Boyatzis’s notion of task completion and superior performance (Hirsch and Strebler 1994).

Due to the increasing complexity of a broad cross-section of existing, new, and emerging roles of the future, additional attributes are being associated with superior performance, and these are holistically referred to as a competency or, in the plural, competencies (Lester 2014; Sanghi 2016). Definitions of a competence and competency vary, primarily in terms of the use of terminology relating to whether a competence is a competency or capability or whether capabilities, abilities, competence, and competency are different concepts. Indeed, most prominent competence authors including Zemke, Spencer, and Boyatzis recognize that there is a lack of uniform definition (Boyatzis 2008; Lester 2014; Sanghi 2016; Spencer and Spencer 2008; Zemke 1982).

For this discussion, a competence is defined as an ability made up of skills, knowledge, and attributes that support an underlying intent in relation to effective performance in a job and task completion (Boyatzis 2008; Sanchez 2004). Framing competence in this manner not only aligns with contemporary understanding,

but it is supported by empirical studies (Boyatzis and Saatcioglu 2008; Lester 2016; Rhee 2008; Sanghi 2016).

Due to the importance being placed on organizations needing more than task-specific competence to reach outcomes in increasingly competitive environments, additional underlying attributes are being associated with superior performance. These are holistically referred to as a competency or, in the plural, competencies (Boyatzis 2008; Bravenboer and Lester 2016; Lester 2014; Spencer and Spencer 2008). Spencer (1997, 7) illustrates this difference by stating that a “competency is any individual characteristic that distinguishes superior from average performance.” Figure 1 illustrates how the literature differentiates a competence from a competency in terms of its relationship to task completion and performance.

J. Winterton and R. Winterton (1999) note that it is perhaps more accurate to refer to degrees of competence from where an individual meets a threshold of defined parameters of a task but can be developed further for greater knowledge, understanding, and skills—hence, development of individual competency. Boyatzis (2008) lists research supporting ways in which competences and competencies can be developed to strive toward maximum performance. These include formal education in addition to experience and cognitive development. Competences can be developed in adults (Portnoy 1999; Rhee 2008; van der Laan and Erwee 2013) and, for the purposes of this article, the abilities, knowledge, and understanding that lead to superior performance

(and that which is not necessarily stipulated in terms of the task) are referred to as individual competency.

### *Foresight Competence*

Being able to identify emergent patterns in an organization's future, acknowledging the complexity of its environment, and understanding the system within which it operates are competencies that differentiate outstanding from average performance in individuals (Boyatzis 2008). L. Spencer and S. Spencer (2008) and L. Spencer (1997) agree and include "time horizon" as one of the dimensions illustrating progression from lower to higher levels of competency (the other being intensity, complexity, and breadth of impact). These competencies can also be regarded as part of a construct supporting the notion of a foresight competency model that may differentiate successful futures work from those meeting with less success. It is for this reason that this article outlines the process, design, and consideration of developing such a model so as to guide and inform the development of foresight practitioners and their further growth.

It is from this individual cognitive perspective that the Foresight Competency Model was developed as opposed to a collective foresight process or organizational capability. Foresight at an individual level focuses on the mental processes—both rational and intuitive—used to develop images of the future as a form of cognitive intelligence. Individual foresight competence, therefore, complements the institutionalized technique, process, or capability of foresight in its aggregated form.

Individual foresight is an innate individual cognitive ability that can be developed (Amsteus 2008; Hayward 2005; Reid and Zyglidopoulos 2004; Slaughter et al. 2007; Tsoukas and Shepherd 2004). Many authors concur that foresight is a critical and desirable individual competency (Alsan 2008; Boyatzis and Saatcioglu 2008; Buchen 2005; Chermack 2007; Chia 2004; Costanzo and MacKay 2009; Day and Schoemaker 2005; de Geus 1997; Hamel 2009; Kouzes and Posner 2002; Major et al. 2001; Montgomery 2008; Tsoukas and

Shepherd 2004; Yukl 2006). Ahuja et al. (2005) illustrate that all major theories of strategy related to competitive advantage assume that strategy-level managers must all have some degree of foresight. This is equally true for all those engaged in professional activities related to anticipating the future beyond statistical extrapolations of past data and trends. Futures thinking is fundamental to foresight as a dynamic cognitive ability fulfilled by individuals rather than just being regarded as a property that organizations have (Jarzabkowski et al. 2007). As such, the development of competencies that stimulate optimal performance in the facilitation and participation of foresight-orientated activities is crucial to their perceived success and continued usage and development.

### *Competency Models*

There is general agreement that a competency model is a "descriptive tool that identifies the competencies needed to operate in a specific role within a(n) job, occupation or industry" (Ennis 2008, 5). Competency models seek to describe the skills, knowledge, and attributes associated with work performance that "fit" the role.

Competency models are rational and descriptive by nature. They seek to describe measurable, identifiable competencies that collectively account for effective and adequate performance, the extent of which is known. They are usually structured hierarchically and often pictorially represented (Ennis 2008).

Competency modeling can be a highly effective and compelling approach to developing professional capacity and performance (Campion et al. 2011; Sanghi 2016; Schippmann et al. 2000; Stevens 2013). The Employment and Training Administration (ETA) Competency Model Framework (Ennis 2008) illustrates a well-evidenced and effective framework. It considers personal, academic, workplace, industry-wide, and occupation-specific levels of competency, and acknowledges "different levels of proficiency for the various behavioral descriptors" (Ennis 2008, 9). The value, Ennis notes, is that competency models encompass a holistic approach that can estimate the competences an

**Table 1.** Foresight Competency Model Timeline.

2011	Future of Foresight Project launches; commissions three working papers on the future of the field.
2012	Town Hall Meeting in Toronto (parallel to the World Future Society Conference).
2012	APF publishes <i>Futures of Futures</i> Book.
2013 (July 19)	APF Professional Development Day on Professionalization, Chicago.
2013 (November)	Professionalization Task Force approved: "Exploring potential roles for APF in the professionalization of foresight."
2014 (November)	APF Professionalization Task Force Report approved by Board, including recommendation to develop Competency Model.
2015 (January)	Competency Model team begins work.
2015 (July 25)	A draft of the core foresight competencies was presented at a San Francisco APF Town Hall Meeting (parallel to the World Future Society Conference).
2015 (April)	Competency Model Story in APF Compass.
2016 (February)	Presentation of Draft Model to APF Board.

Note. APF = Association of Professional Futurists.

individual has and those that still need to be developed. Applied in this fashion rather than a clinical recruitment tool or performance measurement, competency models inspire authenticity and confidence.

The function, therefore, is developmental for those aspiring to a particular role or those wishing to improve their professional practice. Seen from the individual's perspective, competency models are powerful career development tools (Campion et al. 2011; Ennis 2008; Sanghi 2016). In summary, competency models make worthwhile contributions to professional development imperatives and help more clearly define competent and meaningful work practices.

### Why a Competency Model?

There are many ways to think about what it takes to be a professional futurist. APF first explored the future of the practice with a scenario project that helped frame its strategy, structure, and branding (Hines 2003). A decade later, as new questions emerged about the future of the field, consideration was given to updating that project. The APF Board commissioned three working papers on the future of the field (Bishop et al. 2017), hosted Town Hall Meetings, and held a professional development day on the Future of Foresight. In

November 2013, Hines's proposal for a task force for "Exploring potential roles for APF in the professionalization of foresight" was approved. The goal of this Professionalization Task Force was to synthesize learning to date around professionalization and explore options for how APF might cultivate further professionalism in its members. The intent was to raise appropriate issues and questions and to provide recommendations or options for consideration rather than a definitive answer on what to do. Table 1 highlights the timeline of activities.

The Professionalization Task Force consisted of eleven core members supplemented by another dozen "extended" members. One of the first items in the initial task force work plan was to establish a view of the field. Thus, five "task teams" were proposed—four actually formed—to explore different aspects of the field, of which one was on the possibility of developing a competency model. Table 2 illustrates how the teams were charged with mapping out recommendations on how to proceed with each task.

Team 1 recommended that "the APF Board commission a team to draft a competency model for professional futurists' competencies." They noted that competency models are used in Human Resources (HR), education, and by associations to map and visualize

**Table 2.** APF Professionalization Task Teams.

Team	Task
1.	Develop a foresight competency model.
2.	Characterize the specialized work grounded in a body of theoretically based, discretionary knowledge and skills.
3.	Develop a professional development pathway—a formal training program to provide qualifying credentials (team did not form).
4.	Develop a code of ethics.
5.	Map the foresight ecosystem.

Note. APF = Association of Professional Futurists.

competencies that are necessary to perform professionally and successfully in a specific occupation or field. Importantly, the task team suggested that the model must continuously evolve based on changes in the practice and the environment.

The task team recommendations, including developing a competency model, were presented to the APF Board and approved in November 2014. The process recommendations of the competency model (CM) task team were:

- Identify previous attempts at CMs in the field.
- Identify models from other fields that can serve as a guideline or blueprint, learn especially from experiences by other associations.
- Identify tools and approaches for creating competency maps, potentially arrange to be supported by, for example, Competency Model Clearing House.
- Draft the competency map with a selected group.
- “Test drive” the competency map with beta users, for example, students, new members.
- Create buy-in from stakeholders.
- Finalize and roll out the competency map.

### *Approach to Developing the Model*

With the work endorsed and broadly outlined, a CM team consisting of this article’s authors—two from the United States, one from Germany,

and one from Australia—was formed. Team members investigated different approaches to developing CMs and decided on the U.S. Department of Labor/Employment and Training Administration (DOL/ETA; 2015) approach. The team felt it offered an excellent blend of comprehensiveness, a clear process, and user-friendly templates. Its website also includes CMs from more than two dozen industries. It was recognized that using a U.S.-based approach might create the need for geographic customization of the model later in the process.

The CM team eventually adopted the definition of the DOL/ETA approach of a competency as,

a cluster of related knowledge, skills, and abilities that affects a major part of one’s job (a role or responsibility), that correlates with performance on the job, that can be measured against well-accepted standards, and that can be improved via training and development. (U.S. DOL/ETA 2015)

The DOL/ETA approach organizes competencies into nine tiers or clusters in a pyramid structure, moving from general to discipline-specific. Three foundational tiers include personal effectiveness, academic, and workplace competencies that apply to a variety of disciplines. The fourth tier or cluster, referred to as industry-wide technical competencies, are the specific core competencies that are central and specific to doing the core work of the discipline—in our case, the foresight core competencies. The fifth tier or cluster describes sector competencies—how a discipline

**Table 3.** Definitions.

Knowledge domain/ discipline	Futures Studies	Was not defined, as it was not directly applicable to the competency model, which is aimed at the practice, but some participants were concerned about losing the identity of futures studies.
Practice	Foresight	Foresight helps individuals, organizations, and communities to develop possible futures to make better decisions in the present.
Practitioner	Professional Futurist	Professional futurists explore the future to help clients and stakeholders understand, anticipate, and influence the future.

organizes its work into different sectors. Tiers six through nine involve job specializations within the fifth-tier sectors.

While the pyramid and tier structure proved useful to the CM team in developing the CM, the APF Board found that structure unwieldy and later redesigned the competencies using the nomenclature of clusters rather than tiers. In addition to the development of the CM, the CM team took on the related tasks of,

- Developing explicit definitions for key field-related terms.
- Creating a visual map of the foresight ecosystem.
- Fleshing out what is meant by types of futurist careers, that is, consulting, organizational, and academic.

A question quickly emerged around “competencies for what?” What is the field or practice for which the competencies are being characterized? Thus, the tricky question of names and definitions of the field and its workers emerged, as it often has (Hines 2012, 18–19). After several rounds of discussion and revision, the recommendations are shown in Table 3.

As the CM team considered the definitions task, they realized that it would be useful to pursue the development of a foresight ecosystem map on a parallel path. The team enlisted graduate students from the University of Houston’s Foresight program to help with that task (Hines 2014). Mapping and visualizing related fields and disciplines and what they do proved to be a useful backdrop for thinking about what is unique to futurists. A key benefit

of thinking through related fields was to help the team clarify “what is us?”

Indeed, futurists are not the only profession dealing with the future. Others, such as policy or risk analysts, urban and strategic planners, decision scientists, and so on, do so without using the description of futurist. In addition to clarifying who futurists are, a larger goal of the Professionalization Task Force was to identify related fields to explore possibilities for collaboration. The term “ecosystem” was chosen deliberately to suggest that many disciplines are involved in exploring the future, each occupying different niches, although these sometimes overlap. The Task Force was quite insistent that the purpose behind the work was to build bridges between disciplines, not walls.

The DOL/ETA approach also provided an opportunity to refine the concept of futurist careers, because this work is intrinsic to Tiers 5 and 6—the sectors of the discipline and job hierarchy—which involve describing entry-level, associate, and senior levels of jobs within the sectors. The research uncovered more than three-dozen specific futurist job descriptions and enabled the team to craft generic types and levels of futurist jobs.

### *Using the DOL/ETA Process*

The DOL/ETA process is housed on a website ([https://www.careeronestop.org/competency\\_model/](https://www.careeronestop.org/competency_model/)). Table 4 highlights the key steps of their process for developing a CM, which the CM team followed.

After launching the background work in Step 1, the team moved into the work of defining the competencies. The team focused on six

**Table 4.** DOL/ETA Competency Model Process.

Step 1. Conduct research: gather and analyze background information.	<ul style="list-style-type: none"> <li>• Defining the industry;</li> <li>• Identifying the key occupations in the industry;</li> <li>• Analyzing the required KSAs;</li> <li>• Identifying and cataloging existing resources;</li> <li>• Aligning the KSAs defined in the resources to the building blocks framework.</li> </ul>
Step 2. Develop draft competency model framework	<ul style="list-style-type: none"> <li>• The draft competency model framework includes competency names with definitions and descriptions.</li> </ul>
Step 3. Gather feedback from industry representatives	<ul style="list-style-type: none"> <li>• Refine the draft model developed in Step 2 through input from subject matter experts and target users of the competency model.</li> </ul>
Step 4. Refine the competency model framework	<ul style="list-style-type: none"> <li>• Using industry experts as in Step 1, refine the draft model.</li> </ul>
Step 5. Validate the competency model framework	<ul style="list-style-type: none"> <li>• Competency model framework should be distributed widely to industry associations and their membership.</li> </ul>
Step 6. Finalize the model framework	

Note. DOL/ETA = Department of Labor/Employment and Training Administration; KSA = knowledge, skills, and ability.

sequential levels or clusters, essentially consolidating Tiers 6 to 9 relating to specific occupations into one tier. The team also decided to first focus on the key piece of the CM: the Tier 4 Industry Technical Competencies or the foresight core competencies. This tier or cluster (along with Tier 5 Job Categories) is the most differentiated part of the model specific to professional foresight. In addition to naming the high-level core competencies, the process recommends developing a small number (roughly 2–4) of subcompetencies for each. It is enough to describe these subcompetencies via bullet lists.

The team started with the framework used in the *Thinking about the Future* text (Hines and Bishop 2015) as that framework was originally developed in the mid-2000s with the assistance of APF in its professional development work. This framework is also a key part of Grim's (2009) Foresight Maturity Model, which was recommended by the CM Task Team as warranting consideration in the development of the CM. The core team debated, discussed, and modified, and developed a draft. This draft was shared with the larger Professionalization Task Force, which also generated extensive discussion. The essence of the six practices was intact, although there

were significant modifications. Table 5 lists the six competencies and their subcompetencies.

To illustrate how the competencies “show up” in practice, examples of common foresight methods relating to the competencies are shown in Table 6.

In all, eight versions of the foresight core competencies were produced before the team felt confident it had done the best job it could to reach consensus. A draft of the foresight core competencies was presented at an APF Town Hall Meeting in parallel with the 2015 World Future Society Conference in San Francisco. The model was discussed and questions were raised, but overall the reception to the proposed competencies was quite positive.

## Foresight Competency Model

Figure 2 depicts the Foresight Competency Model (FCM) built around a center circle of the six foresight core competencies: framing, scanning, futuring, designing, visioning, and adapting. This central node is undergirded by a base of three foundational clusters: personal, academic, and workplace competencies. In turn, two professional competency clusters are above the central foresight competencies: sector and

**Table 5.** Six Foresight Competencies.**1. Framing: Scoping the project, defining the focal issue and current conditions.**

## Scoping

- Defining and bounding the topic, specifying the geography and time frame.

## Mapping

- Locating the topic in its context, system, assumptions, and worldview; including key drivers of change; this may include a visual map as well as categories for initial research.

## Retrospecting

- Understanding the topic or systems history, particularly back to the last major discontinuity.

## Assessing

- Diagnosing audience/client knowledge identifying stakeholders, modes of learning, and receptivity; preparing engagement processes and presentations appropriately.

**2. Scanning: Exploring signals of change as indicators of the futures.**

## Exploring

- Finding signals of change that affect the topic or system, a.k.a. “scanning hits.”

## Collecting

- Gathering the scanning hits into a structured inventory.

## Analyzing

- Evaluating the scanning hits using agreed-upon criteria.

**3. Futuring: Identifying a baseline and alternative futures.**

## Letting Go

- Suspending preconceived notions of the future to challenge assumptions to see the future with fresh eyes.

## Converging

- Forecasting a baseline future or “most likely” scenario from current trends, issues, and plans, along with its assumptions and associated risk.

## Diverging

- Generating alternative futures or scenarios based on wildcards, ideas, systematically derived alternative projections and images built around key drivers and uncertainties, challenges, opportunities, and aspirations.

**4. Visioning: Developing and committing to a preferred future.**

## Sensemaking

- Considering the implications suggested by past, present, and alternative futures.

## Committing

- Making a choice of one’s strategic direction/preferred future and committing to act on it.

## Goal-Setting

- Setting specific, tangible goals to create a preferred future.
- Facilitating processes to help a group agree on shared goals to create a preferred future.
- Developing stretch targets, or audacious goals, to achieve the vision.

**5. Designing: Developing prototypes, offerings, or artifacts to achieve the vision and goals.**

## Facilitating

- Guiding interpersonal interactions to achieve desired foresight results.

## Prototyping

- Creating activities or artifacts to explore baseline and alternative futures and visions.

**6. Adapting: Enabling organizations to generate options to alternative futures.**

## Strategizing

- Reflecting on paths one could take over time, weighing their pros and cons.
- Bridging goals and the present state with strategies, options, tactics, and actions.
- Communicating alternative futures, vision, goals, and strategic options to capture stakeholder attention and influence their actions.
- Monitoring indicators or precursors to indicate how uncertainty is resolving to move toward specific scenarios.
- Refreshing the process every few years or as needed.

**Table 6.** Foresight Competencies and Related Methods.

Framing	domain mapping, integral futures, organizational foresight audit, sensemaking
Scanning	environmental scanning, bellwether analysis, CLA, content analysis, cross-impact analysis, data mining, emerging issues analysis, leading/lagging indicators, stakeholder analysis, trend identification and analysis, patent analysis
Futuring	Delphi, gaming/simulation, historical analogy/pattern recognition, personas, predictive markets, road mapping, scenarios (2 × 2, archetypes, backcasting, incasting, morphological, etc.), statistical modeling (time series), systems analysis, technology forecasting, TRIZ
Visioning	appreciative inquiry, creative imagery, Futures Search, futures wheel, implications analysis, visualization (e.g., mental time travel)
Designing	artifacts, decision modeling, personas, prototyping, risk analysis, simulations, strategic planning, technology assessment
Adapting	action research, artifacts, change management, coaching, consulting, foresight maturity model, issues management

Note. CLA = causal layered analysis; TRIZ = Theory of the Resolution of Invention-Related Tasks (Russian literal translation).

occupational roles. The six competencies and the job sector and specializations were the primary focus of APF work teams. The foundational supporting competencies were chiefly selections from drop-down menus common to other CMs (an exception to this with the academic competencies will be described below).

### Foundational Competencies

The *foundational competencies* (Tiers 1–3 in the DOL/ETA approach) form the foundation needed for one to be ready to enter the workplace.

- *Personal effectiveness competencies* are competencies essential for all life roles. These “soft skills” are generally learned in the home or community and reinforced and honed at school and in the workplace.
- *Academic competencies* are critical competencies primarily learned in primary, secondary, and tertiary school settings. They include cognitive functions and thinking styles, and generally apply to all industries and occupations.
- *Workplace competencies* represent motives, traits, and interpersonal and self-management styles that are generally applicable to a large number of occupations and industries.

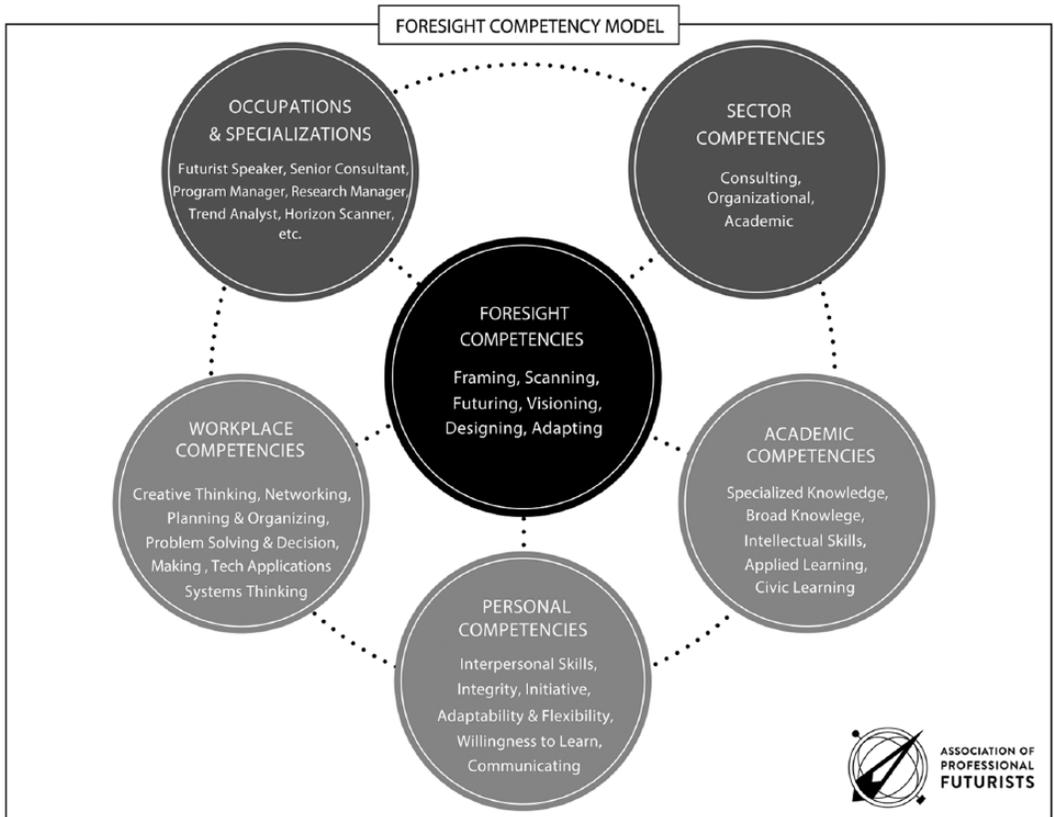
### Professional Competencies

The *Foresight Sector Competencies* (Tier 5 in the DOL/ETA approach) represent broad sectors of foresight activities. The APF team sorted the foresight job market into three sectors: consulting, organizational, and academic. This breakdown was used for many years in the World Future Society’s Professional Development Forum and has also been adopted by APF. To test the categorization, and also to address the process task of identifying job specializations, the team put out a call for futurist job descriptions. The team analyzed more than three-dozen job descriptions that enabled fleshing out the sectors and specializations.

### How to Use the Model?

CMs have been used increasingly in HR and beyond in the last decades (Ennis 2008). In the examples documented, a variety of uses cases have been shown to be beneficial (Ennis 2008; Sanghi 2016). For example, the Competency Model Clearing House (2017) provides user guides and worksheets for five specific ways of applying a CM:

- *Communicate workforce needs:* Use CMs to communicate the needs of your organization or industry.



**Figure 2.** Foresight competency model.

- *Identify credential competencies:* Develop or update a certification, license, or assessment using CMs.
- *Develop curriculum:* Use CMs to assess or develop a curriculum.
- *Perform HR activities:* Measure worker performance, assess training needs, and select or recruit workers using CMs and career ladders/lattices.
- *Career exploration and guidance:* View the competencies needed in selected industries to help determine which career is right for you.

Other sources on utilizing CMs show comparable categorizations (Markus et al. 2005; Sanghi 2016). Thus, as models in other professions, the APF Foresight Competency Model can be used in a variety of ways, from a one-off “competency check” to a framework for much longer-term-oriented competency

development for and by an individual, or for and by a team. In all its use cases, the underlying logic is similar: the Foresight Competency Model serves as a framework or benchmark for systematically analyzing existing and desired or needed future competencies. Thus, it enables individuals, team leaders, and teams to answer questions and empower actions along the lines of,

- In what way do my/my team’s professional foresight competencies draw from foundational competencies already in play?
- Which strengths and gaps in my/our competencies can be identified for me/the team?
- Which areas of competencies should be developed further—in the sense of filling gaps or in the sense of further building on proficiency?

- After a period of having worked with the model: where have I/has the team made progress, where have I/the team met (or not met) the targets of competency development? How are the needs for competencies shifting in our practice, and which actions can I/can we take to answer to those needs?

In such a process, the model serves as a starting point to systematically analyze and develop one's own or a team's competencies. As all profession's CMs, they should not be regarded as sacrosanct, fully exhaustive, or in any way prescriptive, but as tools that can and should be adapted to the use case at hand. However, they provide a shared benchmark from which a structured conversation and a systematic process of competency development can start.

These questions will, of course, first and foremost be answered on an individual level, but in the case of a team, they can also be used to map strength and weaknesses in a full team's competency portfolio, thus, aiding team development, training decisions, job descriptions, and interview processes for future team members. Table 7 uses a simplified grid to show how different use cases of the Foresight Competency Model can, for example, be characterized by the "user" and reach.

Two examples illustrate more concretely what these kinds of use cases imply—competency development processes for the individual's use and for the use by a team leader in an organizational context. Both use cases are anonymized examples from one of the authors' consultancy practice, Future Impacts. They are meant as an illustration of what working with the CM implies. Both cases refer to developing competencies within the time frame of a year, which is commonly used for most personnel development cycles. These use cases were chosen as they will probably be the most used forms of working with the model in its early stages of use.

### *Individual Use Case*

For the individual use case, the user follows four main steps:

1. Identify current strengths and gaps in competencies

The user identifies their current match with the competencies from the model, mapping where there are strengths and gaps. This can be realized by using a simple "yes-or-no-principle," or rating one's mastery of the competency on a scale of one to ten. Ideally, this would not be realized by the individual alone, but also by utilizing feedback from a coworker, client, or colleague.

2. Select one to five priority areas in which to further develop critical competencies

The aim here is to find a manageable number of competencies on which to focus development efforts for the next year. Several approaches are possible, which can roughly be characterized by either focusing on gaps or on strengths. In the case used here, a mix of both approaches was chosen, to relate to both paradigms and the associated motivational aspects. Thus, in the set of five chosen priority areas for competency development, there were areas where competency mastery was extremely low (i.e., where competencies were lacking) as well as areas where competency mastery was high (implying the potential for competitive advantage when building further on these competencies). Also, competencies were rated in terms of the impact they have in the user's individual job success. For example, in the case of the author, the user was a self-employed consultant, so that communication-related competencies were rated highly, as these determined the consultant's projects' success to a high degree. Both ratings (scores for competency mastery, scores for impact on success) were brought together, and five of the competencies that scored most extreme in terms of competency mastery and highest for impact on success were selected as priority areas.

3. Create an action plan for how to develop the competencies (e.g., identify training and mentoring opportunities, etc.)

This step creates an action plan for each of the focus areas. For the areas with a low mastery

**Table 7.** Characteristics of Different Use Cases of the Competency Model and Prototypical Steps.

Users/guiding questions & steps	Team leader in an organizational context		
	Individual	For working with an individual team member	For developing a team
<i>Guiding question</i>	What is my current set of skills compared with those listed in the model, and which do I want to develop further?	What is the team member's current set of skills compared with those listed in the model, and which should he or she develop further?	What is the team's current set of skills compared with those listed in the model, and which should we develop further?
<i>Steps</i>	<ul style="list-style-type: none"> <li>• Identify current strengths and gaps in competencies.</li> <li>• Select one to five priority areas in which to further develop critical competencies.</li> <li>• Create and realize action plan for how to develop the competencies (e.g., identify training and mentoring opportunities, etc.).</li> <li>• Regularly review and adapt.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify current strengths and gaps in competencies (together with team member).</li> <li>• Select one to five priority areas in which to further develop critical competencies (together with team member).</li> <li>• Create and realize action plan for how to develop the competencies (e.g., identify training and mentoring opportunities, etc.).</li> <li>• Regularly review and adapt.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify individual team members' current strengths and gaps in competencies.</li> <li>• Identify current strengths and gaps in competencies across the full team (building on individual team's competency mapping).</li> <li>• Select one to five priority areas in which to further develop critical competencies in the team.</li> <li>• Create and realize action plan for how to develop the competencies (e.g., identify training and mentoring opportunities, hiring new staff, creating mentoring teams, etc.).</li> <li>• Regularly review and adapt.</li> </ul>

score, this implies identifying training, where in the case of the author, a mix of virtual and face-to-face trainings was chosen. For the areas with a high mastery score, this can imply joining or creating groups, such as bringing together professionals with a high level of competencies in specific areas. These areas might include a community of practice or mastermind groups, or seeking out a mentor or co-coach in the specific area of expertise.

4. Regularly review and adapt

To ensure that progress is sustainable, a regular review of measures realized and results

achieved is critical. In the case of the author over the course of the year in which the process was applied, two dates were set in which the current progress against the implementation plan was reviewed, with slight adaptations to the plan after the first review round. At the end of the year, a full review was conducted, analyzing what went well in the process and what was problematic, and identifying future areas for further competency development. Ideally, after the end of the first year's use of working with the model, a continuous process would be implemented in which competencies are regularly and systematically reviewed and developed further.

## Team Use Case

The *use case with a team* roughly applies the same steps as individual use of the model, but the process differs in its complexity and in terms of the interactions within the team that must be integrated. In the author's example case, this led to five main steps that were realized. The following outlines only the specifics of the team application and refrains from repeating details on the steps that are the same as in the individual use case.

1. Identify current strengths and gaps in competencies of individual team members

The process is the same as described for the individual use case. However, it will be conducted by the team member and the team leader, leading to shared view. This would usually be realized in the context of a performance review and can feed into goal-setting processes.

2. Identify current strengths and gaps in competencies of the full team

Once the full team has gone through the process of the individual competency mapping (Step 1), a "team competency map" can be compiled on this basis. Such a team competency map analyzes and visualizes existing strengths and gaps in the team, and can serve as a basis for a team process on developing proficiency as a team. In our case, such a map was compiled by the team leader and then brought as a starting point into a workshop with the full team.

3. Select one to five priority areas in which to further develop critical competencies

In the team competency workshop, with the CM and map as a benchmark, a structured reflection on where the team can and needs to develop was realized. For example, for this team, it became clear that while it excelled in communication, there were significant gaps in specific methodologies, such as for scanning or visioning. In consequence, as one of the main outcomes of the workshop, the team

agreed on focusing during the next year on increasing the respective methodological skills, and distributed the respective areas of development within the team according to existing knowledge and personal interest. The outcome of this team workshop was then fed back into the individual team member's competency development plans, and these were adapted and finalized accordingly.

4. Create and realize action plan for how to develop the competencies (e.g., identify training and mentoring opportunities, etc.)

As in the individual use case, for the respective focus areas, a variety of measures was identified and implemented to develop the respective focus areas. However, in team development, the team competency map can also be used to create synergies and implement additional measures. For example, for covering one specific focus area, the team leader was able to initiate cooperation with another department that enabled transferring skills to the foresight team and vice versa. Also, a mechanism was implemented to share learning progress and enable team members to benefit from other team members' competency building activities (this was realized in regular "Competency Fridays" in the form of semi-structured learning sessions). Furthermore, for some competency areas, mentoring or co-coaching teams were formed within the team.

5. Regularly review and adapt

As in the individual case, formal review processes were implemented to ensure sustainable progress. This happened on two levels: on the individual level, with feedback sessions between the team leader and individual team members, and with the overall team in biannual team workshops. As a result of the participative reflection process, this process will be integrated into the strategy development of the foresight team.

## APF Intended Uses

For the APF rollout of the model, documented use cases of the model can and should also

flow back into the model as such and inform a continuing practice of reflecting on the shifting landscape of competency needs in the field. Especially for aiding and structuring dialogue around the emerging needs in newer forms of foresight practice, such as experiential futures (Daheim and Hirsch 2015), the model can serve as a starting point. It is expected to develop further in this process of gaining more experiences in its usability. An adaptive, forward-looking approach that takes into account not only a prescribed set of competencies, but also focuses on identifying needs for competencies that are emerging, seems on one hand to be especially suitable for a forward-looking profession, and on the other hand, called for in the face of a rapidly changing nature of skills in nearly all professions (Markus et al. 2005). By developing respective processes, the futurist field could shape not only its own profession, but also the overall practice of working with CMs. This will be especially relevant given the ongoing discourse around the shifting nature of work, and can help to overcome existing limitations of the usually retrospective practice of working with CMs (Markus et al. 2005).

The team recognized that its work was intended to provide a foundation for subsequent professionalization efforts, such as building a professional development pathway and defining professional standards; thus, it was decided to “take our time” and not rush the effort. The work on the model took more than a year, and the approval and modifications added another six months. The FCM was accepted by the Board and communicated to the membership. Among the planned and actual applications:

- *Orientation*: Include the FCM in the APF’s “New Member Meetups” that introduce new members to the APF and the work of professional futurists.
- *Career development*: Use the FCM as a tool for the individual APF member in career development, as well as for developing a professional career development ladder. The identification of three distinct levels of futurist jobs

(entry-level, associate, and senior) within the three sectors (consulting, organizational, academic) provides a tangible example useful not only to futurists for planning their individual careers but also to clients interested in hiring futurists.

- *Professional development*: Use the FCM in professional development planning and activities. While APF has been doing professional development since its inception, the FCM provides a framework around which to structure future education and training efforts. APF is still considering whether to move to formal credentialing; if that path is chosen, the FCM would be central to building such a program.
- *Public relations*: The FCM can be used to respond to the many inquiries APF receives along the lines of “what do futurists do?” A key goal of the Professionalization Task Force was to help APF in particular and futurists in general tell a consistent story about the work that futurists do. The FCM can also be used in discussions and potential collaborations with foresight ecosystem partners. It provides a consistent description of what futurists generally do, which can be used to compare and contrast with what partners do.

## What Else?

In the process of developing the FCM, team members realized how the professional process of foresight itself was changing. A point of interest to one of the U.S.-based authors was a strong reaction against the proposed use of the term “forecasting” as one of the six foresight core competencies. The resistance was strongest among European team members, where its use has fallen out of favor with professional futurists. In the United States, while there is a community of forecasters doing traditional, mostly quantitative forecasts, many futurists still use the term—essentially sharing it with forecasters. But given the strong reaction against it, it was replaced with “futuring.”

“Prospection” was a term given much consideration as well, but the desire to keep the terms all in gerund form required “prospecting,” which sounded a bit too much like searching for gold or sales leads.

Some might be surprised to see “design” incorporated as one of the six foresight competencies. This reflects the growing cooperation between the fields of design and foresight (Hines and Zindato 2016). APF has been active in pursuing design topics in its professional development and annual conferences. It also reflects the increasing pressure on futurists to move across the value chain toward implementation via prototypes, artifacts, and more direct action. Thus, planning was “demoted” to a subcategory or descriptor of designing.

Compiling the academic competencies raised an interesting discussion. The initial thinking was to draw on work done by the graduate programs in foresight that identified commonalities in what and how they taught (Bishop 2016). The CM approach to academic competencies, however, is to keep them more general. Given that academic teaching content closely resembled the foresight core competencies of what practitioners used in the field, it was decided to keep them generic. The team turned to academic competencies developed by Lumina Foundation as part of its generic degree plan (Adelman et al. 2014). This approach proved more useful than the “drop-down” suggestions from the DOL/ETA template. Tiers 1 and 3 of the foundational competencies were adopted straightforward in terms of selecting competencies from the menu choices that fit best with foresight work. One addition to the workplace competencies was systems thinking—that was felt to be core to futurists, but was not showing up in the DOL/ETA model up to that point.

An interesting issue in putting together the Tier 5 or sector competencies and Tier 6 occupation-specific competencies was whether the longtime division into consulting, organizational, and academic roles still made sense. The team considered adding a fourth category called “emerging” to account for new types of jobs, but did not find sufficient need for one at this time.

DOL/ETA published an article on the Foresight Competency Model, but did not officially accept it onto their site that hosts several dozen CMs from other industries. The reasoning is that the process must be done under the guidance of their consultants to be officially accepted (U.S. DOL/ETA 2016). Work by the Professionalization Task Force that preceded the CM project assessed the degree to which foresight met or did not meet various criteria typical of established professions. The Task Force agreed with previous work by a member (Hines and Gold 2013, 43) that found Foresight only met three of ten criteria. The Task Force went on to define a professionalization path, of which the CM was an important step. Thus, it did not seek professional recognition from the DOL/ETA or any governing body. Rather, the plan is to first strengthen the case for professionalization over time.

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### References

- Adelman, Cliff, Peter Ewell, Paul Gaston, and Carol Geary Schneider. 2014. *The Degree Qualifications Profile: A Learning-Centered Framework for What College Graduates Should Know and Be Able to Do to Earn the Associate, Bachelor's or Master's Degree*. Indianapolis: Lumina Foundation.
- Ahuja, Gautam, Russell Coff, and Peggy Lee. 2005. “Managerial Foresight and Attempted Rent Appropriation: Insider Trading on Knowledge of Imminent Breakthroughs.” *Strategic Management Journal* 26 (9): 791–808.
- Alsan, Alper. 2008. “Corporate Foresight in Emerging Markets: Action Research at a Multinational Company in Turkey.” *Futures* 40 (1): 47–55.
- Amsteus, Martin. 2008. “Managerial Foresight: Concept and Measurement.” *Foresight* 10 (1): 53–66.

- Amsteus, Martin. 2011a. "Managers' Foresight Matters." *Foresight* 13 (2): 64–78.
- Amsteus, Martin. 2011b. "Managerial Foresight: Measurement Scale and Estimation." *Foresight* 13 (1): 58–76.
- Barney, Jay. 1991. "Firm Resources and Sustained Competitive Advantage." *Journal of Management* 17 (1): 99–120.
- Barney, Jay. 1997. *Gaining and Sustaining Competitive Advantage*. Reading, MA: Addison-Wesley.
- Bishop, Peter. 2016. "The University Foresight Network: The Search for Common Ground among Foresight Educators." *World Future Review* 8 (1): 6–11.
- Bishop, Peter, Jennifer Jarratt, Riel Miller, and Cindy Frewen. 2017. *The Future of Foresight* (Working document). Houston, TX: Association of Professional Futurists.
- Boyatzis, Richard. 2008. "Competencies in the 21st Century." *Journal of Management Development* 27 (1): 5–12.
- Boyatzis, Richard, and Argun Saatcioglu. 2008. "A 20-Year View of Trying to Develop Emotional, Social and Cognitive Intelligence Competencies in Graduate Management Education." *Journal of Management Development* 27 (1): 92–108.
- Bravenboer, Darryll, and Stan Lester. 2016. "Towards an Integrated Approach to the Recognition of Professional Competence and Academic Learning." *Education + Training* 58 (4): 409–21.
- Buchen, Irving. 2005. "The Futures Agenda of the Future CEO." *Foresight* 7 (2): 3–7.
- Campion, Michael, Alexis Fink, Brian Ruggeberg, Linda Carr, Geneva Phillips, and Ronald Odman. 2011. "Doing Competencies Well: Best Practices in Competency Modeling." *Personnel Psychology* 64 (1): 225–62.
- Candy, Stuart. 2010. "The Futures of Everyday Life: Politics and the Design of Experiential Scenarios." Doctoral thesis. University of Hawai'i, Manoa.
- Chermack, Thomas. 2007. "Disciplined Imagination: Building Scenarios and Building Theories." *Futures* 39 (1): 1–15.
- Chia, Robert. 2004. "Re-educating Attention: What Is Foresight and How Is It Cultivated?" In *Managing the Future: Foresight in the Knowledge Economy*, edited by Haridimos Tsoukas and Jill Shepherd, 21–37. Malden, MA: Blackwell Publishing.
- Coates, Joseph. 2000. "On Being a Futurist." In *Gone Today, Here Tomorrow: Millennium Previews*, edited by Richard Slaughter. Sydney: Prospect.
- Competency Model Clearing House. 2017. *Competency Model User Guides*. <https://www.careeronestop.org/CompetencyModel/cmuserguide.aspx> (accessed January 15, 2017).
- Costanzo, Laura, and Robert MacKay. 2009. *Handbook of Research on Strategy and Foresight*. 1st ed. Cheltenham: Edward Elgar.
- Daheim, Cornelia, and Sven Hirsch. 2015. "Emerging Practices in Foresight and their Use in STI Policy." *STI Policy Review* 6 (2): 24–53.
- Daheim, Cornelia, and Gereon Uerz. 2008. "Corporate Foresight in Europe: From Trend Based Logics to Open Foresight." *Technology Analysis & Strategic Management* 20 (3): 321–36.
- Day, George, and Paul Schoemaker. 2005. "Scanning the Periphery." *Harvard Business Review* 83 (11): 135–48.
- de Geus, Arie. 1997. "The Living Company." *Harvard Business Review* 75 (2): 51–59.
- Ennis, Michelle. 2008. *Competency Models: A Review of the Literature and the Role of the Employment and Training Administration (ETA)*. Office of Policy Development and Research, Employment and Training Administration, U.S. Department of Labor. [https://www.careeronestop.org/competencymodel/Info\\_Documents/OPDRLiteratureReview.pdf](https://www.careeronestop.org/competencymodel/Info_Documents/OPDRLiteratureReview.pdf) (accessed January 15, 2017).
- Gary, Jay. 2009. "Foresight Styles Assessment: Testing a New Tool for Consulting Futurists." *Journal of Futures Studies* 14 (1): 1–26.
- Gary, Jay, and Heiko von der Gracht. 2015. "The Future of Foresight Professionals: Results from a Global Delphi Study." *Futures* 71:132–45.
- Grim, Terry. 2009. "Foresight Maturity Model (FMM): Achieving Best Practices in the Foresight Field." *Journal of Futures Studies* 13 (4): 69–80.
- Hamel, Gary. 2009. "Moon Shots for Management." *Harvard Business Review* 87 (2): 91–98.
- Hamel, Gary, and C. K. Prahalad. 1994. "Competing for the Future." *Harvard Business Review* 72 (4): 22–28.
- Hayward, Peter. 2005. *From Individual to Social Foresight*. Melbourne: Swinburne University.
- Hines, Andy. 2003. "The Futures of Futures: A Scenario Salon." *Foresight* 5 (4): 28–35.
- Hines, Andy. 2009. "How Accurate Are your Forecasts? More Accurate than You Might Think." *World Future Review* 1 (5): 5–22.
- Hines, Andy. 2012. "The Role of an Organizational Futurist in Integrating Foresight into

- Organizations.” Doctoral thesis. Leeds Metropolitan University, Leeds.
- Hines, Andy. 2014. “A Training Ground for Professional Futurists.” *The Futurist* 48 (5): 43.
- Hines, Andy. 2016. “‘Final’ Version of Foresight Competency Model.” Association of Professional Futurists Blog, August 3. <http://apf.org/2016/08/03/final-version-of-foresight-competency-model/> (accessed October 1, 2016).
- Hines, Andy, and Peter Bishop. 2015. *Thinking about the Future: Guidelines for Strategic Foresight*. 2nd ed. Houston: Hinesight.
- Hines, Andy, and Jeff Gold. 2013. “Professionalizing Foresight: Why Do It, Where It Stands, and What Needs to Be Done.” *Journal of Futures Studies* 17 (4): 35–54.
- Hines, Andy, and Danila Zindato. 2016. “Designing Foresight and Foresighting Design: Opportunities for Learning and Collaboration via Scenarios.” *World Future Review* 8 (4): 180–92.
- Hirsch, Wendy, and Maire Strebler. 1994. “Defining Managerial Skills and Competences.” In *Gower Handbook of Management Development*, edited by Alan Mumford, 79–96. Aldershot: Gower.
- Jarzabkowski, Paula, Julia Balogun, and David Seidl. 2007. “Strategizing: The Challenges of a Practice Perspective.” *Human Relations* 60 (1): 5–27.
- Keller, Jonas, and von der Gracht, Heiko. 2014. “ICT and the Foresight Infrastructure of the Future: Effects on the Foresight Discipline.” *World Future Review* 6 (1): 40–47.
- Kouzes, Jerry, and Barry Posner. 2002. *The Leadership Challenge*. San Francisco: Jossey-Bass.
- Lester, Stan. 2014. “Professional Standards, Competence and Capability.” *Higher Education, Skills and Work-Based Learning* 4 (1): 31–43.
- Lester, Stan. 2016. “The Development of Self-Regulation in Four UK Professional Communities.” *Professions and Professionalism* 6 (1): 1711–24.
- Lester, Stan, and Carol Costley. 2010. “Work-Based Learning at Higher Education Level: Value, Practice and Critique.” *Studies in Higher Education* 35 (14): 561–75.
- Major, Edward, David Asch, and Martyn Cordey-Hayes. 2001. “Foresight as a Core Competence.” *Futures* 33 (2): 91–107.
- Markus, Leanne, Helena Cooper-Thomas, and Keith Allpress. 2005. “Confounded by Competencies: An Evaluation of the Evolution and Use of Competency Models.” *New Zealand Journal of Psychology* 34 (2): 117–26.
- McClelland, David. 1973. “Testing for Competence rather than for Intelligence.” *American Psychologist* 28 (1): 1–14.
- Miller, Riel. 2008. “Being without Existing: The Futures Community at a Turning Point? A Comment on Jay Ogilvy’s ‘Facing the Fold’.” *Foresight* 13 (4): 24–34.
- Montgomery, Cynthia. 2008. “Putting Leadership Back into Strategy.” *Harvard Business Review* 86 (1): 54–60.
- Parkinson, Alan, and Lysie Chew. 2016. “An Analysis of Applied Professional Teaching Practices in Relation to Research and Policy.” *The Business and Management Review* 7 (3): 317–25.
- Portnoy, Rob. 1999. *Leadership: 4 Competencies for Success*. Upper Saddle River: Prentice Hall.
- Prahalad, C. K., and Gary Hamel. 1990. “The Core Competence of the Corporation.” *Harvard Business Review* 68 (3): 79–91.
- Raford, Noah. 2012. “From Design Fiction to Experiential Futures.” In *The Future of Futures*, edited by Andrew Curry, 25–26. Houston, TX: Association of Professional Futurists.
- Reid, David, and Stelios Zyglidopoulos. 2004. “Causes and Consequences of the Lack of Strategic Foresight in the Decisions of Multinational Enterprises to Enter China.” *Futures* 36 (2): 237–52.
- Rhee, Kenneth. 2008. “The Beat and Rhythm of Competency Development over Two Years.” *Journal of Management Development* 27 (1): 146–60.
- Rohrbeck, Rene. 2011. *Corporate Foresight: Towards a Maturity Model for the Future Orientation of a Firm*. Berlin: Physica-Verlag.
- Sanchez, Ron. 2004. “Understanding Competence-Based Management: Identifying and Managing Five Modes of Competence.” *Journal of Business Research* 57 (5): 518–32.
- Sanghi, Seema. 2016. *The Handbook of Competency Mapping: Understanding, Designing and Implementing Competency Models in Organizations*. New Delhi: Sage.
- Schippmann, Jeffrey, Ronald Ash, Mariangela Battista, Linda Carr, Lorraine Eyde, Beryl Hesketh, Jerry Kehoe, Kenneth Pearlman, Eric Prien, and Juan Sanchez. 2000. “The Practice of Competency Modeling.” *Personnel Psychology* 53 (3): 703–40.
- Slaughter, Richard. 1990. “The Foresight Principle.” *Futures* 22 (8): 801–19.

- Slaughter, Richard. 1996. "Futures Studies: From Individual to Social Capacity." *Futures* 28 (8): 751–62.
- Slaughter, Richard, Sohail Inayatullah, and Jose Ramos. 2007. *Knowledge Base of Futures Studies*. Vols. 1–5. Indooroopilly, Australia: Foresight International.
- Spencer, Lyle. 1997. "Competency Assessment Methods." In *What Works: Assessment, Development, and Measurement*, edited by Darlene Russ-Eft and Laurie Bassi, 1–36. Alexandria: American Society for Training and Development.
- Spencer, Lyle, and Signe Spencer. 2008. *Competence at Work Models for Superior Performance*. Hoboken: John Wiley.
- Stevens, Gregory. 2013. "A Critical Review of the Science and Practice of Competency Modeling." *Human Resource Development Review* 12 (1): 86–107.
- Sutton, Paul. 2016. *Australian Quarrying Futures: An Evaluation of Future-Oriented Capabilities of Strategy Level Leaders*. Toowoomba: University of Southern Queensland.
- Tsoukas, Haridimos, and Jill Shepherd. 2004. *Managing the Future: Foresight in the Knowledge Economy*. Malden, MA: Blackwell Publishing.
- U.S. Department of Labor, Employment and Training Administration. 2015. *Technical Assistance Guide for Developing and Using Competency Models*. [http://www.careeronestop.org/competencymodel/cInfo\\_Documents/TAG.pdf](http://www.careeronestop.org/competencymodel/cInfo_Documents/TAG.pdf) (accessed October 1, 2016).
- U.S. Department of Labor, Employment and Training Administration. 2016. "Futurist Industry Association Develops Foresight Competency Model." *Competency Models in Action*. [http://www.careeronestop.org/competencymodel/info\\_documents/futurist-casesummary.pdf](http://www.careeronestop.org/competencymodel/info_documents/futurist-casesummary.pdf) (accessed October 1, 2016).
- van der Laan, Luke. 2010. *Foresight Competence and the Strategic Thinking of Strategy-Level Leaders*. Darling Heights: University of Southern Queensland.
- van der Laan, Luke, and Ronel Erwee. 2012. "Foresight Styles Assessment: A Valid and Reliable Measure of Dimensions of Foresight Competence." *Foresight* 14 (5): 374–86.
- van der Laan, Luke, and Ronel Erwee. 2013. "In Good Hands? Foresight and Strategic Thinking Capabilities of Regional University Leaders." In *Proceedings of the 36th Higher Education Research and Development Society of Australasia Conference (HERDSA)*, edited by S. Frielick, N. Buissink-Smith, P. Wyse, J. Billot, J. Hallas, and E. Whitehead. Auckland, New Zealand: Higher Education Research and Development Society of Australasia.
- Winterton, Jonathan, and Ruth Winterton. 1999. *Developing Managerial Competence*. New York: Routledge.
- Yukl, Gary. 2006. *Leadership in Organizations*. 8th ed. Boston: Pearson.
- Zemke, Ron. 1982. "Job Competencies: Can They Help You Design Better Training?" *Training* 19 (5): 28–31.

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