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Building Foresight Capacity: Toward a Foresight Competency Model

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Abstract

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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 1998, 1990). 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 & Prahalad 1994, Prahalad & Hamel 1990). This came to be known as a resource-based view, or how well a firm combined 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. Following this premise, some argued that *foresight* itself was a core competence to manage the future in our knowledge economy (Major et al. 2001, Tsoukas & 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, 2011, Gary 2009, van der Laan & Erwee 2012); others documented "corporate foresight" practices (Daheim & Uerz 2008); while still others developed organizational foresight maturity models (Grim 2009, Rohrbeck 2011). By 2012, many applied futures 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 2010).

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 23 futurists from 4 continents working on issues in professionalizing foresight that had been identified in Delphi studies and competitive industry analysis (Gary & von der Gracht 2015, Hines & Gold 2013).

Beyond stimulating further discussion among its 400+ members on what it takes to be a professional futurist, the APF intends the model to shape its internal approach to professional development. The purpose of this multi-cluster model is 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 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). The various academic programs have their perspectives on what should be taught to futurists, and have identified concepts in common (Bishop 2016).

The Foresight Competency Model is not intended to be static or fixed, but rather to evolve along with the field it describes. This article documents how APF came to develop this model, to describe how other fields have used competency models to define what professionals do, to explain the interrelated features of the model, and to suggest ways that organizations can use the model to enhance the foresight capacity of its talent.

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 judgement (Parkinson & 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). The associations have traditionally fulfilled this function by stipulated education and training routes, with a more recent trend towards defining the competencies for practice (Lester & Costley 2010).

Individual foresight is differentiated from foresight as a process or foresight as an organizational capability. The concept of foresight has often and broadly been referred to in the literature as a desirable attribute or ability. The cognitive ability to practice foresight as a professional or as part of a profession, however, is rarely defined in the literature (Sutton 2016). This poses a challenge to those who practice foresight and / or define their profession in terms of foresight.

2.1 Competences and competencies

The literature is elusive in its definition of the concept of competence and its distinction from competency and capability. In view of its importance to the successful fulfilment of foresight tasks, the professional ability of futurists and the lack of broadly accepted competencies, a brief reference to the literature will be made.

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). Le Deist and Winterton (2005) review the divergence of competence research and suggest that a one-dimensional approach that mostly featured McLelland's work is no longer adequate. They suggest a typology of competences that distinguishes between functional (task oriented), cognitive (knowledge oriented), social (behavior oriented) and meta-competences (transcendent higher-order competence). In terms of the latter, significant debate has arisen and remains unresolved relating to the hierarchical nature of identifying meta-competences and how these may be confused in the literature with the notion of capabilities. However, within the Le Deist and Winterton typology, the three dimensions of cognitive, functional, and social competences are universal and are clearly consistent with mainstream approaches.

An argument supporting the notion of foresight as a meta-competence could be validly made but the purpose of this article is limited in terms of the complexity and exploratory nature of such a research issue. As such this article will adopt what has been noted by the authors as "universal and consistent" in terms of the three dimensions noted in the literature. Deist and Winterton (2005) recognize that while an analytical differentiation of the three dimensions is possible, most competences overlap in practice and retain aspects of all three. Drawing on Mansfield (1989) and Eraut (1998), a major distinction can be made between models of competence that concern the attributes and abilities of individuals, and those that focus on the activities or functions that need to be performed competently in context. The latter is task completion focused and have been referred to as competenc*es* while the former is more focused on individual abilities and attributes and is referred to as competenc*ies* (Lester 2014).

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 a particular job demands and the context of the organizational environment (Boyatsis 2008). "Job demands" are the responsibilities of a particular role and the tasks that need to be performed to fulfil it. Hirsch and Strebler (1994) provide a typology that illustrates three features occurring in the context of competences: a) its association with a role and the organization within which it exists, b) its association with performance, c) specific behaviors that can be observed. This typology remains a reference point for current research that associated these features with Boyatzis' notion of task completion and superior performance (Hirsh & 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 agree that there is a lack of uniform definition (Boyatsis 2008, Lester 2014, Sanghi 2016, Spencer & Spencer 2008, Zemke 1982). Zemke goes as far as stating: "Competence, competencies, competency models, and competency-based training are all Humpty Dumpty words meaning only what the definer wants them to mean" (Zemke 1982, 4). This remains largely true today, yet within the competence literature sufficient evidence continues to support the concept of competence and clearly differentiates individual competence from competency.

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 (Boyatsis, 2008, Sanchez, 2004). Conclusions to this effect are contemporary and supported by empirical studies (Boyatsis & Saatcioglu 2008, Lester 2016, Rhee 2008, Sanghi 2016).

Due to the importance being placed on organizations needing more than task-specific competence in order to gain optimal outcomes in increasingly competitive environments, additional underlying attributes are being associated with superior performance and these are holistically referred to as a competency or in the plural, competencies (Boyatsis 2008, Bravenboer & Lester 2016, Lester 2014, Spencer & Spencer 2008). Spencer illustrates the differentiation by stating that a "competency is any individual characteristics that distinguishes superior from average performance" (Spencer 1997, 7). Figure 1 graphically illustrates a conceptual typology that differentiates a competence from a competency as derived from the literature in terms of its relationship to task completion and performance.
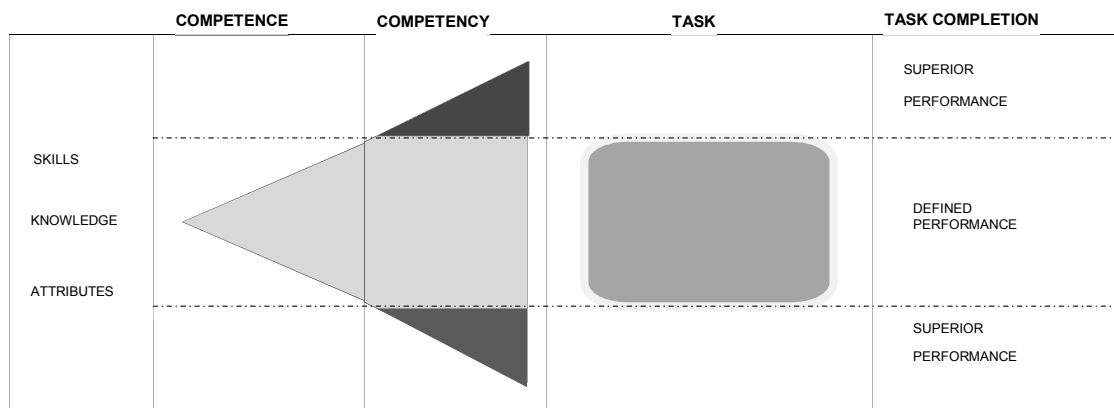
Fig. 1: Individual competence / competency typology (van der Laan 2010)

Winterton and 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 & 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) is referred to as individual competency. It is however acknowledged by the authors that this typology is highly contested especially in the capability literature but is justified given the significant literature support and contemporary practice associated with it. A discussion of the contrasting position is referred to below.

2.2 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). Spencer and Spencer (2008) and 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). Spencer further describes "time horizon" as "seeing further into the future, and planning or taking action based on anticipation of future situations" (Spencer 1997, 9). 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.

The analysis of foresight practice has generally focused on the methodologies, knowledge base, and case studies of foresight work (Bell 1996, Hines & Bishop 2015, Slaughter 1998, 1990). Yet these all depend on the cognitive skills, knowledge, and attributes of the individual practitioner. It is argued that a disciplined consideration of what competencies define the abilities of foresight practitioners or those that conduct foresight as part of their broader role, is largely missing from the literature. The notion of a foresight competence model seeks to identify the skills, knowledge and attributes that are required for fulfilling the tasks required of foresight practitioners and how these can be developed to function in diverse situations and contexts. Further, it is a key premise of this article that the aggregation of

foresight competence in organizations illustrates the organization's capacity to: a) conduct meaningful foresight activities, and b) develop the competence of foresight in its employees.

As this article is concerned with individual foresight competence, it is from an individual cognitive perspective that the foresight model was developed as opposed to a foresight process or organizational capability. Foresight at an individual level focuses on the mental processes -- both rational and intuitive -- used in developing images of the future as a form of cognitive intelligence. Individual foresight competence therefore compliments the institutionalized technique, process, or capability of foresight in its aggregated form.

Prior to developing a foresight competence model, it is critical to agree on a definition of foresight. "Foresight is the product of deep insight and understanding requiring a sustained and deliberate deconstruction of cognitions that dominate our habits of thought" (Chia 2004, 21). Chia confirms that foresight is a highly valued human capacity that is manifested in human cognition and evokes generative thought processes. Chia further asserts that foresight can be cultivated by systematically developing "peripheral" rather than "frontal" vision. This aligns with more recent literature that urges peripheral vision and foresight in becoming more effective professionals (Day & Schoemaker 2005, Hamel 2009) and optimizing performance in developing cognitive intelligence competencies (Boyatsis, 2008). Foresight is a "cognitive temporal perspective that leaders use to anticipate, clarify, and structure the future, so as to guide their organization in the present based on future opportunities" (Gary 2008, 4). Foresight in individuals can be measured, developed, and enhanced (Amsteus 2011, Hayward 2005, van der Laan 2010, van der Laan & Yap 2015).

Based on the definitions of individual foresight that align with it being an innate individual cognitive ability that can be developed as noted by (Amsteus 2008, Hayward 2005, Slaughter, Inayatullah & Ramos, 2007, Tsoukas & Shepherd 2004, and Reid & Zyglidopoulos 2004) the definition of foresight adopted by this article is a "*human ability to creatively envision possible futures, understand the complexity and ambiguity of systems and provide input for the taking of provident care in detecting and avoiding hazards while envisioning desired futures.*"

Many authors concur that foresight is a critical and desirable individual competency (Alsan 2008, Boyatsis & Saatcioglu 2008, Buchen 2005, Chermack 2007, Chia 2004, Costanzo & MacKay 2009, Day & Schoemaker 2005, de Geus 1997, Hamel 2009, Kouzes & Posner 2002, Major, Asch & Cordey-Hayes 2001, Montgomery 2008, Tsoukas & Shepherd 2004 and Yukl, 2006). Ahuja, Coff and Lee (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, Balogun & Seidl 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.

2.3 Competency models

In clearer definitional terms a competency model poses less of a challenge in terms of the literature. 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 "fits" 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. Competency models are usually structured hierarchically and often pictorially represented (Ennis 2008). From the McBer Consultants (McClelland's consulting practice) and Boyatzis' measures and development of competency model development, the use of competency models have globally proliferated across private and public organizations (Sanghi 2016). Numerous measures have underpinned the measurement and analysis of the role-specific competency models. These include job competencies survey (JCS), personal competence framework (PCF) and job competence assessment method (JCAM).

In addition to foundational competencies that span multiple occupations, higher-order competencies start defining the hierarchy of competencies needed for a particular role (Dubois & Rothwell 2004). Dubois and Rothwell refer to a number of higher-order competencies that are often associated with leaders and superior performance. These are noted as including visioning, enjoyment of learning, respect and initiative and may be perceived by critics as undefinable. Certainly, without underpinning from a rigorous competency modelling methodology, competencies such as these may prove immeasurable thereby undermining the purpose and definition of competency modelling.

Sanghi (2016), a highly cited and prolific proponent of competency modelling, notes that the rate of change in organizations and the workplace has resulted in less accurate and measured competency models flooding the Human Resource Management (HRM) domain. He notes that there is less methodological rigor in competency modelling practice and due to rapid change "the shelf-life of competency models ha[ve] diminished" (Sanghi 2016, 6). As a result, many organizations are noted to refer to a one-size-fits-all framework mostly consisting of generic competencies required of all workers. These generic competencies relate to transferable skills and knowledge as suggested by Dubois and

Rothwell (2004). Often the models are developed for leaders due to the superior performance related to leaders' roles. Sanghi notes that these are then often transferred to a broader worker population and as a result loses its "fit'. This has led to the discrediting of competency modelling yet, as Sanghi notes, the application of competency models continues to grow. The reason he notes is that despite the disagreement around what competences are and their definitions, competency models are very effective in promoting performance and bringing about organizational change.

If done according to a rigorous methodology, competency modelling is highly effective and a compelling approach to developing professional capacity and performance (Campion et al. 2011, Sanghi 2016, Shippmann et al. 2000, Stevens 2013). The ETA Competency Model Framework (Ennis 2008) illustrates a well-evidenced and effective framework for competency modelling. In addition to a comprehensively considering personal, academic, workplace, industry-wide and occupation specific levels of competency, the ETA Framework 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 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 predominantly development 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, despite the disagreement in the literature related to the definition of competency and the utility of competency models, there is significant evidence that applied in a contemporary, rigorous, developmental way, the efficacy of a competency approach to talent development is compelling.

Background

Why a competency model? As suggested above, there are many ways to think about what it means or takes to be a professional futurist. The Association of Professional Futurists first explored the future of the practice with a scenario project (Hines 2003). This activity helped the association frame it strategy, structure, and branding. 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. 2016), hosted Town Hall Meetings, and held a professional development day on a Future of Foresight project. In November 2013, [Author's] proposal for a task force for "Exploring potential roles for APF in the professionalization of foresight" was approved. The goal of this task force was to synthesize learning to date around professionalization and explore options for how APF might participate. The intent was to

raise appropriate issues and questions and to provide recommendations or options for considerations, not a definitive answer. Table 1 highlights the timeline of activities.

Table 1. Foresight competency model timeline

2002	APF founded
2003	APF Futures of Futures Scenario project
2011-2013	Developing the organization, e.g., annual Gatherings, annual Pro Development Days, *Compass* newsletter, Most Significant Futures Works Program, Student Recognition Program, Emerging Fellows, etc
2011	Future of Foresight Project launches; commissions three working papers on the future of the field
2012	Town Hall Meeting (World Future Society Conference)
2012	APF publishes Futures of Futures 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 kicks off
2015 (July 25)	World Future Society Conference, San Francisco A draft of the Tier 4 competencies was presented at another APF Town Hall Meeting at the site of the.
2015 (April)	Competency Model Story in APF Compass
2016 (February)	Presentation of Draft Model to APF Board

A full report of the Task Force activities is beyond the scope of this piece, which will focus on the development of the Foresight Competency Model. 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. The teams were charged with mapping out recommendations on how to proceed with each task.

Table 2. APF professionalization task teams

Team	Task
1.	Develop a foresight competency model Daheim, Gary, Smart, Curry
2.	Characterize the specialized work grounded in a body of theoretically based,

	discretionary knowledge & 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

Indeed, team 1 recommended that "the APF Board commission a team to draft a competency model for professional futurists' competences." They noted that competency models are used in HR, education, and by associations in order to map and visualize competencies that are necessary for 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.

Developing a competency model and other task team recommendations were presented to the APF Board in a report that was approved in November 2014. The process recommendations of the task team were:

- Identify previous attempts at competency models 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 e.g. Competency Model Clearing House
- Draft the competency map with a selected group
- "Test drive" the competency map with beta users, e.g. students, new members
- Create buy-in from stakeholders
- Finalize and roll out the competency map

3.1 Approach to developing the model

With the work endorsed and broadly outlined, a new Competency Model (CM) team was assembled to carry out the actual work of developing the competency model. The CM team consisted of [Author] (Germany), [Author] & [Author] (US), and [Author] (Australia). The first important decision was which model to follow. Team members investigated different approaches and it was decided that the US Department of Labor/Employment Training Administration (DOL/ETA) approach offered an excellent blend of comprehensiveness, a clear process, and user-friendly templates. Its website also includes competency models from over two dozen industries. It was recognized that using a US-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" (US DOL/ETA 2012). The CM team envisioned that the competency model could serve as a tool for the individual APF member in career development, can be used in education and can also serve as an orientation for "users" of foresight.

In addition to the development of the competency model, 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, i.e., consulting, organizational, and academic

The question is quickly raised around competency model of what? What is the field or profession for which the competencies are being characterized? Thus the tricky question of names and definitions – discussed in Section 2.2 above – of the field and its workers emerged, as it often has over the history of the field (Hines, 2012, 18-19). This raised some debate. After several rounds of discussion and revision, the recommendations are shown in Table 3.

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 in order to make better decisions in the present.
Practitioner	Professional Futurist	Professional futurists explore the future in order to help clients and stakeholders understand, anticipate, and influence the future.

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. [Author] enlisted Houston Foresight graduate students to help with that task. 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?"

On the question relating to careers raised above, on reviewing the DOL/ETA approach, it suggested an opportunity to bring in the task of refining the concept of futurist careers, since this work is intrinsic to

Tiers 5 and 6 of the model. The research uncovered a somewhat surprising number of job descriptions and enabled the team to craft generic types and levels of futurist jobs.

The team recognized that its work was intended to provide a foundation for subsequent planned 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.

3.2. DOL/ETA process

The DOL/ETA process is housed on a website (https://www.careeronestop.org/competencymodel/). Table 4 highlights the key steps of their process for developing a competency model.

Table 4. DOL/ETA competency model process

Step 1. Conduct research: gather and analyze background information.	• Defining the industry • Identifying the key occupations in the industry • Analyzing the required knowledge, skills, and abilities (KSAs) • Identifying and cataloging existing resources • Aligning the KSAs defined in the resources to the building blocks framework
Step 2. Develop draft competency model framework	• The draft competency model framework includes competency names with definitions and descriptions.
Step 3. Gather feedback from industry representatives	• Refine the draft model developed in Step 2 through input from subject matter experts and target users of the competency model.
Step 4. Refine the competency model framework	• Using industry experts as in Step 1, refine the draft model
Step 5. Validate the competency model framework	• Competency model framework should be distributed widely to industry associations and their membership.
Step 6. Finalize the model framework	

After launching the background work in Step 1, the team moved into the work of defining the competencies. While there are six sequential levels, it was decided to first focus on the key piece of the competency model – the Tier 4 Industry Technical Competencies. This level (along with Tier 5 Job Categories) is the most differentiated part of the model related to professional foresight. Indeed, Figure

2 puts these Tier 4 Technical competencies of foresight at the center of a graphical depiction of the model. They are labelled as "foresight competencies." In addition to naming the high level competencies, the process recommends developing a small number (roughly 2-4) of sub-competencies. It is enough to describe these sub-competencies via bullet lists.

The team started with the framework used in the *Thinking about the Future* text (Hines & Bishop, 2015) since that framework was developed in part with the assistance of the APF in its earlier professional development work a decade earlier. This framework is also a key part of Grim's (2009) Foresight Maturity Model, which was recommended by the 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 4 lists the six competencies and their sub-competencies that were developed.

Table 5. Six Foresight competencies

1. <u>Framing</u>: Scoping the project, defining the focal issue and current conditions
Scoping
• Defining and bounding the topic, specifying the geography and timeframe.
Mapping
• Locating the topic in its context, system, assumptions and world view; 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.<u>Scanning</u>: Exploring signals of change or indicators of the futures
Exploring
• Finding signals of change that affect the topic or system, aka "scanning hits."
Collecting
• Gathering the scanning hits into a structured inventory.
Analyzing
• Evaluating the scanning hits using agreed-upon criteria.
3. <u>Futuring</u>: Identifying a baseline and alternative futures
Letting Go
• Suspending pre-conceived notions of the future to challenge assumptions in order 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 alternatives 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.

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

Table 6. Foresight competencies and related methods

Framing	domain mapping, integral futures, organizational foresight audit, sense-making
Scanning	environmental scanning, bellwether analysis, CLA, content analysis, cross impact analysis, data mining, emerging issues analysis, leading/lagging indicators, stakeholder analysis, trend identification & analysis, patent analysis
Futuring	Delphi, gaming/simulation, historical analogy/pattern recognition, personas, predictive markets, roadmapping, scenarios (2x2, 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

In all, eight versions of the Tier 4 competencies were produced before the team felt confident it had done the best job it could in reaching consensus. A draft of the Tier 4 competencies was presented at another 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

The graphical depiction of the Foresight Competency Model is built around a center circle of the six foresight 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 occupational roles. The six competencies and the job sector and specializations were the primary focus of the APF work teams. The other supporting competencies were chiefly selections from drop-down menus common to other competency models (an exception to this with the academic competencies will be described below).

4.1 Foundational competencies

The *foundational competencies* form the foundation needed for one to be ready to enter the workplace.
- *Personal effectiveness competencies* are competencies are 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.

4.1 Professional competencies

The Foresight Sector Competencies represent broad sectors of foresight activities. The APF team sorted the foresight 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 the APF. The team considered other candidates under a proposed "emerging" category, but did not identify a strong new sector or a satisfying alternative scheme. 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 over three dozen job descriptions that enabled a fleshing out the sectors and specializations – this will be described fully in a follow-up piece.
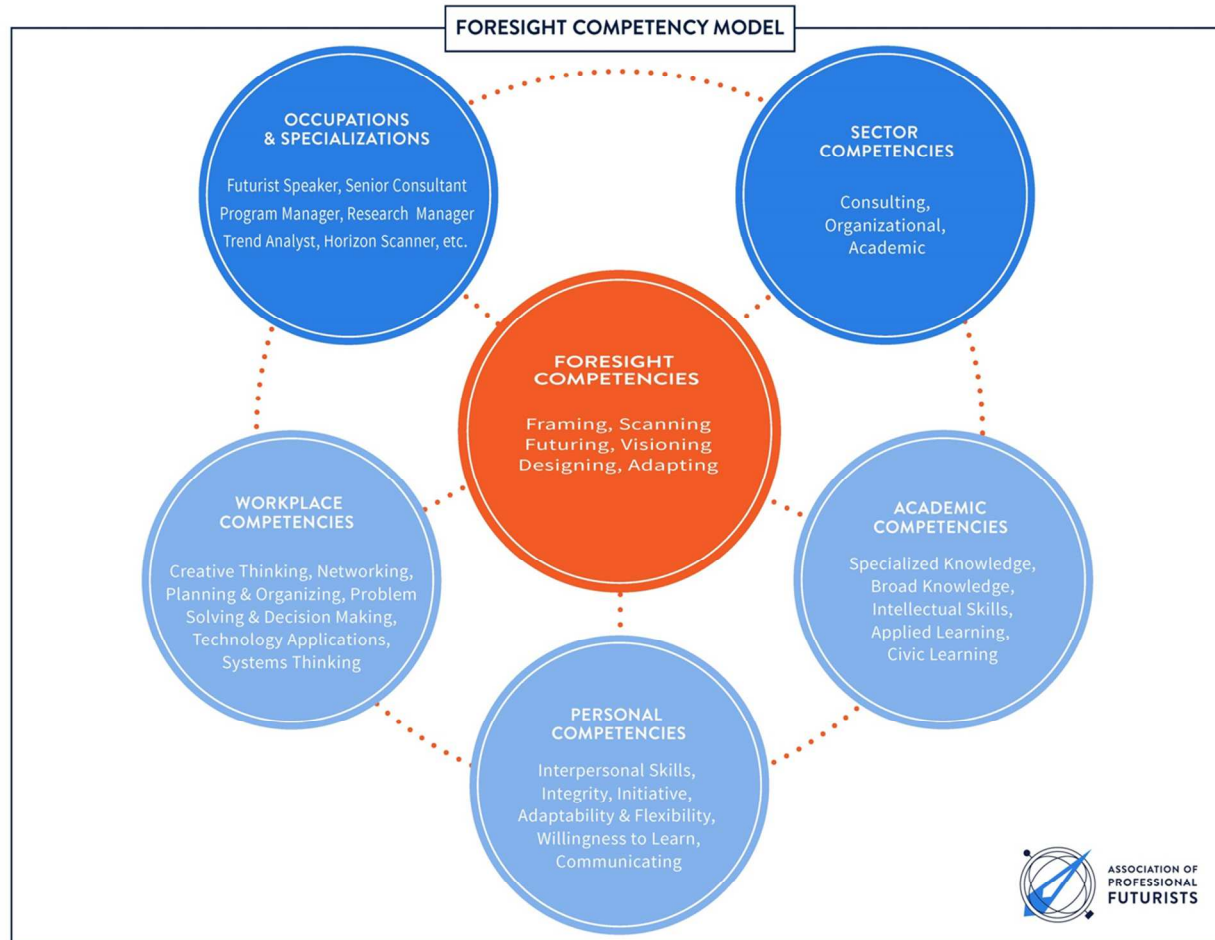
Fig. 2. Foresight competency model

Using the model

Competency models 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) even provides user guides and worksheets for five specific ways of applying a CM:

- *Communicate workforce needs*: Use competency models to communicate the needs of your organization or industry.
- *Identify credential competencies*: Develop or update a certification, license, or assessment using competency models.
- *Develop curriculum*: Use competency models to assess or develop a curriculum.
- *Perform human resources activities*: Measure worker performance, assess training needs, and select or recruit workers using competency models 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 the practice of utilizing competency models 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 for systematically analyzing and developing further one's own or a team's competencies. As all profession's competency models, it should of course not be regarded as sacrosanct, fully exhaustive or in any way prescriptive, but as a tool that can and should be adapted to the use case at hand. However, it provides 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. In a simplified grid, different use cases of the Foresight Competency Model can for example be characterized by the "user" and reach:

Table 7. Characteristics of different use cases of the competency model and prototypical steps

Users / Guiding Questions & Steps	Individual	Team leader in an organizational context	
		For working with an individual team member	For developing a team

Guiding question	*What is my current set of skills compared to those listed in the model, and which do I want to develop further?*	*What is the team member's current set of skills compared to those listed in the model, and which should he /she develop further?*	*What is the team's current set of skills compared to those listed in the model, and which should we develop further?*
Steps	• Identify current strengths and gaps in competencies • Select one to five priority areas in which to further develop critical competencies • Create and realize action plan for how to develop the competencies (e.g. identify training and mentoring opportunities etc.) • Regularly review and adapt	• Identify current strengths and gaps in competencies (together with team member) • Select one to five priority areas in which to further develop critical competencies (together with team member) • Create and realize action plan for how to develop the competencies (e.g. identify training and mentoring opportunities etc.) • Regularly review and adapt	• Identify individual team members' current strengths and gaps in competencies • Identify current strengths and gaps in competencies across the full team (building on individual team's competency mapping) • Select one to five priority areas in which to further develop critical competencies in the team • 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.) • Regularly review and adapt

Two examples will 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 Future Impacts' consultancy practice, and are meant as an illustration of what working with the competency model implies practically. Both cases refer to developing competencies within the timeframe 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.

5.1 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 co-worker, 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, in order 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 which scored most extreme in terms of competency mastery and highest for impact on success were selected as priority areas.

3) Create and realize 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 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, the regular review of measures realized and results achieved is critical. In the case of 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.

5.2 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 analyses 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 competency model 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) <u>Create and realize action plan for how to develop the competencies (e.g., identify training and mentoring opportunities, etc.)</u>

As in the individual use case, for the respective focus areas a variety of measures was identified and implemented in order 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 in the 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) <u>Regularly review and adapt</u>

As in the individual case, formal review processes were implemented in order 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 bi-annual team workshops. As a result of the participative reflection process, this process will be integrated into the strategy development of the foresight team.

Further use cases beyond these two examples of course exist, such as building a curriculum in teaching. For the APF roll-out 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 & 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 pre-described set of competencies, but also focuses on identifying needs for competencies that are emerging, seems on the one hand to be especially suitable for a per se 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. 2008). By developing respective processes, the futurist field could shape not only its own profession, but also

the overall practice of working with competency models. 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 competency models (Markus et al., 2008).

Discussion

The Foresight Competency Model process, commissioned by APF, was a two-year process, carried out by 23 professional futurists working together from different continents. In the process, the team members realized how the professional process of foresight itself was changing.

A point of interest to one of the US-based authors was a strong reaction against the proposed use of the term "forecasting" as one of the six core foresight competencies. The resistance was strongest among European team members, where its use has fallen out of favor with professional futurists. In the US, 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 & 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 direction action. Thus, planning was "demoted" to a sub-category 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 competency model approach, however, to academic competencies is to keep them more general. Given that academic teaching content closely resembled the Tier 4 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 were pretty adopted pretty straightforward in terms of selecting competencies from the menu choices that fit best with foresight work. One addition to Tier 3 was the introduction of systems thinking as a workplace competency – that was felt to be core to futurists, but was not showing up in the model to that point.

The tier 5 sector competencies reflect how the job market is organized and tier 6 looks at occupations and occupation-specific competencies. A de facto scheme of consulting, organizational and academic – used by the old WFS Professional Development Forum and subsequently adopted by APF was used as the starter proposition. The task force team had suggested a fourth category of emerging jobs to reflect the growing diversity of futurist roles, but it was judged by the team that this competency model consisted of present-day competencies, with an acknowledgement that the model out to be updated as new competencies emerge.

To complete these tiers, the team pooled job descriptions for futurists that it had from its own work and asked the APF membership to forward job descriptions they had used or seen (removing any organizational identifiers if needed). The team had more than three-dozen actual job descriptions to draw upon to help identify and sort out specific job competencies. It was able to sort those into entry-, mid-, and upper-level categories for consulting and organizational futurists.

DOL/ETA published an article on the Foresight Competency Model, but did not official accept it onto their site, as the process must be done under the guidance of their consultants to be officially accepted (US D0L/ETA, 2016). A draft model was prepared for the APF Board to review in February 2016. Their major suggestion was to update the graphical depiction from an original pyramid model that was a standard part of the DOL/ETA templates to the update figure above. This work was completed in July 2016.

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